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Abbreviations and Acronyms

AGAH	Animal Health Service (FAO)
CVO	Chief Veterinary Officer
DAH	Department of Animal Health (Government of Viet Nam)
ECTAD	Emergency Centre for Transboundary Animal Disease Operations (FAO)
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases
FAO	Food and Agriculture Organization of the United Nations
FAOR	FAO Country Representation
HPAI	Highly Pathogenic Avian Influenza
IT	Information Technology
LoA	Letter of Agreement
MARD	Ministry of Agriculture and Rural Development (Government of Viet Nam)
M&E	Monitoring and Evaluation
MoH	Ministry of Health
OIE	World Organisation for Animal Health
RAHO	Regional Animal Health Office (Government of Viet Nam)
RHO	Regional Health Office (Government of Viet Nam)
RAP	Regional Office for Asia and the Pacific (FAO)
TCE	Emergency Operations and Rehabilitation Division (FAO)
TCEO	Emergency Operations Service (FAO)
TCP	Technical Cooperation Programme (FAO)
ToR	Terms of Reference
UN	United Nations
USAID	United States Agency for International Development
USD	US Dollars
WHO	World Health Organization
V0	Project Pilot Area: withdrawing vaccination
V1	Project Pilot Area: Application of current nationwide mass vaccine campaigns ('control')
V2	Project Pilot Area: Novel vaccination strategy – most probably age-based

Executive Summary

Since autumn 2005 Viet Nam has been practicing mass vaccination of poultry, twice yearly in October and April, to control epidemic Highly Pathogenic Avian Influenza (HPAI) H5N1 with some considerable empirical evidence of success (Table 1). However, it has been recognized that this control strategy is not sustainable over the whole country in the long term. Therefore, an alternative or more likely many alternative control strategies will have to be devised as Viet Nam moves from initial emergency measures to a period of consolidation and ultimately on to the stated aim of control/eradication beyond 2010 (Green Book). The objective of this project is to provide field data by testing a number of alternative strategies including differing vaccination strategies and the complimentary strategy of improved surveillance.

This project will look at alternative vaccination strategies in both high and low risk provinces for HPAI H5N1 (High risk are Nam Dinh, Ninh Binh, Soc Trang and Hau Giang provinces; low risk is Quang Binh province). In a high risk province in the Red River Delta and a second province in the Mekong Delta, the alternative vaccination strategy being proposed is an age based vaccination strategy targeted at small commercial poultry units as this is where the majority of HPAI H5N1 outbreaks occur. The rationale for this is that improved immunity in smaller commercial farms will provide protection for the smaller backyard poultry. However, as this is a transitional strategy there will still be one round of vaccination (instead of the national twice-yearly campaigns) in backyard poultry units in November 2008 to protect them over the high risk time leading up to the Lunar New Year Festival 2009 (Tet). With the Government's agreement mass vaccination of backyard flocks could cease in late 2009 in the V2 areas. It is a transition towards the Government being less directly involved in vaccine delivery to small commercial and backyard poultry; transferring the financial burden of vaccination increasingly towards the farmer. The vaccine chosen for these trials is the Chinese Harbin inactivated oil adjuvant H5N1 vaccine as this is currently both the most immunogenic vaccine in chickens and ducks and the cheapest. In a selected low risk province which has decided not to have compulsory vaccination for chickens or ducks, an observation study will be carried out looking at the role of increased surveillance.

To complement these vaccination intervention studies, the following components will be carried out: a socioeconomic study to examine the cost as well as farmer actions and attitudes towards different strategies; in-depth epidemiological studies at outbreaks of HPAI H5N1 countrywide during the project to identify and evaluate risk factors; work on refining the current mathematical models to increase understanding of the dynamics and economics of vaccination; historical and prospective policy analysis to give a better understanding of the evolution of decisions and decision-making processes that led to the effective HPAI H5N1 vaccination campaigns in Viet Nam which started in 2005. In all the study areas, collaboration with the human health sector including surveillance for human cases or infection and joint outbreak investigation, will be ensured by the Ministry of Health (MoH).

The sum total of these studies should allow animal health policy-makers to make better informed choices on future HPAI control strategies.

1. BACKGROUND

1.1 General Context

Highly Pathogenic Avian Influenza (HPAI) caused by the H5N1 subtype of influenza A virus, led to international concern early in 2004 with its occurrence in several Asian countries. International organizations including the Food and Agriculture Organization of the United Nations (FAO), and many donors were swift to respond with support that initially focused on short-term activities to support urgent measures to limit the spread and improve surveillance and disease recognition and reporting.

Since the outset, the Government of the Socialist Republic of Viet Nam has shown high commitment to controlling the disease and has established a National Steering Committee which still convenes on a weekly basis. In May 2006 the Government approved the 'Integrated National Operational Programme for Avian and Human Influenza 2006-2010 (OPI)' commonly known as the 'Green Book' which sets out an overall five year plan. As a result of this, two major multisectoral initiatives, the 'Joint Government-UN Programme', and the World Bank's Viet Nam Avian and Human Influenza Control and Preparedness (VAHIP) Project, have been based and are in the implementation phase. Additional substantial support has been provided by the Governments of Japan and the United States of America, through Japanese Trust Fund (OSRO/RAS/602/JPN), and the United States Agency for International Development (USAID) (OSRO/RAS/505/USA and OSRO/RAS/604/USA), respectively.

Current projects are focussing on capacity building within the animal health and production sector, though there have been support for operational research. There is a need to focus further on the operational research angle, and to broaden evidence-based research to guide government policy.

Viet Nam has been one of the most successful countries in combating a very serious epidemic in poultry (more than 4 800 recorded outbreaks, the highest number reported of any country), with 106 human cases of infection identified (52 fatalities), and reaching a situation in which only a small number of HPAI outbreaks is occurring.

1.2 Sectoral Context

As with other countries in the region the livestock sector has been growing substantially within the last decade. This includes the poultry sector; most of the growth here has been through a large number of smaller commercial farmers increasing their outputs to meet local demand, and that of urban centres. This in turn has led to development of a complex value chain and further challenges to the veterinary services with respect to disease control. Conversely, development of integrated production systems has been much more modest with a small number of companies nationwide. Within the poultry sector there is a very high proportion of ducks, most of which is a mix of free-range, scavenging and nomadic. With a standing population of more than 60 million, Viet Nam's duck population is second only to the People's Republic of China globally. Stable development of the poultry sector will rely both on effective veterinary services and control measures such as surveillance and response, but also a need to change to more efficient and safe production practices.

Since October 2005 Viet Nam has been conducting a twice yearly mass vaccination of all chickens and ducks with the aim of reducing the human exposure to HPAI H5N1 virus. These

vaccination campaigns have obviously had a marked effect of reducing the prevalence of HPAI H5N1 virus infection in both humans and poultry (Table 1). However, other factors such as increased awareness of the disease in the human population and a reduction in poultry numbers and consumption of poultry products may have played a role in this effect.

Despite the success of mass vaccination of poultry in Viet Nam, it is also very difficult to sustain in the long term as it is not only perceived as expensive coming at an annual cost of more than USD 20 million, but also ties up significant human resources in the agriculture sector for two to three months twice a year (Sims, 2007). Farmer cooperation, which is also essential, has shown some signs of waning with successive vaccination campaigns (Taylor and Sims, 2007). Mass vaccination also relies on the availability of large quantities of cheap vaccine which may not always be the case. Besides there is a constant need to verify the possible antigenic drift of the virus over time which may reduce the effectiveness unless vaccine manufacture keeps pace with the evolution of the virus (Lee, Senne and Suarez, 2004).

Table 1: Human and Poultry Influenza H5N1 cases (to 31 July 2008)

Year	Human Infections		Poultry Infections	
	Cases	Deaths	Outbreaks	Birds Died/Culled
2003	3	3	-	-
2004	29	20	2 574	Est. 45 000 000
2005	61	19	1 917	Est. 6 000 000
2006	0	0	51	99 040
2007	8	5	269	169 188
2008	5	5	61	52 065
Total	106	52	4 872	51 320 293

While the short-term dividend of the current vaccination campaign is believed to have contributed to a significant reduction in human cases and outbreaks in poultry, there is a need to move to a more focussed approach based on risk analysis and a more strategic use of vaccine, with considerations of an exit strategy, as well as other disease prevention and control options.

1.3 Sectoral Policy and Legislation

In the context of avian influenza (AI) the overall stated objective for the animal health sector of Viet Nam is to progressively control and eradicate HPAI from poultry in Viet Nam. The specific short- to medium-term objectives are: (a) to strengthen veterinary services to control HPAI and other potential zoonotic disease threats; (b) to control HPAI using a cost-effective phased approach that addresses each sector; and (c) to plan poultry sector restructuring to achieve better control of HPAI while minimizing the loss of livelihoods and environmental pollution. Over the longer term, the country plans to restructure its poultry industry by improving biosecurity and food safety along the market chain from producer to consumer while protecting the livelihoods of poor farmers and preserving the environment (Green Book, 2006).

