

GOVERNMENT OF PAKISTAN

PLANNING COMMISSION

DEVELOPMENT PROJECT

**NATIONAL PROGRAMME FOR THE
CONTROL AND PREVENTION OF
AVIAN INFLUENZA**

DECEMBER-2006

PC-I
Government of Pakistan
Planning Commission
(Production Sectors, Agriculture)

1. Name of the Project: **NATIONAL PROGRAMME FOR THE CONTROL AND PREVENTION OF AVIAN INFLUENZA**

2. Location: The project activities will be carried out through out Pakistan including AJK, FATA, and FANA.

3. Authorities responsible for

Sponsoring:

Ministry of Food, Agriculture, and Livestock, Government of Pakistan

Execution:

Livestock Wing, Ministry of Food, Agriculture, and Livestock, Islamabad, with the collaboration of provincial Livestock and Dairy Development (L & DD) department.

Operation and Maintenance:

The Project Management Unit (PMU) will be established at the National Reference Laboratory for Poultry Diseases (NRLPD), Animal Sciences Institute, National Agricultural Research Centre, Park Road, Islamabad. After completion of the project, the national surveillance net work and referral diagnostics will be maintained by NRLPD, the provincial surveillance net work will be managed by the provincial/area L & DD departments, , and Vaccine Evaluation unit will be managed by the National Veterinary Laboratory, Islamabad, through regular GOP funding. Farmer's compensation component will be undertaken by Livestock and Dairy Development Board.

Concerned Federal Ministry:

Ministry of Food, Agriculture and Livestock (MINFAL)

4. a) Plan Provision:

The areas of Surveillance and Monitoring of Animal Diseases and improvements of veterinary vaccines have already been specified as priority area in the medium term development frame work (MTDF) and allocation of Rs 29.2 billion has been made for these subjects. Thus this proposal is fully in line with MDTF objectives. Moreover, an amount of Rs 1000 million has been specifically allocated to this proposed project in the PSDP of MINFAL.

- Provision in the current year PSDP/ADP. (2006-7) Rs. 10 million

5. Project Objectives:

The overall objective of this project is to develop national capacity to combat any future outbreak of bird flu through effective surveillance and disease response mechanism. However, the specific objectives of the proposed project are:

- i. Improve and scale up avian influenza surveillance, reporting and diagnostics at federal, provincial and district levels.

- ii. Strengthen disease control, outbreak containment, and eradication of highly pathogenic avian influenza (HPAI).
- iii. Increase awareness among the farmers, consumers, veterinary professionals and other stake holders regarding AI epidemics.
- iv. Undertake research in the area of AI virus ecology, pathogenesis, diagnostics and vaccine development.
- v. Strengthen AI vaccine evaluation and quality assurance system.
- vi. Develop legal and regulatory frame work for providing veterinary services with the power to enforce national animal disease control measures.

The project objectives will lead to achieving the targets and policies mentioned in the MTFD, where by systems and institutions supporting animal disease control activities will be further strengthened. This will not only result in avoiding the threat of bird flu but will also help control other diseases affecting productivity of animals. Thus projective objectives fully support the sector objectives as mentioned in the MTFD.

6. Description, justification, technical parameters and technology transfer aspects of the project.

JUSTIFICATION

Avian Influenza (AI) is a highly contagious viral infection, primarily of avian species, and mainly affecting gastrointestinal, respiratory, reproductive and/or nervous systems of the affected birds. In case of systemic infection the virus is capable to cause sudden death resulting in high mortality and egg production losses in the affected flocks. Of the known 16 subtypes of AIV, H5 and H7 are high risk strains and are known to cause severe infection in poultry and on some occasions in human. The world animal health organization (OIE) has declared H5 and H7 infection as notifiable AI, making it mandatory for the countries to notify the disease to OIE.

Avian influenza does not usually infect humans, however, once transmitted; the infection may lead to the influenza-like symptoms, viral pneumonia, and other severe and life-threatening complications. Beginning 2003, incidence of H5N1 infection in human has increased mostly in Asian countries, leading to 155 deaths from nine countries: Azerbaijan, Cambodia, China, Egypt, Indonesia, Iraq, Thailand, Turkey, and Viet Nam. So far, all the genes identified from the recovered viruses are of avian origin, indicating that the virus has not yet acquired human genes. The acquisition of human genes is known to increase the likelihood that a virus of avian origin can be readily transmitted from one human to another, resulting into human pandemic. However, molecular epidemiology data indicates that currently circulating strains of H5N1 viruses are becoming more capable of causing disease (pathogenic) in animals than were earlier H5N1 viruses. The virus continues to evolve and may adapt so that other mammals (including human) may be susceptible to infection as well. Thus the probability of pandemic influenza occurrence has increased significantly.

Since 1995, Pakistan has been affected by H5, H7 and H9 strains of avian influenza viruses, on a number of occasions. Each time some of the major poultry rearing areas were affected and as a result poultry industry suffered very hardly. The last outbreak of H7N3 in Sindh in 2004 resulted into economic losses of US \$ 20 million. This also prompted the government to set up a disease surveillance mechanism for avian influenza control with the assistance of FAO of the UN. Due to the presence of this

surveillance mechanism, in February 2006, a new AIV strain, H5N1 was diagnosed at two commercial farms in NWFP and six weeks latter a few more outbreaks of H5N1 were identified in other parts of the countries. These outbreaks were stamped out by culling, movement control, and strategic vaccination in poultry. No human infection due to H5N1 was recorded during this period.

