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2 Executive summary

The Indonesian Government approached ACIAR requesting assistance in strengthening veterinary services in Indonesia, a request triggered by the problems encountered in the national program to control avian influenza. A recognized constraint is the recently increased decentralization of government services, a process which involved the granting of greater political, fiscal and budgetary authority, not to the 33 provincial governments, but to the 444 district governments. This has had the destabilizing effect of leaving the 444 district livestock services with no effective umbrella organization to coordinate government veterinary activities regionally or nationally.

In response, ACIAR approached the NSW Department of Primary Industries to lead an ACIAR-funded project titled "Future directions for animal health services in Indonesia". The NSW Department of Primary Industries has people with the previous experience in delivering animal health projects in Indonesia and current experience in delivering animal health services in their own decentralized state system and who are well positioned to assist.

In Indonesia, where tuberculosis, malaria, dengue fever and other diseases, sicken and kill many people every day, and certainly more than do zoonoses like avian influenza, rabies and brucellosis, animal health is of much lesser priority. However, the Indonesian Government recognizes the important role that government veterinary services play in providing their people with food and prosperity, and safeguarding their health, by controlling certain animal diseases.

The Directorate General Livestock Services has identified five diseases of primary concern. These are the zoonoses: avian influenza, anthrax, brucellosis and rabies, and the transboundary disease of pigs, classical swine fever - all of which are now endemic to Indonesia. It is their wish that some or all of these diseases be the subject of any pilot studies developed to test models of government veterinary service delivery.

There are recognized benefits to Australia of participation in this project including reduced risks of exotic disease entering Australia from Indonesia, providing a fertile training ground for Australian veterinarians and animal health officers for exotic disease recognition and government veterinary project management, and establishment of long lasting professional relations with Indonesian project counterparts.

The challenges for the Indonesian government veterinary system are not only to do with decentralization; there are inefficiencies related to duplication of services and the current Law for Animal Health is inadequate although it is under review.

Integration of activities and resources of stakeholders is probably the key to strengthening government veterinary services but must be done within the existing political framework. Pilot projects on priority diseases using integrating task force structures, enhancing the coordination role of provinces, strengthening capability at district and sub-district level, and having clearly defined roles for stakeholders are to be developed and tested as the means of integration.

If successful, the pilot projects may provide models of integrated government veterinary service delivery that can be adapted to multiple locations across Indonesia, thereby strengthening the animal health services nationally.

3 Introduction

As Indonesian democracy has developed, the framework and systems for providing government animal health services have changed, moving away from a centralised control and budgetary system to a decentralised system known as regional autonomy (“otonomi daerah”) where the country’s 33 provinces have been bypassed to give the 444 district governments a higher level of autonomy. There are demonstrated risks that this movement away from centralised control and budgeting has seriously weakened Indonesia’s ability to control major trans-boundary diseases such as avian influenza and detect incursions of other serious diseases before they become endemic. Classical swine fever is an example of the latter, sweeping slowly across Indonesia beginning in the mid 1990s in Sumatra and eventually reaching Papua in about 2003/4. It is now believed to be endemic in eastern Indonesia.¹

The Government of Indonesia (GoI) in recognition of the range of problems with veterinary service delivery linked to decentralization and the considerable stress placed on the government veterinary service attempting to respond effectively to avian influenza in poultry and associated infections in humans, requested ACIAR’s assistance to identify more effective and sustainable approaches to the delivery of government veterinary services in the future. This request is consistent with ACIAR’s greater emphasis on policy and institutional research.

This document reports on a short scoping study from a visit to Indonesia by two reviewers from the NSW Department of Primary Industries, Drs Helen Scott-Orr and Bruce Christie, both with longstanding experience in developing and implementing veterinary projects in Indonesia. Both are familiar with the decentralized government veterinary service that has evolved in Australia where separate government veterinary services exist in states and territories. In NSW this has been taken one step further with separate government veterinary services at the district level within Rural Lands Protection Boards. They were supported by Dr Tristan Jubb who has extensive Australian field veterinary experience and has recently reviewed aspects of avian influenza control in Indonesia and Laos for FAO.