2. RATIONALE

2.1 *Problems/Issues to be Addressed*

The 'Integrated National Operational Programme for Avian and Human Influenza (2006-10) Operational Plan' or 'Green Book', describes three phases:

- a 'Control' Phase, in which the incidence of outbreaks is reduced by the stamping out of outbreaks, mass vaccination, and the commencement of improvements in biosecurity of poultry production and marketing practices;
- a 'Consolidation' Phase, in which gains are maintained, further restructuring of the industry is undertaken, farms in the industrial sector demonstrate freedom from HPAI, and disease-free compartments are expanded; and
- an 'Eradication' Phase, in which freedom from disease is achieved on a national or sectoral basis. This phase falls outside the current planning horizon (i.e. it is beyond 2010).

The current situation with limited numbers of outbreaks (contrasting with many hundreds in 2004 and 2005) places Viet Nam as undergoing a transition from 'control' to 'consolidation' phase. During the 'consolidation' phase there is a need for research into vaccination strategies alternative to the current mass vaccination campaigns which are increasingly being perceived as a drain on revenue by central government and some of the provinces. A more targeted use of vaccination based on risk analysis is seen as a more strategic approach. Field research is necessary to provide data to support informed policy choices when selecting a new national vaccination strategy. Methods must also be found to reduce the recurrent annual vaccination cost of more than USD 20 million to central and provincial government by transferring at least some of these costs to the poultry farmers.

2.2 *Stakeholders and Target Beneficiaries*

Stakeholders include the farmers, traders and all those whose livelihoods depend on poultry farming. The Government at all levels from central to commune levels has a responsibility to maintain low levels of infection to guard against economic loss and public health. For this project to succeed the senior level decision-makers must be fully engaged.

These same senior officials will be direct beneficiaries from the outcomes of research, allowing them to recommend and implement more evidence-based and cost-effective policy. The poultry producers will also be direct beneficiaries as a result of policy. Indirectly the Vietnamese people will benefit through less risk of the adverse public health effect of a pandemic occurring within Viet Nam. Perceived failure to control HPAI in both poultry and people can result in adverse effects to tourism, which is a substantial and increasing part of Gross Domestic Product (GDP).

2.3 *Project Justification and Strategic Approach*

All HPAI initiatives must take into account the 'Green Book' operational work plan agreed between government international agencies and donors. The cost tables estimate USD 83 million are required for the animal health sector alone, 50 percent of this amount being from foreign support. There are both World Bank and 'Joint Government-UN HPAI'

programmes that will run until 2010, but there will be additional needs beyond this time frame.

In the overall economic and social development of the nation, Viet Nam is attaining 'middle-income' country status, but it is noteworthy that the pace of development within the veterinary services and livestock production sectors is considerably behind the rest of the economy. The government agencies involved in livestock production face enormous challenges to carry out effective coordination and input in order that the poultry sector can overcome the risks posed by HPAI. In addition there are other concurrent livestock diseases causing serious economic loss. It is clear that failure to continue to implement adequate control measures will put Viet Nam at risk of returning to a level of disease similar to that of early 2004. Most crucially, there remains a pandemic threat if HPAI is not controlled through ongoing measures in the poultry sector.

2.4 *FAO Related Work and Comparative Advantage*

From the outset in 2004, FAO has been involved in prevention and control of HPAI when requested for support by the Government of Viet Nam. Initial assistance, all of which was initiated in 2004, was made through the regional project 'Emergency Regional Coordination Assistance for the Control of Avian Influenza in Southeast Asia' (TCP/RAS/3004) and the national project 'Emergency Assistance for the Control of Avian Influenza' (TCP/VIE/3003), followed by a collaborative programme with the World Bank's Avian Influenza Emergency Recovery Programme (AIERP). A United Nations (UN) Joint Programme 'Strengthening the Management of Public Health Emergencies in Viet Nam, with focus on the Prevention and Control of Diseases of Epidemic Potential including Highly Pathogenic Avian Influenza (HPAI) (OSRO/VIE/501/UNJ) was initiated in Viet Nam in September 2005, and entered the second phase in March 2007.

A total of more than USD 12 million has been provided to the Government of Viet Nam through FAO. This includes support from USAID through an FAO regional project 'Immediate Assistance for Strengthening Community-based Early Warning and Early Reaction to Avian Influenza Outbreaks in Cambodia, Indonesia, the Lao People's Democratic Republic, the People's Republic of China and Viet Nam' (OSRO/RAS/505/USA) which is now about to complete its second phase 'Immediate Technical Assistance to Strengthen Emergency Preparedness for Highly Pathogenic Avian Influenza (HPAI) to Viet Nam' (OSRO/RAS/604/USA), the Japan Trust Fund project 'Strengthening the Control and Prevention of Highly Pathogenic Avian Influenza and Enhancing Public Awareness' (OSRO/RAS/602/JPN) which provides support through FAO and the World Organisation for Animal Health (OIE), and the Government of Ireland project which has also provided support through FAO 'Emergency Assistance for Control of Highly Pathogenic Avian Influenza in Viet Nam' (OSRO/VIE/601/IRE).

FAO has an excellent working relationship with the Government, and has received many specific requests for assistance with HPAI and other livestock diseases in other sectors. There is currently a well-established multidisciplinary team in Hanoi, with a clear understanding of the situation and what needs to be achieved in technical, communications and operational areas, the latter providing detailed information about performance of project implementation.

3. PROJECT FRAMEWORK

3.1 Impact (Development Goal)

Viet Nam is in a position to move forward to the eradication phase of the HPAI H5N1 control programme in some geographical areas by the end of 2010.

3.2 Outcome (Immediate Objective/s)

A cost-effective HPAI H5N1 vaccination strategy is developed in Viet Nam.

3.3 Outputs and Activities

3.3.1 Output 1: Feasibility and logistics to implement a Novel Vaccination Strategy (V2) compared with maintaining Standard Vaccination Strategy (V1)

Detailed planning will be presented at the inception workshop prior to any field work. An expert team will be assigned to plan and undertake this activity and cover also Output 2, possibly via tender. The team will work closely with the local Government of Viet Nam counterparts.

Sites have been selected where the risk of HPAI/H5N1 outbreaks in poultry is perceived to be highest: Nam Dinh and Ninh Binh provinces in the Red River, and Hau Giang and Soc Trang provinces in the Mekong River delta. The selection has been based on harmonious working relationships between central and provincial authorities as well as risk profile of HPAI outbreaks, poultry densities, etc. As mentioned in the 'Risks and Assumptions' section, the ongoing support and collaboration of provincial authorities will be crucial for the success of the project.

Provincial authorities will be made fully aware of the project and their essential role in its success, the local staff will be nominated as counterparts. A baseline assessment, including comprehensive poultry census and consideration of feasibility and logistics, will be undertaken. Details of the expenditure and contracts to facilitate delivery of the project by local authorities will be negotiated. A targeted awareness campaign will complement more in-depth training for veterinary services, farmers and other relevant players. Farms will be selected for longitudinal sampling.

Although full details of the exact vaccine regime for V2 will be decided during initial months of the project it will most probably be age-based (one to two doses at manufacturers' recommended age which has been shown to provide maximal protection), and targeted at those poultry systems with highest risk of AI (semi-commercial producers; layer flocks compared with broiler flocks).

For V2 areas there will probably be a need to upgrade cold-chain facilities and arrange for adequate supplies of vaccine, syringes and accessories, particularly if the indicative work plan (Annex II) is followed, cost analysis would be documented. During the change of vaccine application data, poultry samples will be taken at predetermined intervals. At a mid-point in field work, an interim analysis could be undertaken (to inform Government), with a final analysis once the field activities are completed. A detailed comprehensive report and dissemination workshop will be supported at the end (could be concurrent with dissemination of results from Outputs 2, 3 and possibly 4 and 5).

The main activities to be implemented under this output are summarized below:

- needs assessment undertaken and finalization of a work plan (including MoH/World Health Organization [MoH/WHO]);
- public awareness campaigns;
- longitudinal farms identified; regular sampling, this will follow a number of farms to give a profile of their flock immunity over time (taking into account waning immunity, new introductions and flock rotation);
- cross-sectional farms identified; regular sampling – this will give an overview of immunity from a spatial perspective at one point in time (geographical coverage);
- equipment procured;
- training undertaken (veterinarians/animal health workers/farmers);
- data gathering;
- data analysis;
- dissemination workshop and final report (shared with Output 2).

3.3.2 Output 2: The feasibility and logistics of withdrawal of routine vaccination with provision for emergency vaccination and other contingency measures (V0) is compared with maintaining Standard Vaccination Strategy (V1)

Planning will detail exactly the inputs. This work plan will be presented at the inception workshop prior to any field work. An expert team will be assigned to plan and undertake this activity, possibly via a tender, and most likely cover Output 1 also. The team will work closely with local Government of Viet Nam counterparts.