This episode of H5N1-bird flu outbreak created fear, panic and food insecurity in public and the people stopped eating poultry meat and eggs and caused a serious market disruption. Approximately 50 % of the small poultry farms were closed during this situation. The economic losses to the tune of \$22 million were estimated in this scenario by the poultry industry of Pakistan. In addition to this government had to spend more than Rs 150 million on emergency basis to respond to the outbreak and pay compensations to the affected farmers. These efforts helped in reducing the spread of the virus to other parts of the country. Surveillance, monitoring and disease control is a continuous process that needs to be upgraded.

In the light of nation-wide AI surveillance being carried out in poultry sector all over the country and based on FAO/WHO/OIE reports, it is anticipated that the AI epidemic may continue to expand both in geographic distribution and incidence in this area of the world and beyond. Based on the deficiencies of current avian influenza surveillance and control program in Pakistan, there is a need to undertake a well organized and expanded form of surveillance of avian influenza in all types of poultry, including wild birds, built capacity for disease diagnosis and make necessary arrangements to combat the disease at source. This also includes arrangements for culling, compensation, vaccination, and re-habilitation of the affected farmers. There is need for public education, training of field veterinarian & lab diagnosticians as well. It is anticipated that a project covering the above areas is the only approach for up-scaling the required preparedness plans for combating any future outbreak of avian influenza, so that the disease is effectively controlled at the source and may not become endemic in poultry or get established in humans in this country. Now with the persistence of AIV H5N1 in a number of Asian countries in the region, and recent discovery that migratory birds carry the virus over long distances, there are increasing concerns that H5N1 type of avian influenza may re-enter Pakistan with the potential of causing huge economic losses and jeopardizing human safety. The potential risk to human life in the densely populated urban areas of Pakistan underlines the urgency of bringing the disease under control by means of strengthened regulatory, technical and operational disease control measures planned under this project.

ON-GOING ACTIVITIES

Infrastructure of Poultry Production department exists in most of the provinces, however, diagnostic lab facilities and disease monitoring system are lacking at many of these places. Some of the other institutes such as Poultry Research Institutes, Veterinary faculties and Universities and NARC are primarily involved in basic diagnostic work on poultry diseases. The Veterinary Research Institute present in Peshawer and Lahore are mostly involved in vaccine production and to some extent in disease diagnosis. Most of the above institutions have been operating with very limited non-development budgets for undertaking routine activities, whereas special arrangements are required for undertaking a comprehensive surveillance, diagnostics and control measures against avian influenza in poultry in the face of increased threat.

In this regard, currently the major diagnostic, surveillance and research work on avian influenza is being undertaken at the Animal Sciences Institute, NARC. Here the National Reference Lab for Poultry Diseases (NRLPD), has been running National Avian Influenza Surveillance Program since 2004 through financial assistance from GOP and FAO-USAID with a budget of Rs. 39.85 million (2005-8) and US \$ 285,000 (2005-7), respectively. In addition to the existing 5 member staff of NRLPD, 4 scientists and 2 office staff have been working on contract to run the above mentioned projects on avian influenza.

Under the on-going projects, twelve peripheral AI-Surveillance & Diagnostic Units have been established at various government institutions throughout the country. These units have been equipped with some basic instruments, material and trained man-power to undertake the required diagnostics, surveillance and culling operations. In this regard, a number of workshops for the training of provincial lab and field staff have also been organized during the past 2 years. The project is also carrying out communication activities by developing awareness literature for farmers and professionals and by conducting awareness seminars. However, due to scarcity of funds, the ongoing activities are limited to some of the major poultry raising areas and very limited surveillance and awareness activities are being carried out among back yard poultry and wild birds.

PROJECT DESCRIPTION

The proposed project will target the problems of avian influenza in this country by following the multi-pronged operational strategies. The major proposed inputs/activities of the project to be provided / implemented are as follows:

i) Avian Influenza Surveillance and Reporting

The current system of avian influenza monitoring being run through the National Reference Lab for Poultry Diseases, NARC will be further expanded to new regions. A total of 10 provincial coordinating units and 40 regional surveillance units are proposed in the new project (Annexure-I). This will also include expanding the diagnostic facilities for avian influenza both through regional and National Reference Labs. Samples will also be tested from vaccinated flocks to study effectiveness of AI-vaccines used in the field. The following Project Coordinating Units (PCU) are proposed in this regard for interacting with the Project Management Unit (PMU) at NARC:

- 1- Poultry Research Institute, Shamasabad, Rawalpindi, Punjab
- 2- Poultry Research Institute, Karachi, Sindh.
- 3- Veterinary Research & Diagnostic Lab, Abbotabad, NWFP.
- 4- Disease Investigation Lab, Livestock & Dairy Development, Quetta, Balochistan
- 5- Poultry Develop. Office, Directorate of Animal Husbandary, Muzaffarabad, AJK
- 6- Livestock and Dairy Development, Department, Northern Areas, Gilgit.
- 7- Livestock and Dairy Development Dept, Peshawar (for FATA)
- 8- Directorate of Agri. Industries & Welfare, ICT, Islamabad.
- 9- National Veterinary Laboratory, Park Road, Islamabad.
- 10- National Reference Lab for Poultry Diseases, NARC, ISD

For carrying out Surveillance and Diagnostic work for AI, one main Surveillance and Diagnostic Lab will be established at each of the above listed units 1-8. These labs will be equipped to undertake avian influenza diagnostic and surveillance work listed at

Annexure-II. These labs will coordinate with each of the Regional Surveillance Units (RSU) in each province/area. The RSU will be equipped with the basic facilities for disease investigation, sampling and data collection for surveillance, and responding to AI outbreaks. The proposed field activities will be extended up to district level, under these RSUs. This network will be run through telecommunication tools to collect information at provincial/area units for onward transmission to PMU at the federal level. For this purpose a network of computer based communication will also be set up at these units.