Both Drs Scott-Orr and Christie speak Indonesian, and have close ties with colleagues from previous animal health projects who have now risen to positions of significant influence in animal health and production services in Indonesia. This is a favourable situation in which to assist the Indonesian government to determine the future direction of its government veterinary services.

¹ *Classical swine fever (CSF) was first reported in Indonesia in North Sumatra in July 1994. It is thought to have entered Indonesia from northern Malaysia with the movement of live pigs. From North Sumatra it spread to Central and South Sumatra, then to Java near Jakarta in February–March 1995. CSF was next reported in Bali and West Kalimantan in October 1995. Estimates of 300,000 to 400,000 mortalities from a total population of approximately 1,000,000 pigs were reported in Bali at the time. In late 1995 – early 1996, CSF occurred in North and South Sulawesi, and in July–August 1997 it was reported in Dili, East Timor. The earliest reports of possible CSF in eastern islands of Indonesia were from Sumba and Flores in mid 1997 but it was not confirmed until 1998. It is now believed to be endemic in eastern Indonesia.*

Noteworthy are two fundamental differences between the decentralized government veterinary service systems of Indonesia and Australia, namely:

- **Scale and complexity** - Indonesia has 240 million people, 33 provinces and 444 mainly rural autonomous districts, spread over 6,000 inhabited islands, compared to Australia's 22 million people, eight states and territories, and 662 mostly urban local government areas, on a large continental land mass with few islands
- **Drivers** – Indonesia's priorities are primarily feeding its people and preventing zoonotic diseases, whereas Australia's priorities are primarily protecting export markets and trade.

Nonetheless, many of the political and institutional challenges are remarkably similar.

The scoping study attempted to identify the key stakeholders in providing animal health policy and service in Indonesia, their roles and responsibilities, the issues important to them, particularly those important to the Government of Indonesia, and the relative importance of the issues in constraining the delivery of veterinary services.

A very broad outline of activities to help address these issues through a five-year project is provided in Appendix A. Preliminary support for the ideas was received in Indonesia from key stakeholders including senior Indonesian government officials.

Dr Helen Scott-Orr visited Indonesia for two weeks in May 2007. The *National Coordination Workshop on Quarantine and Veterinary Service Delivery* in Bali was attended in the first week, and a workshop on anthrax control in Flores was attended in the second week. A range of other meetings with Indonesian government veterinarians were also held.

In March 2007, the first part of the ACIAR-funded scoping study² by a team led by Dr Scott-Orr had identified the need to hold a workshop to field the views of stakeholders on the way forward to strengthen the Indonesian animal health system. At the same time, AQIS, in an AUSAID-funded project examining ways to strengthen Indonesian quarantine services in Indonesia, had also decided on a workshop. Because there was significant overlap in purpose and resources of the two projects and a large number of people were recognized as important contributors to both projects, a joint workshop was agreed, planned and held.

4 Methods

Five days, from 11 to 16 March 2007, were spent in Indonesia's two cities of Jakarta and Bogor where stakeholders were met. An itinerary describing who was met and where, is attached as Appendix B. Using an informal line of questioning, stakeholder's views were sought on the constraints to delivery of veterinary services in Indonesia; they were encouraged to provide examples and how they might be overcome. The people whose views were sought included current and sometimes past representatives of the Ministry of Agriculture, the Indonesian Veterinary Medical Association, government research institutions, veterinary laboratories, disease investigation centres, provincial and district livestock services and the FAO. Many of these people were able to provide documents providing relevant background information for this study.

² ACIAR Project AH 2006 164: *Strengthening veterinary services in a decentralized Indonesia*

The first workshop, entitled “National Coordination Workshop on Quarantine and Veterinary Service Delivery”, was held at the Patra Hotel on South Kuta Beach in Bali.³ The workshop was branded as a joint Directorate General Livestock Services and Agency for Quarantine (Barantan) workshop even though behind the scenes it was jointly initiated and funded by AQIS and ACIAR.