Quang Binh Province has been selected as the risk of HPAI/H5N1 outbreaks in poultry is perceived to be low. While project sites will fall within administrative boundaries, market chain considerations will also be considered (e.g. day old chick movements); selection has been additionally based on harmonious working relationships between central and provincial authorities as well as risk profile of HPAI outbreaks, poultry densities, etc. As mentioned in the ‘Risks and Assumptions’ section, the ongoing support and collaboration of provincial authorities will be crucial for the success of the project. To operationalize this output, there is need to select a V0 area where the provincial authorities have decided to withdraw vaccination (in semi-commercial and household poultry flocks; the larger commercial farms may continue to vaccinate).

A detailed contingency plan will be developed and agreed with the province to ensure rapid containment is achieved if outbreaks occur, with culling, provisions for emergency ‘ring’ vaccination and enhanced surveillance. Training of personnel is included and operational funds will be made available at provincial level. These activities will be carried out in close collaboration with human health authorities.

The authorities will be made fully aware of the project and their essential role in its success, local staff will be nominated as counterparts and a baseline assessment including comprehensive poultry census and consideration of feasibility and logistics will be undertaken. Details of the expenditure and contracts to facilitate delivery of the project by local authorities will be negotiated. A targeted awareness campaign will complement more in-depth training for veterinary services, farmers and other relevant players. Farms will be selected for longitudinal sampling. During the change of vaccine application data and poultry samples will be taken at predetermined intervals. At a mid-point in field work, an interim analysis could be undertaken (to inform Government), with a final analysis once field

activities are completed. A detailed comprehensive report and dissemination workshop will be supported at the end (could be concurrent with dissemination of results from Outputs 2, 3 and possibly 4 and 5).

The activities to be implemented under this output are the following:

- needs assessment undertaken and finalization of a work plan (including MoH/WHO);
- public awareness campaigns;
- longitudinal farms identified; regular sampling;
- cross-sectional farms identified; regular sampling;
- equipment procured;
- training undertaken (veterinarians/animal health workers/farmers);
- data gathering;
- data analysis;
- dissemination workshop and final report.

3.3.3 Output 3: Cost-effectiveness of 'Novel versus Standard' (V2/V1) and 'Standard versus Withdrawal' (V1/V0) Vaccination Strategies undertaken

Planning will detail exactly the inputs. The work plan will be presented at the inception workshop prior to any field work. An expert team will be assigned to plan and undertake this activity, possibly via a tender. The team will work with local authorities and Vietnamese companies (undertaking questionnaire delivery, data gathering, etc.).

During the implementation of activities relating to Outputs 1 and 2, data will be collected on the public costs of the different strategies. In addition, an assessment will be made of the private costs of vaccination as some producers will continue to vaccinate outside the public campaigns. Initial estimates will be made of the financial (public costs only) and economic (public and private) costs of the different strategies employed and calculation using the census data will be used to determine the cost per bird in the region of the trial and cost per unit of product produced. Ideally, further analysis will be carried out to look at the control strategy costs per bird day at risk, which will require the outputs from the epidemiology studies. It will be assumed that all strategies will have fixed costs in terms of virus monitoring, vaccine testing and sero-monitoring that will not change with the strategy. These costs will be estimated but will not be included in the cost-effectiveness analysis.

The assigned expert team will undertake data analysis and inform Government via a dissemination workshop and comprehensive technical report.

The activities to be carried out under this output are the following:

- component planning and oversight;
- team recruited, directly or via tender;
- data gathering;
- data analysis (interim);
- data analysis (final);
- dissemination workshop and final report.

3.3.4 Output 4: Risk factors are defined for animal outbreaks via case series and/or case-control trial

Detailed planning will be presented at the inception workshop prior to any field work. An expert team will be assigned to plan and undertake this activity and cover also Output 2, possibly via tender. The team will work closely with local Government of Viet Nam counterparts to support this component, most probably based at Regional Animal Health Offices (RAHOs). They will be trained and equipped and will undertake field visits to all reported outbreaks in their respective region in order to carry out a detailed outbreak investigation, gathering risk factors to create a case series. Note that this will extend beyond pilot areas of Outputs 1-3, and will include as many animal outbreaks as possible across all provinces in Viet Nam.

During the implementation of this component there may also be the possibility to undertake a case-control study. The assigned expert team will undertake data analysis and inform Government and concerned stakeholders via a dissemination workshop and comprehensive technical report.

The activities to be implemented under this output are the following:

- component planning and oversight (including MoH/WHO);
- training Department of Animal Health (Government of Viet Nam) (DAH)-RAHO and MoH-Regional Health Office (RHO);
- operational funds arranged and disbursed;
- data gathering from outbreaks nationwide (63 provinces);
- data analysis (interim);
- data analysis (final);
- dissemination workshop and final report.

3.3.5 Output 5: Sociological behaviours related to V2/V1 and V1/V0 are compared

Detailed planning will be presented at the inception workshop prior to any field work. An expert team will be assigned to plan and undertake this activity and cover also Output 2, possibly via tender. The team will work closely with local authorities and Vietnamese companies (undertaking questionnaire delivery, data gathering, etc.).

This output complements Outputs 1, 2 and 3. Sociological data will be gathered at intervals in the same pilot sites according to a pre-arranged protocol. The assigned expert team will undertake data analysis and inform Government and concerned stakeholders via a dissemination workshop and comprehensive technical report.

The activities to be implemented under this output are the following:

- team recruited, directly or via tender.
- data gathering;
- data analysis (interim);
- data analysis (final);
- dissemination workshop and final report.

3.3.6 Output 6: Policy analysis of HPAI strategy including public private sector collaboration and partnerships is undertaken

Detailed planning will be presented at the inception workshop prior to any field work. An expert team will be assigned to plan and undertake this activity and cover also Output 2, possibly via tender. The team will work with Vietnamese authorities.

HPAI retrospective/prospective policy review will include:

- analyse the process and implementation of HPAI disease control decision-making and identify the political and institutional constraints such as costs and benefits for the involved stakeholders that prevent changes in HPAI control;
- analyse how the different poultry chains are governed and what policy environment people are working in;
- identify key entry points and the required instruments for changes of the HPAI control policy;
- identify the key policies for the livestock sector and the respective roles and responsibilities for the private and the public sector in ensuring both HPAI control and poultry sector development;
- determine the importance of private regulations across the poultry chains, and identify who is setting these regulations;
- review HPAI and animal health control regulations and propose necessary changes to the regulatory framework in order to implement proposed changes to the HPAI control;
- facilitate informed policy-making based on evidence gathered during the technical interventions of the project.

The assigned expert team will compile a policy analysis (including identified entry points and instruments such as messages, projects and financial assistance for whatever technical change to HPAI control strategy; identified needs for policy strengthening and regulatory framework changes) and inform Government and concerned stakeholders via a dissemination workshop and comprehensive technical report.

Activities to be implemented under this output are the following:

- component planning/oversight;
- team recruited - directly or via tender;
- data gathering;
- data analysis (interim);
- data analysis (final);
- dissemination workshop and final report.

3.3.7 Project Support and Planning

Core project staff will be recruited (international and national project coordinators, and support staff). A project office will be set up in Hanoi. The core team will work with the technical government counterparts, FAO and the donor to prepare a detailed work plan, and mechanism for implementation. The first part of the work plan development will be to negotiate the project implementation with the local government administrations in selected provinces and districts. Tenders will be prepared for technical and operational support for the

following outputs. These will include epidemiology, socio-economics and communications. An inception workshop involving all stakeholders will be held to announce the work plan.

The project office will undertake procurement of vehicles, vaccine and other related equipment. The core team will provide oversight for all six outputs of the project, throughout its duration.

3.4 Sustainability

The proposed interventions have been tailored to respond to the needs of the Government and to provide a sound basis for the development of alternative disease control strategies for HPAI H5N1 other than the current unsustainable mass vaccination. The interventions are in line with the current government policies and strategies (Green Book) and will be integrated into the ongoing development of HPAI control strategies to allow the advancement towards the Government's stated aim of control/eradication of the disease which will ensure the sustainability of the process beyond the project duration.

The devolution of responsibilities to national structures is expected to contribute greatly to the sustainability of the intervention. The participatory approach to the implementation of key project activities will ensure legitimate and robust planning, decision-making and implementation.

The project will contribute to long-term sustainable economic and social development by enhancing the contribution of the poultry sector to the economy. Improved information on alternative control strategies may benefit the wider international community.