The National Veterinary Laboratory will carry out vaccine evaluation work, where as the National Reference Lab for Poultry Diseases will serve as reference lab for diagnostics and surveillance purpose.

ii) Handling of Disease Outbreaks

To handle any fresh AI outbreaks, a number of Rapid Response Units (RRU) will be established under the supervision of provincial coordinators at regional and district levels, in consultation with DGs of each province/federally controlled areas. The Provincial Coordinating Unit along with the selected Regional Surveillance Units will be equipped with emergency handling equipments, vehicles, supplies and trained manpower to handle new outbreaks of AI in the country.

iii) Strengthening of Diagnostic Capabilities

At the federal level the National Reference Lab for Poultry Diseases (NRLPD), NARC, will serve as Central Lab for Avian Influenza Diagnosis and Surveillance and will be further strengthened to handle exotic pathogens, especially those with Zoonotic potential, by providing BSL-3 facility. This lab will be upgraded and will also serve as Sub-Regional Hub lab for Avian Influenza diagnosis and research for extending expertise to other countries of SAARC and/or Central Asia, in coordination with the ongoing FAO-Regional Project on Avian Influenza in this region.

In each of the selected provincial coordinating units, at least one lab will be upgraded through equipment and supplies for catering the diagnostic and surveillance need of the province in the area of avian influenza. In addition to this, forty Regional Surveillance Units (RSU) will also be established in the selected districts of each province. This will include supply of necessary equipment, vehicles, reagents and training of staff.

iv) Quality Control Evaluation of AI vaccines

Even though Pakistan has been vaccinating poultry for avian influenza since 1995, the disease has not been eradicated. Some of the major reasons may include improper vaccine handling, use of outdated seed virus strain, improper calibration of vaccine dose, etc. It is, therefore, required that regular AI vaccine evaluation is introduced in the country. In this regard facilities at National Veterinary Laboratory (NVL), Islamabad will be up-graded to carry out regular testing of AI vaccine, produced locally or imported.

v) Training and awareness of staff, farmers, and public

Field veterinary services for surveillance and diagnosis of Avian Influenza will be strengthened through (i) support for traveling/transportation needs (ii) training of field staff for sampling, data collection, reporting and lab diagnosis. Training at different

levels of farmers, farmer's organizations and other partners involved in various aspects of the management of this sector will be key components of the project Annexure-III.

Training will consist of refresher courses, practical training in biosecurity techniques, culling and disposal of affected poultry and disinfecting techniques after exposure to bird flu. Training programs to improve lab investigation capabilities of different labs will also be launched.

Public awareness campaign will also be undertaken to make available the right information to the public, regarding avian influenza/bird flu. This will also include journalists and wet market traders.

vi) Research and Development

For carrying out research activities especially in the area of ecology of avian influenza viruses, their pathogenicity, zoonotic potential, development of effective diagnostics & vaccines, a number of institutions will be supported under this project. This may include University of Faisalabad, University of Veterinary and Animal Sciences Lahore, University of Tando Jam, and Veterinary Research Institutes at Lahore and Peshawar. The PMU will coordinate for selection of area of interest and providing assistance to the institutions carrying out the required R & D work. This may include in-house research or support for graduate studies.

vii) Compensation For Enforced Culling of HPAI infected poultry

To make the culling operation effectively, it is very important to devise a Culling and Compensation policy to encourage the poultry farmers to come forward for reporting any suspected outbreak of avian influenza. MINFAL has already developed a culling and compensation policy which was employed during the last outbreak of H5N1. In the light of this experience, a legal expert will be hired under the project to develop a policy plan for the approval of GOP, in this regard. Funds will be set aside as Emergency Compensation Funds for use as and when required for compensating the farmers affected by avian influenza, in case of enforced culling introduced by the government. This component will be implemented by the Livestock and Dairy Development Board (LDDDB). The amount allocated for this component will be given to L & DDB which will continue to manage this amount for this purpose even after the expiry of the project.

viii) Legal Framework for Animal Health

To enforce national animal disease control measures in the light of National Avian Influenza Control program, a legal and regulatory frame work is required. This will empower the local and federal veterinary authorities to implement various sanitary, biosecurity, disease reporting & disease handling measures, and compensation policy, outlined in the national disease control program. For this purpose, a legal consultant will be hired who will coordinate with the Project Director to review and improve the present legislations in this area to bring them in line with the present requirement. The draft will be presented to Parliament for enactment.