A list of attendees at the Bali workshop and the agenda are attached as Appendices 2 and 3. An outline of the costs of the workshop of which ACIAR contributed one-third and AQIS two-thirds, is presented in Appendix 4.

Over one hundred people attended representing different levels and geographical locations of the Indonesian government veterinary service, universities, and donor organizations such as FAO and USAID. Some very senior government officials attended including the deputy governor of Bali and the heads of various government directorates and agencies including the directorate of livestock services, the agency for quarantine, and divisional heads from within the department of home affairs.

The second workshop, on anthrax control, was held at the Hotel Dwi Putra in Ende on the island of Flores. Approximately 85 people attended including provincial, district, sub-district and village leaders, animal and human health officials from Nusa Tenggara Timur especially Flores, and representatives from Directorate General Livestock Services in Jakarta, Disease Investigation Centre staff from Bali. Dr Scott-Orr was the guest speaker, talking on anthrax control in NSW and took the opportunity to briefly outline the scope of the ACIAR project and to assess the concern of local authorities about both anthrax and rabies control into the future.

5 Findings

The issues identified are divided into a number of broad categories forming the headings below.

5.1 Important diseases

The Directorate General Livestock Services has identified five top priority animal diseases, namely: (i) avian influenza (ii) classical swine fever (iii) anthrax (iv) bovine brucellosis and (v) rabies. All are endemic to parts or all of Indonesia and all except classical swine fever are zoonoses.

Other endemic diseases listed by the DGLS as being of national importance are: haemorrhagic septicaemia, Newcastle disease, Jembrana disease, Gumboro disease, salmonellosis, surra, infectious bovine rhinotracheitis and bovine viral diarrhoea (pestivirus). Each of these diseases is economically significant in some parts or all of Indonesia.

The global alarm about the possible development of pandemic avian and human influenza has made avian influenza the top disease priority for control, and seen a dwindling of funds for other endemic disease control programs such as vaccination for anthrax, haemorrhagic septicaemia and rabies. This has the unwanted effect of making animal health services less relevant to livestock owners and the local governments who serve them. In turn, disease

³ Drs Scott-Orr and Jubb stayed at the Udayana Lodge where we were hosted by Dr Alan Wilson, a long-time resident of Indonesia, a veterinarian, and one with considerable experience in agricultural and veterinary project management in Indonesia. Dr Wilson was an invaluable source of information and advice. Drs Jim McGrane, John Weaver and Leo Loth of the FAO avian influenza team also stayed at the Udayana Lodge and very informative discussions were held there with them on the opportunities for the ACIAR project to synergise with the various avian influenza projects and initiatives.

surveillance, animal health status and above all peoples' livelihoods and food security all suffer.

It is also most notable that foot and mouth disease (FMD) is not listed by the DGLS as a disease of national importance. This is because it was successfully eradicated in the 1970s and early 1980s by vaccination, a world first due to an extremely effective joint Indonesian and Australian project. As it is now exotic to Indonesia it is considered the responsibility of the Quarantine Agency. However, there remain high risks of re-entry, especially connected with illegal movements of people across the Malacca Strait into eastern Sumatra – for this reason, developing an integrated surveillance and emergency response capability, using all components of the animal health services, is a high priority. The example of classical swine fever has shown how easily an exotic disease can become endemic in Indonesia.

5.2 Government veterinary services structure

Government veterinary services have traditionally been provided through the Ministry of Agriculture but there are a number of other Ministries involved, particularly the Ministry of Home Affairs⁴, which coordinates all provincial and district services nationally. The Ministry of Agriculture houses the Directorate General of Livestock Services whose Directorate of Animal Health develops national animal health policy. However, the Ministry of Agriculture and its directorates have no direct management of the administration of provincial and district veterinary services. Provincial and district level animal health policies are now developed and administered under local authority with little or no input from the central government ministries. It has been proposed to establish a Directorate General of Veterinary Services to raise the profile of veterinary services.