3.5 Risks and Assumptions

3.5.1 Assumptions

- complementary work plan is simultaneously implemented by the MoH and WHO in all pilot areas during the whole period of the field survey;
- complimentary work plans on communication and private participation are simultaneously implemented by other USAID partners including AED and Abt Associates in the study areas during the project;
- good cooperation with the provincial and district Steering Committees for HPAI and peoples' committees at each level in all pilot areas throughout the duration of the project;
- good cooperation with the regional, provincial and district 'Animal Health' counterparts in all pilot areas through the duration of the project;
- good cooperation with the provincial and district health authorities;
- access to past HPAI data in all pilot areas throughout the duration of the project;
- sufficient vaccine is available in a timely manner; particularly in for novel vaccination strategy (V2) areas as required;
- regarding the 'withdrawal' of vaccination in HPAI 'low risk' pilot area (V0) this is dependent on government authorities (most likely at provincial level) making this decision, permitting an observational study;
- there is sufficient absorptive capacity at the veterinary laboratories to carry out the timely analysis of all samples gathered;
- continued 'twice annual' mass vaccination HPAI H5N1 campaigns of poultry as the national strategy (V1);

- utilized vaccine remains protective in the face of evolution of the field virus (including novel introduction of further clades);
- the project is able to attract and retain quality staff.

3.5.2 Risks:

- there is high risk of delays during implementation of the project necessitating a project extension. Reasons for this include the project representing a novel approach in Viet Nam, being implemented on such a large scale, involving a large number of counterparts and target groups, and the requirements for careful planning and especially the detail of negotiation at central and field levels;
- there is a moderate risk that the project budget will not cover the activities. Reasons include a currently high inflation rate (more than 30 percent as at July 2008) within Viet Nam, and unforeseen costs of those components which will be tendered;
- the MoH (with support from WHO) does not implement its work plan of enhanced surveillance in a timely way, or it is interrupted for any reason, leading to immediate suspension of the ‘animal health’ components of the project;
- unforeseen significant increase in poultry H5N1 outbreaks in pilot areas are attributable to (or perceived as due to) intervention activities and will have important implications for the project;
- occurrence of human H5N1 case(s) in pilot sites, especially ‘intervention’ sites, are attributable to (or perceived as due to) intervention activities. While safeguards will be in place to preclude such a scenario, there would be substantial implications regarding the continuance of activities, even if it is clear that causality for the human case(s) was not due to any project activity;
- conversely there needs to be a certain number of H5N1 outbreaks (as these are a measurable outcome between the differing vaccination strategies) in order to undertake a statistical comparison. Should this not occur it may be difficult to conclude that the alternate vaccination strategies are more/less effective;
- there is a change in poultry vaccination policy (from ‘twice-annual’ campaigns to any other policy), thus making comparison with the current control adopted for the research irrelevant;
- in the ‘low risk’ area for proposed (V0) strategy, no provincial authority makes the decision to withdraw the vaccine in the early part of the project period, or decide to change it during the project cycle;
- the supply of vaccine is interrupted, or there are cold-chain or vaccine delivery issues which lead to insufficient protective immunity;
- a new variant (clade) of H5N1 virus evolves or is introduced where the current vaccine strain is not protective;
- the laboratories are overwhelmed with higher priority requests, influenza or other disease outbreaks;
- the field veterinary services (which will undertake visits and sampling) are overwhelmed by other priorities, influenza or other disease outbreaks.

4. IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS

4.1 Institutional Framework and Coordination

The project management office will be based in Hanoi with the study sites being managed locally from the RAHOs.

The executing agency of this project will be FAO. The project will be executed by the Emergency Centre for Transboundary Animal Disease Operations (ECTAD) which associates the Animal Production and Health Division (AGAH/P/L) and the Emergency Operations Service (TCEO) under the overall guidance and responsibility of the FAO Chief Veterinary Officer (CVO), Chief, AGAH and the operational responsibility of the Chief, TCEO.

All project activities will be coordinated through the Regional Office for Asia and the Pacific (RAP). Technical supervision and backstopping will be through the ECTAD team in FAO headquarters and the Emergency Prevention System for Transboundary Animal and Plant Pests Diseases (EMPRES) programme of the Animal Health Service (AGAH) in FAO headquarters.

The Ministry of Agriculture and Rural Development (Government of Viet Nam) (MARD) will be the counterpart government institution and will nominate a national project director at its own expense. The project however will contract and financially support a national project coordinator.

FAO project team will actively liaise with all stakeholders and agencies in order to avoid duplication of efforts and ensure complementarities with other interventions and local ownership of project activities.

MARD will continue to implement the project where the MoH (with WHO) support human surveillance activities in all pilot areas.

4.2 Methodology

The methodology has been described in Section 3.3. Additionally after comprehensive discussions with technical Government of Viet Nam counterparts an indicative study design has been prepared. This can be seen in Annex IV.

4.3 Technical Support and Project Staff

Project Support Team

- International Project Coordinator (Team Leader): 24 person months;
- International Operations Officer (TCDC);
- National Consultant Project Coordinator
- National Operations Officer
- Three National Project Managers (north/central/south).

Technical expertise through a letter of agreement (LoA) or contract on international institutions, preferably from the region):

- International/National Expertise in Epidemiology including Statistician;
- International/National Expertise in Economics;
- International/National Expertise in Sociology;
- International/National Expertise in Communications (Public awareness/behaviour change communication).

Note: a number of the above may be implemented directly with project support through recruitment of international and national experts.

4.4 Operational Modalities (procurement, contracts, training, etc.)

FAO will bring the logistic support to MARD in the project's implementation. FAO will ensure that the acquisition and the distribution of the inputs and the services are carried out in the most economic and most effective way. Wherever possible, local contractors and suppliers will be utilized to provide basic services and supplies. This would expedite procurement and delivery of inputs for all the components of this project.

Various components of the project may be tendered according to FAO standard procedures, including:

- technical oversight of research activities: epidemiological (including statistician), economic and sociology components;
- field activities including data and sample collection;
- communications, public awareness and behaviour change communication.

LoAs or contracts will be signed between the project and specialized institutions, interested in collaboration with the project.

4.5 Work plan

The Gantt chart can be seen in Annex II.

4.6 Government Inputs

MARD will be the government counterpart agency responsible for the project. The recipient Government will:

- appoint technical agency (-ies) to work with FAO and/or subcontractors involved in the project;
- nominate a qualified and experienced national project director who will represent the senior government focal point for the project, at no cost to FAO and who will assist in the implementation of the project facilitating involvement and collaboration with relevant national staff;
- nominate three suitably qualified and experienced persons, one of which would be selected as national project coordinator contracted by FAO and working full-time for the project and who oversees the implementation of the project facilitating involvement and collaboration with relevant national staff;
- allow the FAO Representative accredited to the country, or any other FAO official designated by him/her, to visit the project sites to follow up the project implementation;
- facilitate approval for field work: introductory letters, field visits of project international and national staff, provide ongoing liaison between all authorities necessary for smooth implementation of the Project activities for the duration of the project;
- ensure that FAO is being supplied with suitable and appropriately qualified national candidates;
- make available the services of qualified staff for the duration of the project as necessary;
- ensure clearance of project inputs free of custom and excise duties.

Additionally the MoH is a further government counterpart agency responsible for provision of agreed inputs into all project pilot areas, although not within the scope or responsibility of this project document, but rather working closely with WHO (also funded by USAID).

The General Provisions are detailed in Annex III.

4.7 Donor Inputs

Goods and services to be provided under the project are as follows:

Personnel

This budget line will allow the recruitment of:

- International Project Coordinator (Team Leader): 24 person months;
- International Operations Officer (TCDC);
- National Consultant Project Coordinator;
- Three National Project Managers (north/central/south);
- National Operations Officer.

Locally contracted labour

This budget line covers the costs of locally contracted administrative support staff (field managers, operations assistants, drivers, casual labourers, etc.), in Hanoi, RAHOs and pilot provinces.

Contracts

This provision will cover the cost of LoAs for the following services:

- epidemiology advisory service;
- economics advisory service;
- sociology advisory service;
- communications (public awareness/behaviour change communication advisory service);
- operational costs for sampling, transporting and processing laboratory samples;
- operational costs for surveillance ‘package’;
- operational costs for vaccine delivery (V2 areas).

Travel

This budget line covers the cost of national and international consultant travel costs and daily subsistence allowance (DSA).

Training

This budget line will cover the costs of conducting meetings and workshops as follows:

- vaccination in V2 areas.
- contingency/response training in all areas;
- blood and swab sampling training;
- surveillance training (all areas);

- outbreak investigation workshop with RAHOs, DAH and MoH (ref Output 4).

Expendable procurement

This budget line covers the cost of procurement, transportation and handling of the following:

- laboratory consumables;
- printing of manuals;
- printing of other targeted awareness materials;
- vaccination syringes.

Non-expendable procurement

To cover the cost of procurement, transportation and handling of the following:

- IT and communication equipment for project office and field offices;
- handheld GPS (one per pilot district);
- five vehicles (4-door pickup, 4WD);
- cold-chain equipment.

General operating expenses

This budget line covers operational costs of the various activities of the project such as the inspection of procured goods, office running costs and locally incurred miscellaneous expenses related to the implementation of the project. This budget line also covers expenses related visibility initiatives.