ix) Project Implementation

The proposed project is envisaged to undertake comprehensive avian influenza surveillance, awareness, diagnostics, and control activities. The project activities will be

supervised and coordinated at the national level by the Animal Husbandry Commissioner of Livestock Wing of MINFAL, as National Project Coordinator (NPC). The Project Management Unit (PMU) will be located at the National Reference Laboratory for Poultry Diseases (NRLPD), Animal Sciences Institute at NARC. For effective running of the project, a Project Director along with a few technical and administrative staff will be hired on full time basis, whereas part-time national and international consultants will be engaged for technical assistance. The concerned DG/Director, Livestock of each province/area will serve as Provincial Project Coordinator (PPC), whereas the project activities will be carried out throughout each province by a Provincial Surveillance Officer (PSO) and a Regional Surveillance Officer (RSO), nominated by the respective authorities of each province/area. A PSO will act as in-charge of each Project Coordinating Unit (PCU) at the places list above at (i), and will serve as focal person for running the project activities in coordination with PMU in the centre. Each PSO will also coordinate with the in-charge (RSO) of each RSU set up at different places of the province under this project (Annexure-I). All the persons working as NPC, PPC, PSO, and RSO will be monthly awarded project allowance equivalent to 20% of their running basic salary to compensate for the additional duties carried out by them under this project.

The project will have a **PROJECT STEERING COMMITTEE (PSC)**, for overall supervision of the project implementation. PSC will oversee the project implementation, annual work plan, review progress, provide guidance and resolve operational and financial issues recurring during the project implementation. It will authorize technical revision and re-appropriation of funds within overall approved cost and scope of the project. The composition of PSC will be as under:

Chairperson: Secretary, MINFAL.

Members: Animal Husbandry Commissioner, Provincial Secretaries L & DD, Joint Secretary (Plan) MINFAL, DG-Health (MOH), Chief Agriculture P & D Division, Deputy Financial Advisor, Chief Executive Livestock & Dairy Development Board, Member (Animal Sciences) PARC, Director-NRLPD, Project Director

A **PROJECT ADVISORY COMMITTEE (PAC)** will also be constituted to monitor the routine activities of the project and will advise on technical matters related to the project, as approved in the PC-1. This committee will comprise of the following:

Chairperson: Animal Husbandry Commissioner,

Members: Project Director, Provincial DGs L & DD, Member (AS-PARC), Dr. Mohammad Afzal (CE; L&DDB), Director-NRLPD.

At the Federal level, the PMU will monitor the project activities at the six coordinating units including, ICT, FATA, FANA, AJK, NVL, and NRLPD. The required funds will be transferred on quarterly basis to the administrating authorities of each component. The PMU will also be responsible to coordinate R & D activities carried out at various research institutions/universities throughout the country.

At the provincial level, the project activities will be carried out through the offices of provincial DGs/Directors of the Livestock and Dairy Development departments. Apart from the major procurement of equipment, vehicles and supplies, funds for provincial activities will be transferred on quarterly basis to each of the four provincial coordinating units through the concerned directorate of L & DD.

All the procurement of equipment, vehicles, and international/national training and evaluation, will be carried out through PMU, whereas routine project expenditures will be managed by the provincial/area coordinators, utilizing funds earlier transferred to the provinces/area authorities.

The farmer's compensation funds will be managed by L & DDB and disbursed, in consultation with the offices of Animal Husbandry Commissioner, and provincial authorities as and when required in accordance with the terms and conditions set up by the offices of AHC in MINFAL.

PROJECT OUTPUTS:

Expected outputs/outcomes and benefits of the proposed project would be:

a) An effective national surveillance and monitoring network will be established. This will result in early Disease Early Warning System (DEWS). This will result in early disease reporting and thus immediate effective control to minimize losses to poultry industry in the country. Furthermore, chances of transfer/spread of AI to human will be minimized.

b) A network of diagnostic labs capable of identifying Avian Influenza will be established. This will result in early diagnosis of the disease, leading to the initiation of a comprehensive disease control and eradication program. Furthermore, with the establishment of first BSL-3 lab in the country, it will become possible to work with other Zoonotic organisms, leading to proper disease diagnosis and R & D in the area of animal pathogens. This will also help in avoiding the current practices of sending the samples abroad for diagnosis.

c) Stockpiling of protective gears, culling appliances, disinfectants and anti-viral drugs will be made to handle stamping out activity during the disease. This will also include development of training manuals and training of provincial staff in emergency preparedness procedures.

d) A national disease information network will be set up to provide rapid information from the field to the National Emergency Information Desk at AHC office (MINFAL) of new outbreaks and control measures to be taken. Improved linkages with Regional Surveillance Units and Provincial Project Coordinators will be established.

e) A set up will be established to carry out awareness campaign through print media, radio and electronic media. This will result in development of printed and electronic material for distribution to the stakeholders.

f) Veterinary Vaccine Testing Laboratory will ensure quality control of nationally manufactured vaccines. This will entail stricter monitoring, bioassays, and batch testing.

g) New diagnostic procedures and improved vaccines will become available for handling new outbreaks of avian influenza.

h) The legal and regulatory framework will be developed in the form of Animal Health act, comprising of all the legislation pertaining to production, marketing, processing and handling of poultry and poultry products. A draft paper on a national compensation

policy, and operational guidelines for emergency preparedness at all administrative levels will also become available for adoption by the MINFAL.