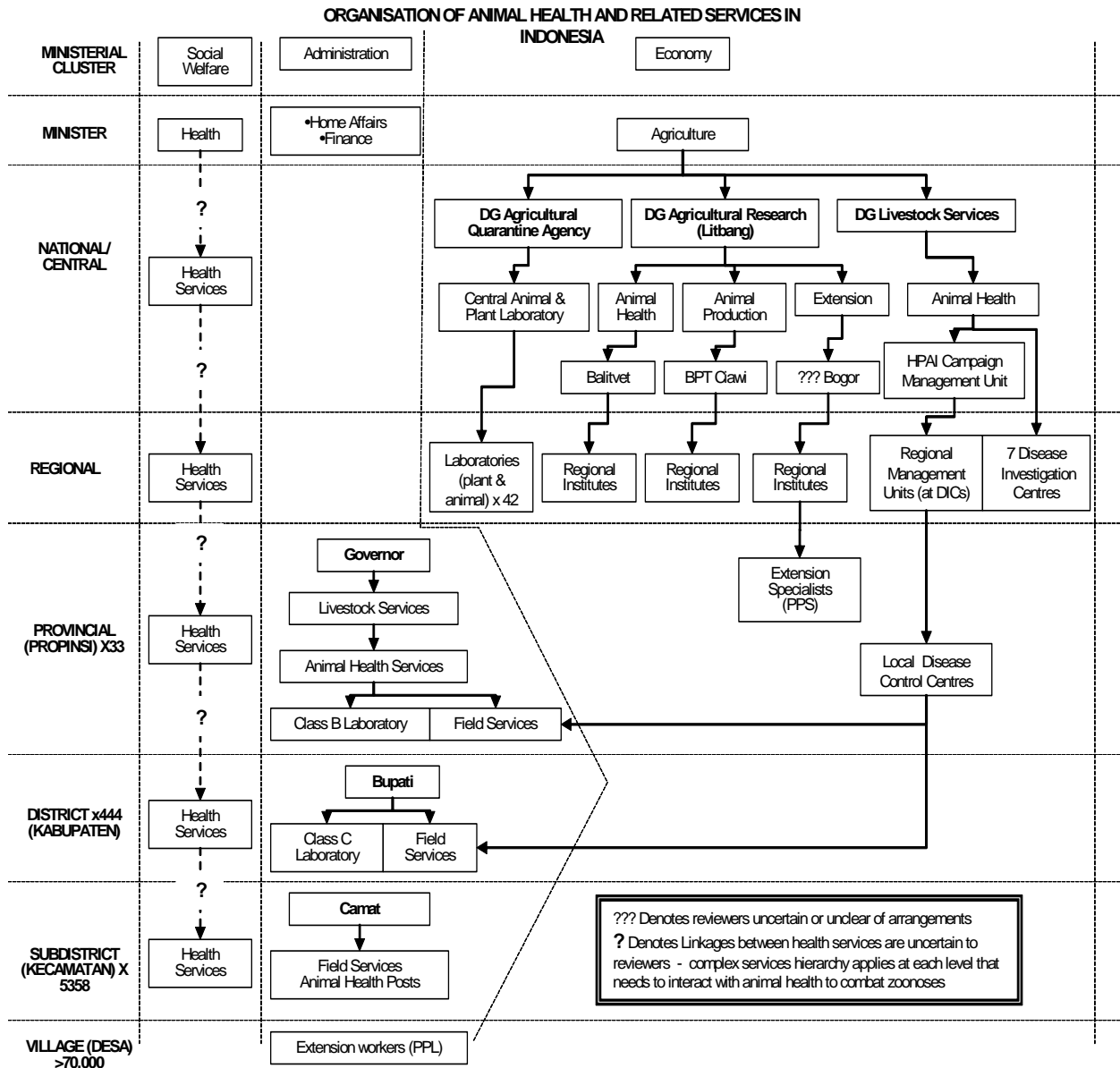
The Ministry of Agriculture also houses the Agricultural Quarantine Agency (Barantan), which has the same status as the Directorate General of Livestock Services. However, unlike animal health, quarantine has direct administrative control over its regional quarantine services. However, quarantine laws (or decrees), often made independently by the provincial government, are sometimes enforced by the Agency's regionally-based quarantine services. The separate management arrangements for animal health, quarantine and field services are shown in Figure 1.