Technical support services

This is to cover the technical expertise provided by FAO to ensure proper implementation, monitoring/evaluation and reporting of the project. It provides for technical backstopping (site visits) and expert technical support from FAO headquarters and from the RAP.

Direct operating costs

This budget line covers the standard direct operating costs of FAO for emergency projects (10 percent of the subtotal).

4.8 Budget (USD)

FAO BL		Year 1	Year 2	Total
5570	Consultants			620 000
	International Project Coordinator (Team Leader)	150 000	150 000	300 000
	International Operations Officer (TCDC)	50 000	50 000	100 000
	National Consultant Project Coordinator	30 000	30 000	60 000
	Three National Project Managers (north/ central/ south)	60 000	60 000	120 000
	National Operations Officer	20 000	20 000	40 000
5650	Contracts			1 165 000
	Contract/LoA Epidemiology Advisory Service (including statistician)			460 000
	Contract/LoA Economics Advisory Service			150 000
	Contract/LoA Sociology Advisory Service			70 000
	LoA Communications Advisory Service			75 000
	LoA operational costs for sampling			150 000
	LoA operational costs for surveillance			100 000
	LoA operational costs for vaccine delivery			160 000
5660	Overtime			390 000
	Five Province Field Managers	50 000	50 000	100 000
	Three Operations Assistants (north/central/south)	30 000	30 000	60 000
	Three Drivers (north/central/south)	15 000	15 000	30 000
	District Staff	75 000	75 000	150 000
	RAHO case series			50 000
5900	Travel			250 000
	Flights and DSA International			200 000
	Flights and DSA National			50 000
5920	Training			200 000
	Vaccination (V2)			
	Contingency/response training in all pilot areas			
	Blood and swab sampling			
	Surveillance training (all areas)			
	Outbreak investigation workshop with RAHOs, DAH and MoH			
6000	Expendable Equipment			275 000
	Laboratory consumables			75 000
	Printing of manuals			
	Printing of other targeted awareness materials			
	Vaccination syringes			
6100	Non-Expendable Equipment			344 000
	IT and communication equipment for project office and field officers			
	Handheld GPS (24)			
	Five vehicles			125 000
	Fridges and additional cold chain for V2 areas			
6300	General Operating Expenses			138 796
	Subtotal 1			3 382 796
5027	Technical Support Services			253 568
6150	TSS			203 568
	Evaluation (fix cost)			45 000
	Reporting Costs (fix cost)			5 000
	Subtotal 2			3 636 364
6130	PSC @ 10% of Subtotal 2			363 636
	Total			4 000 000

5. AIMEBA BUDGET (USD)

PP2 Coordination and Collaboration	AS1 Surveillance of domestic poultry	AS3 Logistical/commodity support for animal surveillance/laboratories	AR2 Animal response efforts	CC1 Communications	Totals
1 252 047	1 287 332	764 267	602 610	93 743	4 000 000

6. OVERSIGHT, MONITORING, MANAGEMENT INFORMATION AND REPORTING

6.1 *Monitoring and Knowledge Sharing*

FAO will be responsible for constant monitoring of project activities with the support of the counterpart and implementing partners. The technical services of FAO will provide guidance for the monitoring and assessment of the project. FAO will utilize M&E performance indicators developed during the current (Year 2) project cycle for further evaluations. On the basis of this information, FAO staff will regularly review project progress and be alert to eventual problems encountered and recommend solutions to these.

6.2 *Communication and Visibility*

FAO will ensure the preparation of the necessary documentation and publications detailing the project progress and achievement of project activities.

At the end of project activities, FAO will implement a workshop/seminar for the presentation of project achievements and suggestions for possible follow up/development interventions, to be submitted to the donor community.

FAO will ensure full visibility of the project through logos, boards, stickers and publications, and national and international media. The donor will be invited to the opening ceremony of project activities.

6.3 *Reporting Schedule*

The project will produce the following reports:

- (i) Inception report: at inception, the International Project Coordinator and National Consultant Project Coordinator will prepare a detailed work plan including the timing of each activity and modalities of project execution in consultation with and clearance by the AGAH backstopping officer. This report, previously cleared by the FAO Representative, will be forwarded to ECTAD, FAO headquarters for operational clearance.
- (ii) Progress reports: quarterly reports will be produced. A mid-term report will also be prepared by the International and National Project Coordinators. This report will assess in a concise manner, the extent to which the project's scheduled activities have been carried out, the outputs produced and progress towards objectives realized with suggestions for any corrective actions if need be.

- (iii) A final report: towards the end of the project, the International Project Coordinator in close consultation with the National Project Co-ordinator will prepare a draft final report in accordance with FAO trust fund procedures. This report will contain a complete review of activities undertaken, major results obtained, problems encountered, progress towards achieving the specific objectives of the project and impact on the beneficiaries, A section on recommendations and lessons learned, presenting guiding principles for future interventions, will be included.

The summary of the guidelines for the preparation of progress and final reports is given in Annex IV.

Briefs will also be produced as necessary. Reports of workshops, manual, guidelines and other written materials prepared with the support from the project will also be provided to the donor.

7. ANNEXES

7.1 ANNEX I: Logical Framework

Design Summary	Verifiable Indicators	Sources of Verification	Assumptions
Impact Viet Nam is in a position to move forward to the eradication phase of HPAI H5N1 in some geographical areas by the end of 2010			
Outcome Viet Nam develops a more effective HPAI H5N1 control strategy	Regular briefing meetings with DAH, MARD over project progress Project quarterly and annual reports are sent to MARD		Useful data is generated by the project
Outputs and activities			
1. Efficacy of Novel Vaccination Strategy (V2) compared with that of Standard Vaccination Strategy (V1) are compared 1.1. Needs assessment undertaken and finalization work plan (including MoH/WHO) 1.2. Public awareness campaigns 1.3. Longitudinal farms identified/sampled 1.4. Cross-sectional farms identified/sampled 1.5. Equipment procured (inc. vaccine=V) 1.6. Training undertaken (veterinarians/AHW/farmers) 1.7. Data gathering 1.8. Data analysis 1.9. Dissemination workshop and final report (shared with 2)	Number of meetings being organized to discuss this specific issue Number of participants attending the meetings Reports and publications produced from the study		As listed in Section 3.5

Design Summary	Verifiable Indicators	Sources of Verification	Assumptions
<p>2. Efficacy of Standard Vaccination Strategy (V1) compared with that of Withdrawal of Vaccination Strategy (V0) are compared</p> <p>2.1. Needs assessment undertaken and finalization w-p (including MoH/WHO)</p> <p>2.2. Public awareness campaigns</p> <p>2.3. Longitudinal farms identified/sampled</p> <p>2.4. Cross-sectional farms identified/sampled</p> <p>2.5. Equipment procured</p> <p>2.6. Training undertaken (veterinarians/AHW/farmers)</p> <p>2.7. Data gathering</p> <p>2.8. Data analysis</p> <p>2.9. Dissemination Workshop and Final Report</p>	<p>Number of meetings being organized to discuss this specific issue</p> <p>Number of participants attending the meetings</p> <p>Reports and publications produced from the study</p>		As listed in Section 3.5
<p>3. Cost-effectiveness of 'novel versus standard' (V2/V1) and 'standard versus withdrawal' (V1/V0) vaccination strategies undertaken</p> <p>3.1. Component planning/oversight</p> <p>3.2. Team recruited - directly or via tender</p> <p>3.3. data gathering</p> <p>3.4. Data analysis (interim)</p> <p>3.5. Data analysis (final)</p> <p>3.6. Dissemination workshop and final report</p>	<p>Number of meetings being organized to discuss this specific issue</p> <p>Number of participants attending the meetings</p> <p>Reports and publications produced from the study</p>		As listed in Section 3.5
<p>4. Risk Factors Are defined for Animal outbreaks via case series and/or case-control trial</p> <p>4.1. Component planning/oversight (including MoH/WHO)</p> <p>4.2. Training DAH-RAHO and MoH-RHO</p> <p>4.3. Operational funds arranged/disbursed</p> <p>4.4. Data gathering from outbreaks nationwide (64 provinces)</p> <p>4.5. Data analysis (interim)</p> <p>4.6. Data analysis (final)</p> <p>4.7. Dissemination workshop and final report</p>	<p>Number of meetings being organized to discuss this specific issue</p> <p>Number of participants attending the meetings</p> <p>Reports and publications produced from the study</p>		As listed in Section 3.5

Design Summary	Verifiable Indicators	Sources of Verification	Assumptions
5. Sociological behaviour related to V2/V1 and V1/V0 are compared 5.1. Component planning/oversight 5.2. Team recruited - directly or via tender 5.3. Data gathering 5.4. Data analysis (interim) 5.5. Data analysis (final) 5.6. Dissemination workshop and final report	Number of meetings being organized to discuss this specific issue Number of participants attending the meetings Reports and publications produced from the study		As listed in Section 3.5
6. Policy analysis of HPAI strategy including public private sector collaboration and partnerships is undertaken 6.1. Component planning/oversight 6.2. Team recruited - directly or via tender 6.3. Data gathering 6.4. Data analysis (interim) 6.5. Data analysis (final) 6.6. Dissemination workshop and final report	Number of meetings being organized to discuss this specific issue Number of participants attending the meetings Reports and publications produced from the study		As listed in Section 3.5