QUANTIFIABLE/MONITORABLE TARGETS

Sr. No.	Activity	Quantifiable/Monitorable Targets/Indicators	Source of Verification
1	Establishment of AI-Surveillance net work	10 provincial labs and 40 regional units will be equipped	Physical set up will be established
2	Up-gradation of Diagnostic services	Construction of BSL-3 lab and procurement of required equipment for 10 provincial labs	Monthly lab testing report
3	Preparedness for Rapid Response	Procurement of 38 vehicles, 40 motor cycles and disinfection equipment (Annexure-IV, VI)	Physical set up: Monthly progress report
4	Organize seminars/workshops/conferences	210 Workshops/ seminars/ conferences to be conducted	Project documents
5	Inland/Foreign Trainings for field/lab staff	170 local and 2 international training courses for lab and field staff	Project document/reports
6	Vaccine testing services	Testing of 3-4 batches of vaccine per quarter	Monthly progress report
7	R & D projects	2-3 students complete thesis research per year	No of thesis produced and papers published

- **Provide details of civil works, equipment, machinery and other physical facilities required for the project.**

Details of civil works, equipment and machinery are presented in the enclosed Annexure-IV,V, VI and VII.

7. Capital Cost Estimates:

Cost estimates were prepared in November, 2006 and current market rates are used in calculating the cost estimates.

Capital Cost of Project:

(Million Rs.)

Project local cost:	1002.938
Foreign Exchange cost:	183.000
Total Cost:	1185.938

(a) (Table-1): Item Wise break-up of the cost

Sr. No	Item	Total Cost (Million Rs)	%
1	Establishment Cost	17.834	1.43
2	Transportation	13.658	1.15
3	Communication Charges	1.654	0.14
4	Utilities, office support and Stores (Including emergency vaccine stock)	33.075	2.79
5	Repair & maintenance	1.521	0.13
6	Compensation & RRU operations (other services)	449.172	37.92
7	Seminars/trainings/workshop	29.500	2.49
8	Equipment	98.733	8.33
9	Office equipment	6.887	0.58
10	Furniture & Fixture/Special BSL Lab Fixtures	59.254	5.00
11	Vehicle	46.970	3.95
12	Construction of Lab (BSL-3)/civil works	18.000	1.52
16	Provincial Operational Funds	409.680	34.54
	TOTAL	1185.938	100.00

(b) Agency (units)-wise cost: N.A.

(c) Provide year wise estimation of physical activities:

Table-2- Year-wise estimation of physical activities and financial phasing

Year	Activities	Total
1st year	<ul style="list-style-type: none">- Recruitment of technical and support staff- Setting up and strengthening of provincial units- Setting up of provincial coordination units- Procurement of equipment, machinery, consumables, vehicles- Feasibility to construct BSL-3- Planning and execution of training programs.- Conduct Seminars, workshops, and initiate communication plan- Support for carrying out surveillance- Establish National Epidemiology Network.- Setting up vaccine testing facilities- Monitoring and evaluation of the project	473.338
2 nd Year	<ul style="list-style-type: none">- Strengthening of provincial units- Strengthening of provincial coordination units- Construction of BSL-3 facility- Running of routing diagnostics and surveillance.- Conduct trainings/workshops for lab and field staff and farmers.	327.698

	<ul style="list-style-type: none"> - Implementation of communication plan. - Carry out AI vaccine evaluation - Drafting legal frame work for animal disease control measures. - Data processing - Monitoring and evaluation of project 	
3 rd year	<ul style="list-style-type: none"> - Conduct and expand surveillance activities. - Running of routing diagnostics. - Conduct trainings/workshops for lab and field staff and farmers. - Carry out vaccine evaluation. - Implementation of communication plan. - Data processing - Project evaluation 	327.698
TOTAL		1185.938

- **Phasing of capital cost be worked out on the basis of each item of work as stated above and provide as per following:**

Annexure-VII

8. Annual recurring expenditure after completion:

No separate funds as recurring cost are to be requested, as three components of the project will be separately handled by different organizations at the end of this project duration as detailed below:-

- i- BSL-3 facility: This lab will become a part of the National Reference Lab for Poultry Diseases, which is already being maintained by the NARC. Therefore, funds for running this facility will be arranged by the NARC as a part of routine activity.
- ii- Avian Influenza Surveillance and Diagnostics: The NRLPD is already engaged in diagnosis and surveillance of major poultry diseases. The surveillance activities for avian influenza will be continued by the NRLPD and the epidemiological data received from provinces or generated federally will be communicated to Livestock wing of MINFAL and maintained there. The Livestock Wing has already got a set up for record keeping of epidemiological work related to major animal diseases.
- iii- At provincial level, each avian influenza surveillance unit, along with RRUs, will be taken over by the provincial governments as a part of their disease surveillance and diagnostic net work, under provincial epidemiological program. The information will be sent to the AHC office in MINFAL on monthly basis. The data will also be shared and referral diagnostic samples will be sent to NRLPD for onward communication to the office of AHC at federal level.

9. Demand and supply analysis (for industrial and agricultural production projects):

- **Description of product/services.**

The proposed project is indirectly aimed to increase the production of chicken meat and eggs by improving the poultry health and management, resulting in

the production of healthy chicken at affordable prices and on sustainable basis.