The provincial and district livestock services networks are extensive with all provinces and most districts employing veterinarians and animal health officers. Individual districts have been given responsibility for much of their own administration as well as a large proportion of the regional budget and the authority to decide how it is spent.

The avian influenza program is managed by the Campaign Management Unit, which reports to the Director of Animal Health, which in turn reports to the Director General of Livestock Services. Under the Campaign Management Unit is a proposed tier of nine Regional management Units based at Disease Investigation Centres, which in turn are supported by a tier of Local Disease Control Centres based at provincial livestock offices. Currently established are two Regional Management Units and 12 Local Disease Control Centres. The administrative arrangements are shown in Figure 1.

⁴ also known as the Ministry of Internal Affairs and the Ministry of the Interior

1. Figure 1 – Organisation of Animal Health and Related Services in Indonesia



5.3 The Indonesian veterinary laboratory system

The National Veterinary Research Laboratory, known as Balitvet is located at Bogor and is under the control of the Agency for Agricultural Research (Litbang). It has a long history of involvement with Australia, with staff technical development and infrastructure projects dating back from the 1970s, and a continuing close association with AAHL. It also has some regional veterinary research institutes under its control.

There are seven regional veterinary laboratories under the control of the Directorate General of Livestock Services known as Disease Investigation Centres (DICs) or Class A laboratories. They are located at Medan, Bukittinggi, Bandar Lampung, Yogyakarta, Banjarbaru, Denpasar, and Maros. Two more DICs are proposed for Bandung in West Java and Jayapura in Papua. The DICs are often referred to by their number I-VII. These DICs were developed in the 1970s with assistance from different donor countries, which have continued their association with those laboratories.

Balitvet and the DICs located at Yogyakarta, Maros and Denpasar are designated as “Balai besar” or major institutes, due to the sophistication of the diagnostic services they provide.

The longstanding investment by the Indonesian government and many donor agencies in personal scientific development of staff at Balitvet and the DICs through funding to gain post-graduate qualifications overseas and training of skilled professional and technical staff is noteworthy. The overall animal health system needs to be designed to get the best value from these highly trained staff and, because of their impending retirements, a national succession plan involving both local and overseas higher education for the next generation of both technical and professional staff is an urgent priority.

There are 25 provincial laboratories that are Class B in the 33 provinces and numerous district laboratories that are Class C. These provincial and district laboratories are under local control. Training of staff and provision of equipment for these laboratories has been highly variable depending on regional needs and projects such as the Eastern Islands Veterinary Services project. The same comments about using skills wisely and building on capabilities already developed apply as much to the B class laboratories as to the DICs and Balitvet.

There is one large central quarantine laboratory (for animals and plants) in Jakarta, and 42 regionally based quarantine station laboratories of which 15 are class B and the balance Class C. They are under the jurisdiction of the Agency for Quarantine. The central laboratory has four veterinarians and four animal health technical staff. There are five other active laboratories and a host of smaller ones.

Quarantine services are reputedly better resourced than the laboratories of DGLS, which is ironic. In any case, the potential for wasteful duplication with two laboratory systems is high. Using quarantine funds to leverage improved service delivery and caseload of the existing animal health laboratory system would seem more sensible. The relationship between the two laboratory systems needs urgent examination with a view to rationalizing and consolidating wherever possible.

There is also one central analytical testing laboratory (VDAL/BPMSOH). Balitvet, the DICs and the analytical testing laboratories currently have BSL2 level facilities and conventional PCR capability; real time PCR is currently being introduced. Four of the quarantine laboratories have PCR capability but lack the training and accreditation of staff and systems to give confidence to results.