7.2 ANNEX II: Work Plan (Gantt)

#	OUTPUT	ACTIVITY	QUARTER							
			Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
0	Project support and planning	Core team recruited/supported								
		Project Management Office set up/maintained								
		Inception workshop with MoH								
		Field staff recruited								
		Tenders launched for Outputs 1,2,3,4, 6								
		Tenders launched for Outputs 5								
1	Efficacy of novel vaccination strategy (V2) compared with that of standard vaccination strategy (V1) are compared	Needs assessment undertaken and finalization of work plan (including MoH/WHO)								
		Public awareness campaigns								
		Longitudinal farms identified/sampled								
		Cross-sectional farms identified/sampled								
		Equipment procured (inc. vaccine = V)		V	V	V	V	V	V	
		Training undertaken (veterinarians/AHW/farmers)								
		Data gathering								
		Data analysis								
		Dissemination workshop and final report (shared with 2)								
2	Efficacy of standard vaccination strategy (V1) compared with that of withdrawal of vaccination strategy (V0) are compared	Needs assessment undertaken and finalization of work plan (including MoH/WHO)								
		Public awareness campaigns								
		Longitudinal farms identified/sampled								
		Cross-sectional farms identified/sampled								
		Equipment procured								
		Training undertaken (veterinarians/AHW/farmers)								
		Data gathering								
		Data analysis								

#	OUTPUT	ACTIVITY	QUARTER							
			Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
3	<i>Cost-effectiveness of 'novel versus standard' (V2/V1) and 'standard versus withdrawal' (V1/V0) vaccination strategies undertaken</i>	Dissemination workshop and final report								
		Component planning/oversight								
		Team recruited - directly or via tender								
		Data gathering								
		Data analysis (interim)								
		Data analysis (final)								
		Dissemination workshop and final report								
4	<i>Risk factors are defined for animal outbreaks via case series and/or case-control trial</i>	Component planning/oversight (including MoH/WHO)								
		Training DAH-RAHO and MoH-RHO								
		Operational funds arranged/disbursed								
		Data gathering from outbreaks nationwide (64 provinces)								
		Data analysis (interim)								
		Data analysis (final)								
		Dissemination workshop and final report								
5	<i>Sociological behaviour related to V2/V1 and V1/V0 are compared</i>	Component planning/oversight								
		Team recruited - directly or via tender								
		Data gathering								
		Data analysis (interim)								
		Data analysis (final)								
		Dissemination workshop and final report								
6	<i>Policy analysis of HPAI strategy including public private sector collaboration and partnerships is undertaken</i>	Component planning/oversight								
		Team recruited - directly or via tender								
		Data gathering								
		Data analysis (interim)								
		Data analysis (final)								
		Dissemination workshop and final report								

7.3 ANNEX III: Terms of Reference

Terms of Reference International Project Coordinator

The International Project Coordinator shall operate under the overall guidance of the Food and Agriculture Organization of the United Nations (FAO) Chief Veterinary Officer and technical supervision of the Emergency Centre for Transboundary Animal Disease Operations (ECTAD) Regional Manager based in the FAO Regional Office for Asia and the Pacific (RAP) and the operational supervision of the Chief, Emergency Operations Service (TCEO).

The incumbent will be under the direct technical supervision of the Senior Technical Adviser (Team Leader) of the FAO Avian Influenza Programme (AIP) in the country and the general operational and administrative supervision of the FAO Representative. The Coordinator will undertake the following duties and responsibilities:

- as part of the AIP team, support the FAO Representative and the Senior Technical Adviser (Team Leader) in liaising with the Government of Viet Nam, the international donor community and multilateral agencies, in all matters related to avian influenza (AI) control programmes and activities;
- assist with smooth coordination of FAO-mediated AI projects, in collaboration with international and national consultants and supervise the preparation of project work plans, timely provision of inputs, organization of workshops and training programmes and liaison with concerned contacts at the central and provincial levels;
- support with a project office set up, coordinate recruitment of core project staff, development of a detailed work plan, procurement plan and mechanisms for implementation in cooperation with the donor and technical Government of Viet Nam counterparts and the donor;
- assist with preparation of tenders for technical inputs as per ProDoc, or in direct recruitment of expertise;
- oversee the smooth implementation of all six components of the project detailed in the ProDoc;
- advise the Government of Viet Nam, specifically animal health policy-makers to test and develop a cost-effective HPAI H5N1 control vaccination intervention by evaluating the current standard vaccination strategy effectiveness and cold-chain, and developing, testing and refining a Novel Vaccination Strategy (NVS); specifically through:
 - assisting to undertake a needs assessment of and subsequently assisting to carry out: procurement, training, public awareness campaign, cold-chain upgrading and any other activities required to implement Novel Vaccination Strategy trials in pilot provinces, in collaboration with central and local Government of Viet Nam counterpart agencies, Ministry of Health and World Health Organization (MoH and WHO);
 - supporting to undertake a needs assessment of and subsequently assisting to carry out: contingency plan development, training and any other activities necessary to test the feasibility and logistics of withdrawal of routine vaccination compared with maintaining a standard vaccination strategy in pilot provinces, in collaboration with central and local Government of Viet Nam counterpart agencies, MoH and WHO;
 - assisting with evaluating the cost-effectiveness of several vaccination strategy trials undertaken in pilot areas and reporting to the Government of Viet Nam;
 - assisting with defining risk factors for animal outbreaks and final reporting to the Government of Viet Nam;
 - supporting the assessment of sociological behaviour associated to several vaccination strategies and final reporting to the Government of Viet Nam;

- coordinating HPAI retrospective/prospective policy review and analysis in order to implement proposed changes to the HPAI control, and final reporting to the Government of Viet Nam and concerned stakeholders;
- actively support and promote communication between human and animal health teams/partners including MoH and WHO; and ensure full visibility of donor and project;
- travel to project sites in the country to monitor and ensure smooth implementation of the project in collaboration with provincial and other local authorities;
- assist with timely reporting requirements of the Government of Viet Nam, FAO and donors;
- submit a final technical report upon completion of the assignment to the FAO Animal Health Service (AGAH) and TCEO; and
- perform other related duties as required.

Reporting:

- at inception, the International Project Coordinator and National Consultant Project Coordinator will prepare a detailed work plan including the timing of each activity and modalities of project execution in consultation with and clearance by the AGAH backstopping officer. This report, previously cleared by the FAO Representative, will be forwarded to ECTAD, FAO headquarters for operational clearance;
- quarterly reports and a mid-term report will also be prepared by the international and national project coordinators. The mid-term report will assess in a concise manner, the extent to which the project's scheduled activities have been carried out, the outputs produced and progress towards objectives realized with suggestions for any corrective actions if required;
- towards the end of the project, the International Project Coordinator in close consultation with the National Project Coordinator will prepare a draft final report in accordance with FAO trust fund procedures. This report will contain a complete review of activities undertaken, major results obtained, problems encountered, progress towards achieving the specific objectives of the project and impact on the beneficiaries. A section on recommendations and lessons learned, presenting guiding principles for future interventions, will be included;
- in addition the International Project Coordinator will submit a final technical report upon completion of the assignment to AGAH and TCEO, describing in detail, for each point listed in the terms of reference the activities undertaken, major results obtained, problems encountered and progress towards achieving the specific objectives of the project.

Qualifications: the incumbent will be a veterinarian with a postgraduate degree in a relevant field from a recognized university with at least ten years of proven experience, preferably some of which in Southeast Asia. He/she will have a good understanding of the management of transboundary animal diseases control programmes comprising both field and laboratory experience; proven managerial and coordination skills including project identification and design; experience acquired with control programmes for AI; ability to prioritize tasks, work without direct supervision and promptly deal with urgent problems as they arise; working experience with international agencies. He/she will have level C proficiency in English.

Duty station: Hanoi, with travel throughout the country.

Duration: 24 months.