- **Demand/supply of the last five years.**

Table 3- Demand/Supply for last five years (000 tons)

Years	Supply		Demand	
	<i>Eggs</i>	<i>Chicken Meat</i>	<i>Eggs</i>	<i>Chicken Meat</i>
2001-2	7,500	355	15000	700
2002-3	7860	370	1572	740
2003-4	8,200	387	16400	747
2004-5	8,500	404	17000	808
2005-6	9,000	422	18000	844

Poultry meat, being white meat, is considered to be most suitable source of animal protein to all age groups of human for fulfilling their daily dietary needs. In the same way, egg consumption is based on its high nutritive value. Due to acute shortage of mutton and beef in this country, the prices of these commodities have gone very high, resulting in shortage of animal protein for maintaining basic needs of human health. With the availability of chicken meat, and by knowing the facts regarding its better digestibility and low fat contents, its demand has increased 200 times during the past 10 years. The annual production of eggs and meat is however increasing only at a rate of 6%. The per capita consumption of chicken meat in Pakistan is 2.5 kg per person, in comparison with Indonesia alone where per capita consumption is 32 kg. This indicates a huge gap between the supply and demand of chicken products in this country. Despite the existence of this short fall in the availability of chicken meat, its demand is based on market prices which are very fluctuating. One of the reasons for unstable chicken prices is poultry health issues. The new fast growing strains of chickens are susceptible to many diseases. Due to un-organized poultry farming, many new diseases erupt and spread at very fast rate affecting the chicken production. This results in shortage of chicken-meat and eggs, and results in increased market prices. As the processed chicken market is not yet established in this country, any fluctuation in the demand of chicken meat adversely affects the chicken production at its source. This cycle has repeatedly affected the growth of this sub-sector during the past 15 years. The proposed project will help in improving early diagnosis and control of poultry diseases, introduce better management measures to ward off any disease from the farm, educate the farmers to improve their farming and help in introducing legislation for better monitoring of poultry health adopted under this project.

10. Financial plan and mode of financing:

Source of Financing

The Government of Pakistan (GOP) has approached a number of international organizations both for technical and financial assistance to carry out a National Project

for the Control and Prevention of Avian Influenza. In this regard, at the invitation of GOP a World Bank mission visited Pakistan in November, 2006 to undertake pre-appraisal of an Avian Influenza Preparedness and Response Project (AIPRP). The mission was a follow-up to the Technical Review Mission (TRM) that visited Pakistan in April 2006. The TRM identified two basic follow-up actions: (a) development of an integrated animal and human health project; and (b) preparation of cost estimates for both human and animal health project components. At the conclusion of their visit, the mission has agreed to a draft of the integrated Animal and Human Health Project for avian influenza preparedness plan and has recommended that a PC-1 is developed in line with the agreed project proposal amounting to approximate cost of US \$ 20 million. The PC-1 submitted here is in line with the outline finalized between the technical and financial authorities of GOP and WB. However, keeping in view the short-comings in the current preparedness status of the country for handling avian influenza outbreaks, there is an urgent need to initiate the activities suggested in this project. For this purpose is anticipated that even if the funds for this project are not arranged through WB, the proposal shall be funded under the Federal PSDP of the Ministry of Food, Agriculture and Livestock.

11. Benefits of the project and analysis

- **Financial:**

The project will help in controlling major poultry diseases, focussing the avian influenza (bird flu) which is known to get transmitted to human and may result in severe infection and deaths. The project activities will lead to improve the productivity of poultry farmers, as well help to achieve food security for human beings.

- **Economic:**

The project will facilitate the farming community for cost-effective meat and egg production thus increasing their economic viability/profitability. There will be a considerable increase in the income of thousands of poultry farmers and allied businesses of this sub-sector. This will help in sustaining the jobs for thousands of individuals employed in this sector. Furthermore, by controlling the diseases like bird flu through the efforts proposed in this project, millions of back yard poultry owners will be able to maintain their small holdings and continue their small businesses through this type of farming.

- **Social:**

Traditionally, the poultry business is a privately owned activity, manageable by individuals as self-employment opportunity both in the urban and rural set up. By reducing the element of risk in this business through improvement in disease control situation in this country, new people will get attracted to this sector. This will result in improvement in the economic conditions of many individuals with small finances.

- **Environmental :**

The project will help in improving the marketing structure of the poultry, by encouraging proper slaughtering, processing and disposal of poultry and farm wastes. This will not only result in better control of the spread of poultry pathogens to other animal and human beings, it will also lead to the general improvement of environment.

Financial/Economic Analysis (with assumptions)

Financial analysis

There is already an acute shortage in the availability of animal protein to fulfil the minimum requirements of human health in this country. Both chicken meat and eggs have been significantly contributing to overcome this shortfall. To further increase the availability of this protein sources at cheaper rates to general public, there is a need to increase the production of poultry by many folds within shortest possible time. The present growth rate of 10% per annum in poultry sector is not increasing because of the emergence of new diseases causing high mortality. The recent experience of bird flu during 2006 not only caused economic losses of US \$ 20 million, but also affected the sale market of chicken due to fear of bird flu transmission to human. If no efforts are made to develop strategy for the control of such diseases, it may not only result in huge economic losses to poultry industry, but the virus may spread among humans, resulting in in-calculable losses among human beings. It is, therefore, anticipated that the efforts carried out under this project will lead to proper control of bird flu in this country, resulting in new investments in this sub-sector.