There are several commercial vaccine production facilities and one government facility (PUSVETMA) in Surabaya. The quality and quantity of vaccine supplies from PUSVETMA have been of longstanding concern. Programs for vaccinable diseases such as anthrax, haemorrhagic septicaemia and rabies may be compromised until those concerns are resolved. The expansion of private vaccine production companies and imported vaccines for avian influenza in particular means that there is a greater imperative to improve and include in legal reforms, national standardisation and quality assurance of animal vaccines.

5.4 Consequences of decentralization

The national political system of Indonesia was further decentralized by national legislation in 1999 so that responsibility for many public services, including veterinary services, was effectively handed to the 444 districts. Previously, the central government had strong influence through a hierarchical budgetary and reporting structure through the provinces, districts, subdistricts, and in turn down to village level. Since 2000, more power and importantly, greater responsibility for budget allocation, have sat with the individual districts. Districts largely govern themselves autonomously and the central government and its ministries, although controlling some funding, now have less direct influence over their activities.

Field veterinary services operate at the district level and report to local authorities. Staffing with animal health professionals is at the discretion of local authorities and many districts are without a veterinarian. Consequently, national veterinary infrastructure, animal health systems and the strong political support that enabled foot and mouth disease to be eradicated from Indonesia in the 1970s have become fragmented leaving the country without coordinated authority to deal swiftly and decisively with veterinary emergencies.

Some decentralization of political power was enshrined in the Indonesian constitution to ensure that local issues were addressed. The huge socially and culturally diverse Indonesian archipelago of over 17,000 islands, 6000 of which are inhabited, and over 240 million people, cannot be managed only under centrally-imposed blanket policies and programs. By giving considerable autonomy to districts, local issues can be addressed locally. Legal changes in 1999 and in 2003 have provided greater autonomy and now districts have directly elected heads (“bupati”). Districts receive more of their budgets directly from the central government and the 33 provinces have been somewhat by-passed.

Because there is now no chain of command through provinces to districts, the central government must negotiate with the multitude of districts, which makes for a huge if not impossible consultative challenge to implement national, and even regional animal disease control programs. Whereas planning and implementation of activities for animal disease prevention and control was previously from the top down, it must now be from the bottom up to ensure that local issues are identified and addressed. Many senior people in the central and provincial governments, accustomed to the power and control of the previous era, now feel disempowered and demoralized, which has flow-on effects to other staff and the quality of their work.

Districts have their own priorities that are often incompatible with those of the central government. District priorities may give less emphasis to animal disease control activities when human diseases such as dengue fever, malaria, tuberculosis, vehicle accidents and smoking-related diseases kill people every day. This makes it difficult to justify redirection of scant resources for activities such as surveillance to demonstrate that an animal disease does not occur in a district.

Districts are allocated funding from the central government that is at the district's discretion to spend, depending on local priorities at the time. If the central government wants activities carried out in districts such as animal disease control, then it is expected of the central government to pay extra to the districts. Even then the districts may lack the knowledge, understanding or political will to cooperate.

A multitude of other issues and risks has arisen such as districts establishing unilateral *ad hoc* quarantine priorities and import taxes, the inter-district disparities distorting normal trading patterns, and traders sometimes seeking markets far away into which their animals might introduce or contract disease. The need to establish autonomous administration systems in districts has caused many of the districts' few veterinarians and animal health officers who were active in the field to move to office jobs, lose touch with livestock owners and lose their hard-won animal health and production skills.

5.5 Addressing autonomy

Efforts to overcome the constraints of autonomy are numerous and varied. They include:

- **Legal reform** - some of the amendments to the Animal Health Law currently being debated give prominence to the roles and responsibilities of veterinarians allowing overriding of some aspects of autonomy such as disease notification
- **Taskforce creation** - the forming of provincial taskforces in some provinces brings together the districts and different government service providers such as health, police, education and livestock services to attain common objectives such as avian influenza control
- **Donor aided projects** - such as the Kecamatan Development Program (Appendix C) to which one day might be added animal health initiatives after some of the other priority issues for villages are addressed
- **Litbang Primatani program** - a program of "agribusiness laboratories in the field" where farmers in selected *desas* identify their problems and information needs and relevant groups of Litbang research and advisory staff from all levels are assembled to develop solutions. This 5-year program started in 2005 - all provinces but not all *kabupaten* are involved – so far it is running in 200 *desa*. Animal health problems identified so far seem to be production oriented such as Newcastle disease, helminths and scabies in goats
- **Avian influenza response** - The avian influenza control program that highlighted the problems posed by autonomy is also trying to address them. There has been a huge effort by the Campaign Management Unit to (i) gain the cooperation of the provincial and district governments and their livestock services and (ii) to establish an emergency response structure. How this emergency response structure is built into the existing "structure" of the organization is shown in Appendix D. The emergency response structure has its own inherent problems (see section 3.8 avian influenza response structure).

5.6 Law for animal health

Some examples that highlight the weakness of animal health law in Indonesia include the 16 different avian influenza vaccines of variable origins, quality and antigenicity currently in use in Indonesia; a broiler farm selling birds infected with avian influenza cannot be stopped and the suspicious owner or diagnosing veterinarian need not notify authorities; no powers exist to enter farms, or to seize, destroy or dispose of infected stock; prescriptions for veterinary medicines are unnecessary as anyone can buy or sell them and treat animals with them; health certificates for movement of stock between districts,

provinces and countries are issued by heads of livestock services who may not necessarily be veterinarians or animal health officers.

An amended Law for Animal Health is currently being debated and may be passed at the end of 2007 but it is purported to fall well short in providing the sorts of powers and responsibilities given to government veterinarians, animal health officers and private veterinarians in developed countries. In Indonesia, as in many countries including Australia, there can also be large gaps between the law and its enforcement.

5.7 Capacity of provincial and district veterinary services

Some districts have no veterinarians or animal health officers and those districts that do, often have their experienced veterinarians and animal health officers occupying administrative positions while the inexperienced ones struggle to gain the knowledge skills and experience necessary to become credible animal health advisors and disease controllers in their districts.

District veterinarians (and paravets) receive part of their income through government salary and part through a user-pays system where livestock owners are expected to pay the veterinarian or animal health officer to treat sick livestock. However, a portion of the fee must be paid to the local government in at least some districts and provinces. This system is not conducive to good disease surveillance because there is potential for some veterinary activity to go unreported in order to avoid paying the local government fee.

There is a lack of laboratory support for field staff. Due to geography and inadequate transport and communication systems, there are numerous obstacles in getting samples to a laboratory and then getting timely, accurate results. A major obstacle is the user-pays policy that requires provincial and district livestock services staff to pay for the diagnostic testing of any samples they submit to a Disease Investigation Centre (DIC).⁵ As a result, samples which should be forwarded on from Class B or C laboratories for specialized testing may not be sent because there is no district or provincial budget to do so. This means there is under-utilization of the more sophisticated diagnostic and investigatory capacity at the DICs and the research capacity of Balitvet.

There is a lack of epidemiology capability at the provincial and district levels. Little interpretation of disease information let alone forecasting of disease risks occurs at the provincial or district level or at the Disease Investigation Centres. Some epidemiology capability exists in the central government but the systems previously established to capture timely and meaningful data from provinces or districts have broken down under autonomy.

5.8 Government veterinary structure

The Director of Animal Health is the nominal CVO and occupies a relatively low profile position in the Directorate of Animal Health in the Ministry of Agriculture. The position sits under the Director General of Livestock Services along with a number of other directors. Appendix E shows an organizational chart of the Ministry of Agriculture demonstrating the complexity of the organization and the relative position of the Director of Animal Health.

⁵ There are 7 disease investigation centres located around Indonesia. These are like the Australian state's regional veterinary laboratories, once numerous in regional Australia, equipped with pathologists, scientists and relatively sophisticated diagnostic capability. The DICs are under the administration of the provincial authority in which they are located but were established with the expectation to service the provinces of the region. Two more DICs are proposed, one for Jayapura in Papua province and the other for Bandung in West Java.