Terms of Reference

International Operations Officer

Under the general supervision of the Chief, Emergency Operations Service (TCEO) of the Food and Agriculture Organization of the United Nations (FAO) and the technical supervision of the Chief, Animal Health Service (AGAH), and within the framework of the Emergency Centre for Transboundary Animal Disease Operations (ECTAD), the International Operations Officer will report to the FAO Representative in Viet Nam under the direct supervision of the ECTAD country coordinator and the International Project Coordinator in close cooperation with the relevant field technical staff and desk officers and with TCEO, Rome. In particular, the incumbent will undertake the following tasks/responsibilities:

- handle specific day-to-day operations on matters relating to emergency assistance/projects;
- assist in the formulation of project proposals according to FAO's procedures, to donor countries and/or donor agencies, as well as the UN system, for financial support;
- assist in the preparation of the project documents and work plans for technical clearance by FAO's technical services and funding by FAO's Technical Cooperation Programme or under Trust Fund arrangements of all components of the project;
- handle and assist in the implementation of subsequent stages of the project life cycle (human resources, procurement, budget preparation, financial control, travel/logistics operations, administrative management, report writing, etc.);
- assist the ECTAD and technical field staff in the finalization of LoAs (LoAs) and contracts with local partners. Ensure that contracts and LoAs have been finalized and completed in accordance with recommendations from FAO headquarters;
- provide support for the negotiations with non-governmental organizations (NGOs) prior to the signing of contracts and submission of all materials related to the LoAs and contracts to Rome;
- participate in maintenance of various databases and monitoring related to avian influenza (AI) projects, i.e. activities, and results;
- contribute to the preparation of briefs and comprehensive reports, as well as donor correspondence;
- undertake field missions in support of field operations;
- organize and attend briefing and debriefing meetings for missions;
- in cooperation with TCEO professional staff, undertake necessary action for the mobilization of donor funds for emergency operations; and
- perform other related duties as required.

Reporting: the consultant will submit an end-of-mission report upon completion of the assignment, describing in detail, for each point listed in the terms of reference, the activities undertaken, major results obtained, problems encountered and progress towards achieving the specific objectives of the project.

Qualifications: university degree, preferably to masters level, in agriculture or economics or a related subject. More than five years experience in development projects. Specific experience in rural livelihoods and socio-economic would be an asset. Field experience, preferably in Viet Nam or other Southeast Asian country. He/she will have level C proficiency in English.

Duty station: Hanoi with in-country field travel as necessary.

Duration: 24 months.

Terms of Reference

National Consultant Project Coordinator

Under the overall supervision of the Emergency Centre for Transboundary Animal Disease Operations (ECTAD) at the headquarters of the Food and Agriculture Organization of the United Nations (FAO), Rome; the direct supervision of the ECTAD Regional Manager in Bangkok; and in close consultation with the FAO Representative in Thailand (Bangkok) and the International Project Coordinator, the National Consultant Project Coordinator will undertake the following activities:

- assist the International Project Coordinator in the coordination and linkage of the various financial, technical and material support related to the project and within the highly pathogenic avian influenza (HPAI) programme in Viet Nam;
- provide technical backstopping and guidance on animal health and HPAI issues;
- provide technical review of animal health and HPAI-related documents. Directly supervise the three project managers (north/central/south);
- assist the International Project Coordinator with a project office set up, recruitment of project staff including preparing terms of reference, development of a detailed work plan, procurement plan and mechanisms for implementation in cooperation with the donor and technical Government of Viet Nam counterparts;
- support the International Project Coordinator in all the activities at central and local level to test and develop a cost-effective HPAI H5N1 control vaccination intervention by evaluating the current standard vaccination strategy effectiveness and cold chain, and developing, testing and refining a Novel Vaccination Strategy (NVS); specifically for all six components of the project:
 - assisting to undertake a needs assessment of and subsequently assisting to carry out: procurement, training, public awareness campaign, cold-chain upgrading and any other activities required to implement Novel Vaccination Strategy trials in pilot provinces, in collaboration with central and local Government of Viet Nam counterparts agencies, Ministry of Health and the World Health Organization (MoH and WHO);
 - supporting to undertake a needs assessment of and subsequently assisting to carry out: contingency plan development, training and any other activities necessary to test the feasibility and logistics of withdrawal of routine vaccination compared with maintaining standard vaccination strategy in pilot provinces, in collaboration with the central and local Government of Viet Nam counterpart agencies, MoH and WHO;
 - assisting with evaluating the cost-effectiveness of several vaccination strategy trials undertaken in pilot areas and reporting to the Government of Viet Nam;
 - assisting with defining risk factors for animal outbreaks and final reporting to the Government of Viet Nam;
 - supporting the assessment of sociological behaviour associated to several vaccination strategies and final reporting to the Government of Viet Nam;
 - assisting in HPAI retrospective/prospective policy review and analysis in order to implement proposed changes to the HPAI control, and final reporting to Government of Viet Nam and concerned stakeholders;
- liaise closely with FAO project partners and stakeholders and ensure general supervision and coordination of project activities;
- assist in the organization and facilitation of technical meetings, workshops and training sessions related to the project;
- participate and report in national and regional meetings/workshops on HPAI related to the project and on technical meetings with the Government, national partners, other UN agencies, donors and other stakeholders;
- actively support and promote communication between human and animal health teams/partners and ensure full visibility of donor and project;

- travel to project sites in the country to monitor and ensure smooth implementation of the project in collaboration with the International Project Coordinator, the three National Project Managers and provincial and other local authorities;
- assist the International Project Coordinator with timely reporting requirements including technical reports, project concept notes, proposals and briefing documents and related information on the project, by the Government of Viet Nam, FAO and donors;
- submit a final technical report upon completion of the assignment to the FAO Animal Health Service (AGAH) and Emergency Operations Service (TCEO); and
- perform other related duties as required.

Reporting:

- at inception, assist the International Project Coordinator to prepare a detailed work plan including the timing of each activity and modalities of project execution in consultation with and clearance by the AGAH backstopping officer. This report, previously cleared by the FAO Representative, will be forwarded to ECTAD, FAO headquarters for operational clearance;
- assist the International Project Coordinator to prepare quarterly reports and a mid-term report. The mid-term report will assess in a concise manner, the extent to which the project's scheduled activities have been carried out, the outputs produced and progress towards objectives realized with suggestions for any corrective actions if required;
- towards the end of the project, assist the International Project Coordinator to prepare a draft final report in accordance with FAO trust fund procedures. This report will contain a complete review of activities undertaken, major results obtained, problems encountered, progress towards achieving the specific objectives of the project and impact on the beneficiaries. A section on recommendations and lessons learned, presenting guiding principles for future interventions, will be included;
- submit a final report upon completion of the assignment to ECTAD (Regional Office for Asia and the Pacific, Bangkok and FAO headquarters, Rome), describing in detail, for each point listed in the terms of reference, the activities undertaken, major results obtained, problems encountered, progress towards achieving the specific objectives of the project and recommendations or suggestions.

Qualifications: preferably a veterinarian with a postgraduate degree in a relevant field; strong skills and good experience in poultry disease control and surveillance programmes with both field and laboratory experience; project management and coordination skills; relevant experience at the international level; and at least level C proficiency in English.

Duty station: Hanoi, with travel throughout the country.

Duration: 24 months.

Terms of Reference

Three National Project Managers (north/central/south)

Under the overall supervision of the Emergency Centre for Transboundary Animal Disease Operations (ECTAD) at the headquarters of the Food and Agriculture Organization of the United Nations (FAO), Rome; the direct supervision of the ECTAD Regional Manager in the Regional Office for Asia and the Pacific, RAP, Bangkok; in close consultation with the FAO Representative (FAOR) and under the overall direction of the International and National Project Coordinators, the three National Project Managers will work closely with the local authorities in North, Central and South Viet Nam and carry out the following duties:

- assist the international and national project coordinators in the coordination and linkage of the various financial, technical and material support related to the project and within the highly pathogenic avian influenza (HPAI) programme in Viet Nam;
- provide technical backstopping and guidance on animal health and HPAI issues;
- provide technical review of animal health and HPAI-related documents;
- assist the international and national project coordinators with liaising and facilitating involvement and collaboration with relevant national staff and other Government of Viet Nam authorities; a project office set up, recruitment of project staff including preparing terms of reference, development of a detailed work plan, procurement plan and mechanisms for implementation in cooperation with the donor and technical Government of Viet Nam counterparts;
- support the international and national project coordinators in all the activities at central and local level to test and develop a cost-effective HPAI H5N1 control vaccination intervention by evaluating the current standard vaccination strategy effectiveness and cold-chain, and developing, testing and refining a Novel Vaccination Strategy (NVS); specifically through:
 - assisting to undertake a needs assessment of and subsequently assisting to carry out: procurement, training, public awareness campaign, cold-chain upgrading and any other activities required to implement Novel Vaccination Strategy trials in pilot provinces, in collaboration with central and local Government of Viet Nam counterpart agencies, Ministry of Health and the World Health Organization (MoH and WHO);
 - supporting to undertake a needs assessment of and subsequently assisting to carry out: contingency plan development, training and any other activities necessary to test the feasibility and logistics of withdrawal of routine vaccination compared with maintaining standard vaccination strategy in pilot provinces, in collaboration with central and local Government of Viet Nam counterpart agencies, MoH and WHO;
 - assisting with evaluating the cost-effectiveness of several vaccination strategies trials undertaken in pilot areas and reporting to the Government of Viet Nam;
 - assisting with defining risk factors for animal outbreaks and final reporting to the Government of Viet Nam;
 - supporting the assessment of sociological behaviour associated to several vaccination strategies in all six components of the project;
- liaise closely with FAO project partners and stakeholders and ensure general supervision and coordination of project activities;
- assist in the organization and facilitation of technical meetings, workshops and training sessions related to the project;
- participate and report in national and regional meetings/workshops on HPAI, and on technical meetings with the Government, national partners, other UN agencies, donors and other stakeholders;
- support communication between human and animal health teams/partners and ensure full visibility of donor and project;

- travel to project sites in the country to monitor and ensure smooth implementation of the project in collaboration with the international and national project coordinators, provincial and other local authorities;
- assist the international and national project coordinators with timely reporting requirements including technical reports, project concept notes, proposals and briefing documents and related information on the project, by the Government of Viet Nam, FAO and donors;
- submit a final technical report upon completion of the assignment to the international and national project coordinators, FAO Animal Health Service (AGAH) and Emergency Operations Service (TCEO); and
- perform other related duties as required.