Economic analysis

- **Provide taxes & duties separately in capital and operating cost**
Not applicable
- **Net present value (NPV) and benefit cost ratio (BCR)**
Not applicable being research oriented project
- **Internal economic rate of return (IERR)**
Not applicable
- **Foreign exchange rate of the project (Bruno's Ratio) for import substitute and export oriented projects**

Not applicable

Employment analysis

- **Employment generation (direct and indirect)**
 - i. The project activities will lead to the improvement of disease diagnosis and control of major poultry diseases, and help farmers to improve biosecurity at their farms. This will ensure them to secure their investments and increase the profitability and will encourage them to expand the business. As a result more employment will be generated at different components of this business.
 - ii. Increase in poultry production will lead to the introduction of chicken processing and export of poultry products. This will open up new avenues for expanding business and employment opportunities.

- iii. Different trainings planned under this project will help in creating in skilled man power for the disease diagnostic labs, epidemiology work, and for carrying out disease investigation and control operations.

Sensitivity analysis

- **Impact of delays on project cost and viability**

The ongoing preparedness activity to combat any outbreak of bird flu is being carried out through short term assistance from GOP and FAO, however, it would not be possible to handle any new outbreak at broader scale with the current resources. This is too dangerous a situation, especially in the probable scenario of mutation of this virus to cause human pandemic. Therefore, any delay in launching this project may not only increase the implementing cost of this project, it may result in enhancing the project requirements many fold higher than those mentioned here.

12. Implementation Schedule

- **Indicate starting and completion date of the project**
As soon as the project is approved and budget is made available. The project will be completed in 3 years after the release of the funds.
- **Item-wise/year-wise implementation schedule in line chart co-related with the phasing of physical activities**

**Table-4 YEAR WISE/COMPONENT WISE PHYSICAL ACTIVITIES
QUANTITIES**

ITEMS	ACTIVITIES	YEAR 1	YEAR 2	YEAR 3
1	Setting of PMU / Staff Recruitment.	*		
2	Identification of Provincial Coordinator	*		
3	Establishment of Main Labs	*		
4	Establishment of Monitoring units	*		
5	Purchase of Equipments	*		
6	Purchase of consumables	*	*	*
7	Purchase of Vehicles/Motor cycles	*		
8	Training (Foreign)		*	*
9	Training of Staff/farmers (Inland)	*	*	*
10	Seminars	*	*	*
11	Workshops	*	*	*
12	Conferences	*	*	*
13	Surveillance and Monitoring	*	*	*
14	Compensation (As per requirements)	*	*	*
15	Vaccine Stock	*	*	*
16	RRU Operations	*	*	*

17	Civil Works (BSL-III at NRLPD)		*	*
18	National Epidemiology Network/Website	*	*	*
19	Initiation of Diagnostic Activities	*	*	*
20	Vaccine Testing activity	*	*	*

13. Management structure and manpower requirements

- **Administrative arrangements for implementation of project**

The project will be run at national level by the Livestock Wing, MINFAL, through its Project Management Unit established at NRLPD, NARC. The Animal Husbandry Commissioner (AHC) will act as National Project Coordinator (NPC) for this project. Furthermore, a Project Director along with the required project staff will be hired on contract basis for running the project activities. A number of international and national consultants will also be hired for carrying out various training and project implementation activities during the course of this project. At the provincial level, the project activities will be carried out through the offices of provincial DGs/Directors of the Livestock and Dairy Development departments. The concerned DG, L & DD of each province/area will serve as Provincial Project Coordinator (PPC), whereas the project activities will be carried out throughout each province by a Provincial Surveillance Officer (PSO) and a Regional Surveillance Officer (RSO), nominated by the DGs of each province/area. A PSO will act as incharge of each Project Coordinating Unit (PCU) at the places list above at (i), and will serve as focal person for running the project activities in coordination with PMU in the centre. Each PSO will also coordinate with the incharge (RSO) of each Regional Surveillance Unit (RSU) set up at different places of the province under this project (Annexure-I).

At the Federal level, the PMU will ensure the implementation of project activities at the six coordinating units including, ICT, FATA, FANA, AJK, NVL, and NRLPD. The required funds will be transferred on quarterly basis to the administrating authorities of each component. The PMU will also be responsible to coordinate R & D activities carried out at various research institutions/universities throughout the country.

Apart from the major procurement of equipment, vehicles and supplies, by the PMU, other funds for routine activities will be transferred on quarterly basis to each of the ten designated PCUs in consultation with the concerned directorate of each province/area. Both technical and financial monitoring and evaluation of the project will be carried out by the Project Steering Committee and Project Execution Committee. All the persons working as NPC, PPC, PSO, and RSO will be monthly awarded project allowance equivalent to 20% of their running basic salary to compensate for the additional duties carried out by them under this project.

- **The man power requirements by skills/profession during execution and operation of the Project (next page table)**

Name of Post with numbers	Job Description	Qualification	Experience
Project Director (1)	Execution of the project in line with the project objectives and work plan.	DVM and MSc (Microbiology) with 5 research papers or PhD in Microbiology subjects.	10 years preferably in Poultry Disease Diagnosis & Surveillance
Federal Surveillance Coordinator (1)	Supervision of field surveillance and diagnostic activities	DVM with MSc in relevant subject	5 year field or lab experience in poultry disease handling
Public Health Coordinator (1)	Coordinate with public health departments to implement AI control and awareness plans	DVM or MBBS with MSc/MPhil in public health/microbiology	5 year experience in public health or Zoonotic disease handling
Networking and Data specialist (1)	Supervision of networking with provincial units and process epidemiology data	MCS Computer Science or MIS	3 years experience
Admn cum Finance Officer (1)	Responsible for administration and accounts matters of the project	MBA/ICMA	2 years experience
Technical Assistant (1)	For account management and data entry	BBA/B Com	2 year experience
Data Entry Asstt (1)	For processing data and other computer work	BCS Computer Science	1 year experience
Office Assistant/ Receptionist (1)	For office work and communication	BA/BSc	1 year experience
Driver (2)	For driving project vehicles	Matric with driving licence	3 year experience
Office Attendants (2)	For general office work	Matric	-
Genitor (1)	For general cleaning	Middle	-
Local Consultants			
Surveillance and Diagnostic Expert (1)	For technical guidance in the subject matter	DVM, PhD (Virology)	15 year experience in avian Disease diagnosis/research
Rural Extension and Outbreak Handling (1)	For technical guidance in the subject matter	DVM, MSc/PhD in rural sociology	10 year experience in rural extension
Communication and Awareness (1)	For technical guidance in the subject matter	MSc, Communication	15 years communication experience
Networking and Data base management (1)	For technical guidance in the subject matter	MSc/PhD Computer Science	10 years experience
Legal Expert(1)	For technical guidance in the subject matter	LLB	10 years experience of legal matters related to drafting new legislations

14. **Additional projects/decisions required**
Not applicable

15. **Certificate**

Certified that the project proposal has been prepared on the basis of instructions provided by the planning commission for the preparation of PC-1 for the production sector projects

ANNEXURES

Annexure-I. ORGANIZATIONAL CHART FOR PROEJCT MANAGEMENT

**NATIONAL AVIAN INFLUENZA CONTROL PROGRAM
{AHC (National Project Coordinator) Livestock Wing, MINFAL}**

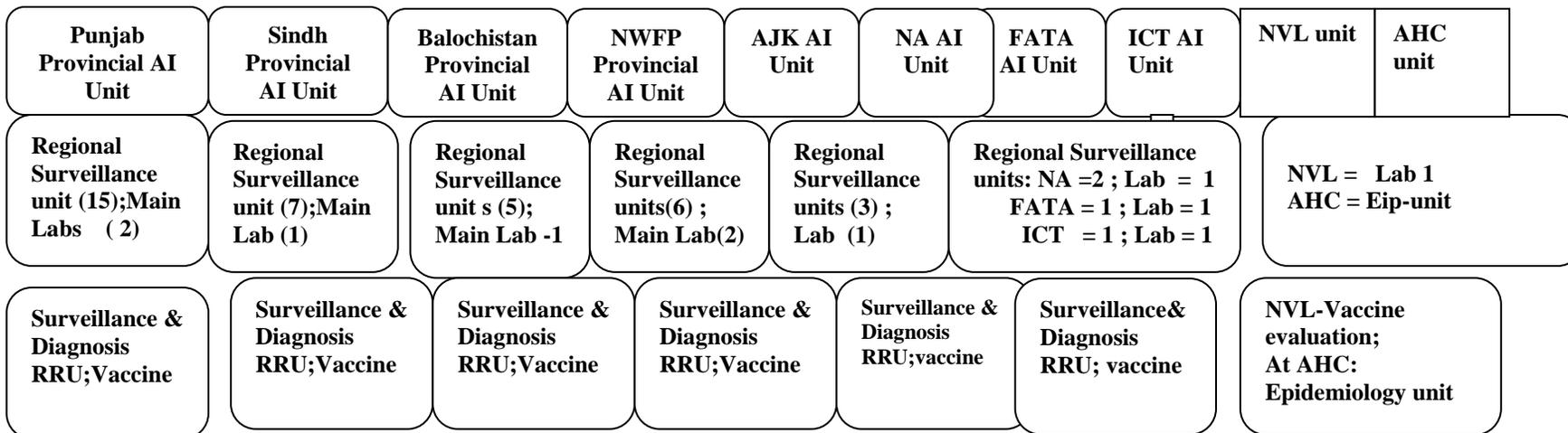
**Project Director
[Project Monitoring Unit: National Reference Lab for Poultry Diseases, ASI, NARC]**

**National Expert
(Surveillance & Diagnosis)**

**National Expert
Out break Handling**

**National Expert
Communication & Awareness**

DGs = PROVINCIAL/AREA COORDINATORS { with Provincial Surveillance Officer and Regional Surveillance Officer



Level of Labs and Their Functional Distribution

	Functional Distribution
A. National Reference Laboratory	<ul style="list-style-type: none"> • Virus Isolation, typing and sequencing • Virus detection through rapid/PCR based testing. • IFA. • Diagnostic confirmation. • Serological based assays. • Monitoring antigenic drift/shift. • Live bird studies (P3 lab); IVPI. • Production of diagnostic reagents. • Lab staff training.
B. Provincial Laboratories	<ul style="list-style-type: none"> • Serological evaluation. • Vaccine immune response evaluation. • Rapid virus detection. • Necropsy and clinical diagnosis.
C .Regional/District Laboratories	<ul style="list-style-type: none"> • Necropsy and clinical diagnosis. • Serological evaluation. • Rapid Virus detection.