Reporting:

- submit a concise mAt inception, assist the international and national project coordinators to prepare a detailed work plan including the timing of each activity and modalities of project execution in consultation with and clearance by the AGAH backstopping officer. This report, previously cleared by the FAO Representative, will be forwarded to ECTAD, FAO headquarters for operational clearance;
- monthly report to the international and national project coordinators specifying activities undertaken, major results obtained, problems encountered, progress towards achieving the specific objectives of the project, and recommendations or suggestions;
- assist the international and national project coordinator to prepare quarterly reports and a mid-term report. The mid-term report will assess in a concise manner, the extent to which the project's scheduled activities have been carried out, the outputs produced and progress towards objectives realized with suggestions for any corrective actions if required;
- towards the end of the project, assist the international and national project coordinators to prepare a draft final report in accordance with FAO trust fund procedures. This report will contain a complete review of activities undertaken, major results obtained, problems encountered, progress towards achieving the specific objectives of the project and impact on the beneficiaries, A section on recommendations and lessons learned, presenting guiding principles for future interventions, will be included;
- submit a final report upon completion of the assignment to the international and national project coordinators, ECTAD, RAP, Bangkok and headquarters, Rome, describing in detail, for each point listed in the terms of reference, the activities undertaken, major results obtained, problems encountered, progress towards achieving the specific objectives of the project, and recommendations or suggestions.

Qualifications: preferably a veterinarian with a postgraduate degree in a relevant field experience; strong skills and good experience in poultry disease control and surveillance programmes with both field and laboratory experience; project management and coordination skills; and at least level C knowledge of English would be an asset.

Duty station: Regional Animal Health Offices (RAHOs) in North, Central and South Viet Nam, with travel to Hanoi and throughout the country to study sites.

Duration: 24 months.

Terms of Reference National Operations Officer

Under the overall direction of the international and national project coordinators and the direct supervision and guidance of the International Operation Officer, the National Operations Officer will work closely with the FAO Representation Administration staff and carry out the following duties:

- maintain budget monitoring tables for all expenditures made under Field Budget Authorizations (FBA) to FAO Viet Nam of the project;
- provide information on the status of the project's budget and expenditures on a regular basis, especially related to FBA balances, and for preparation of reports;
- in consultation with the International Operations Officer keep a record of hard and soft commitments to assist with project planning and disbursement;
- assist the International Operations Officer in assigning budget codes for 'Outposted Operational Cash Account';
- assist the International Operations Officer with review and validation of receipts/expense summaries submitted by the government counterpart and contractors;
- assist the International Operations Officer in the recruitment process and monitor the contract status and payments of all local personnel;
- facilitate and conduct the procurement of required goods and services for the project;
- perform other related duties as required.

Reporting: the incumbent will submit a final end-of-mission report upon completion of the assignment, describing in detail, for each point listed in the terms of reference the activities undertaken, major results obtained, problems encountered and progress towards achieving the specific objectives of the project.

Qualifications: Education: university degree in business, public administration, economics, or other related fields and at least five (5) years work experience in accounting and/or providing administrative support services, preferably in an international organization environment; experience in the UN system would definitely be an advantage.

Other requirements: computer literacy, proficiency in the use of various software applications (MS Word, Excel, etc.); ability to work independently and exercise sound judgment; and promote team work with national and international personnel at all levels.

Language requirements: outstanding written and oral skills in the English language and the national language.

Duty Station: Hanoi.

Duration: 24 months.

7.4 ANNEX IV: General Provisions

1. The achievement of the objectives set by the project shall be the joint responsibility of the Government and FAO.
2. As part of its contribution to the project, the Government shall agree to make available the requisite number of qualified national personnel and the buildings, training facilities, equipment, transport and other local services necessary for the implementation of the project.
3. The Government shall assign authority for the project within the country to a government agency, which shall constitute the focal point for cooperation with FAO in the execution of the project, and which shall exercise the Government's responsibility in this regard.
4. Project equipment, materials and supplies provided out of the project funds shall normally become the property of the Government immediately upon their arrival in the country, unless otherwise specified in the agreement. The Government shall ensure that such equipment, materials and supplies are at all times available for use of the project and that adequate provision is made for their safe custody, maintenance and insurance. Vehicles and personal computers remain the property of FAO, unless otherwise specified in the agreement.
5. Subject to any security provisions in force, the Government shall furnish to FAO and to its personnel on the project, if any, such relevant reports, tapes, records and other data as may be required for the execution of the project.
6. The selection of FAO project personnel, of other persons performing services on behalf of FAO in connection with the project, and of trainees, shall be undertaken by FAO, after consultation with the Government. In the interest of rapid project implementation, the Government shall undertake to expedite to the maximum degree possible its procedures for the clearance of FAO personnel and other persons performing services on behalf of FAO and to dispense with, wherever possible, clearance for short-term FAO personnel.
7. The Government shall apply to FAO, its property, funds and assets, and to its staff, the provisions of the Convention on the Privileges and Immunities of the Specialized Agencies. Except as otherwise agreed by the Government and FAO in the Project Agreement, the Government shall grant the same privileges and immunities contained in the Convention to all other persons performing services on behalf of FAO in connection with the execution of the project.
8. With a view to the rapid and efficient execution of the project, the Government shall grant to FAO, its staff, and to all other persons performing services on behalf of FAO, the necessary facilities including:
 - i) the prompt issuance, free of charge, of any visas or permits required;
 - ii) any permits necessary for the importation and, where appropriate, the subsequent exportation, of equipment, materials and supplies required for use in connection with the project and exemption from the payment of all customs duties or other levies or charges relating to such importation or exportation;
 - iii) exemption from the payment of any sales or other tax on local purchases of equipment, materials and supplies for use in connection with the project;
 - iv) payment of transport costs within the country, including handling, storage, insurance and all other related costs, with respect to equipment, materials or supplies for use in connection with the project;
 - v) the most favourable legal rate of exchange;
 - vi) assistance to FAO staff, to the extent possible, in obtaining suitable accommodation;
 - vii) any permits necessary for the importation of property belonging to and intended for the personal use of FAO staff or of other persons performing services on behalf of FAO, and for the subsequent exportation of such property;

viii) prompt customs clearance of the equipment, materials, supplies and property referred to in subparagraphs (ii) and (vii) above.

9. The Government shall deal with any claim which may be brought by third parties against FAO or its staff, or against any person performing services on behalf of FAO, and shall hold them harmless in respect of any claim or liability arising in connection with the project, unless the Government and FAO should agree that the claim or liability arises from gross negligence or wilful misconduct on the part of the individuals mentioned above.

10. The persons performing services on behalf of FAO, referred to in paragraphs 6 to 9, shall include any organization, firm or other entity, which FAO may designate to take part in the execution of the project.

7.5 ANNEX V: Guidelines for the preparation of progress and final reports

The final report is submitted officially by FAO to donors on the conclusion of projects operated by the Emergency Operations and Rehabilitation Division (TCE).

The objective of this report is to provide the donor with information on how the funds were utilized. The final report should be a concise account of the main results, conclusions and recommendations of the project, with minimal background, narrative and technical details. A beneficiary-centred approach to presenting information is preferable. The analysis of problems and the description of activities should lead logically and directly to the findings and recommendations presented.

The report should be written in clear language, and addressed to the donor at senior policy programme level, avoiding the use of technical terms.

The report should not normally exceed ten pages, without borders, boxes, shading, footnotes or endnotes. Digital photographs used to illustrate the activities undertaken and their impact should be separated together with a free-standing explanation or caption.

Content of the report:

1. Executive summary: one page maximum, the summary should sum up the entire report and should highlight the essential elements of the project.
2. Introduction: background (impact of the disaster(s) on the agriculture sector; and Government and international response to the disaster); financial contribution of the donor, objectives, beneficiaries.
3. Project implementation: implementation arrangements; activities; difficulties encountered during implementation.
4. Impact: on beneficiaries and secondary project impact. The evaluation will be based on comparison of indicators defined and refined during the project cycle.
5. Findings and recommendations pertinent to future assistance.