It has been proposed by those concerned with the inadequacy of the avian influenza response to establish a Directorate General of Veterinary Services that would raise the status of animal health services to become equal to the Directorate General of Livestock Services. However, there are some concerns that this may remove the veterinary services too far from the animal production and socio-economic services with which it must engage closely for effectiveness in Indonesia.

5.9 Role of governments at different levels

There was a strong message conveyed to the reviewers during their visit that districts must learn to work together if they are to prevent the introduction of transboundary animal diseases, bring them under control should they enter, and above all provide more effective control of the serious animal diseases, many zoonotic, which Indonesia is still grappling with but which have been brought under more effective control in developed countries. Getting districts to cooperate with each other is clearly one of the necessary objectives of this project.

Given that the district role is to provide animal health field services but they lack the necessary expertise and resources to do so, there are clear roles for provincial and central governments to assist. Central government and provinces cannot provide field services but they can provide important coordination and technical advisory roles.

It became apparent that provinces, although somewhat bypassed in the decentralisation process, still perform an important oversighting and coordination role and are well positioned to guide shifting and balancing of resources between districts to achieve economies of scale not available to districts working independently. Central government and districts cannot perform this regional oversight and coordination role.

There is also a clear and important role for central, provincial and DIC government veterinarians with their training and expertise in disease control to become active technical advisors for regional animal disease control activities. This expertise is currently lacking at some provincial and all district levels. This gap opens the way to the adoption by central government of a consultative, participatory way of doing business with districts. The unattractive alternative is for central government to become withdrawn, become further isolated from field activities and become increasingly irrelevant.

If the districts can be convinced of the benefits of preventing and controlling animal diseases and the need to work with other districts to reap the benefits, and if the different levels of government can be convinced of the complementary roles they play and the significant contributions they can make if they work together, then therein lies the foundations of a sustainable, effective animal health system.

5.10 Avian influenza response structure

A national strategic plan for the control of avian influenza in Indonesia exists. It is an indicative outline only, not intended to provide operational detail. It is the basis on which international donors have committed funding. The plan sets policy for stamping out, vaccination, quarantine, movement controls and tracing and lays out the framework for increasing capacity for surveillance and epidemiology, laboratory services and legislation. However, it was reported that there are considerable gaps and delays in implementation because of lack of resources and complexity of organizational structure which can lead to bureaucratic inertia and an alleged lack of commitment by central and local governments.

The response to the avian influenza outbreak in Indonesian poultry is managed by the Campaign Management Unit (CMU) within the Ministry of Agriculture in Jakarta. An organizational chart showing the control structure under the CMU is shown in Appendix D. CMU activities are overseen by the Ministry of Agriculture. A high-level steering committee known as KOMNAS comprising representatives from various government ministries and industry manages the whole of government and interdepartmental response. Within the CMU are over fifty people with differing roles and responsibilities. Many are senior veterinarians and their understudies charged with managing various initiatives such as surveillance and epidemiology, communications, laboratory services and other elements of the national strategic plan. Continual reshuffling of key people in and out of positions in KOMNAS, the Ministry of Agriculture and the CMU was recognized as one of the significant contributors to lack of progress in implementation of the national strategic plan.

A unified, country-wide effort toward avian influenza control currently relies on negotiation and consensus on operational activities at the district level hence decision making and implementation of decisions are very slow. Many districts do not have the economic prosperity to spare money and resources for the control of avian influenza. A purported indifference of local government leaders to attending local government avian influenza planning meetings was said to reflect their wariness of being trapped into committing provincial and district funds and resources that do not exist.

Delivery of field activities in the 33 provinces and 444 districts in Indonesia, according to the national strategic plan, was intended to be through establishment of regional campaign management units at the seven regional government disease investigation centres where veterinary diagnostic laboratories are located. The regional campaign management units were to provide direction and control to a larger number of provincially (and sometimes district) based local disease control centres. At the end of 2006, there were 12 local disease control centres established covering 75 districts. Regional campaign management units had not been established, purportedly due to bureaucratic inertia and under-resourcing.

A recent reviewer's analysis describing some of the problems with the avian influenza response in Indonesia is included in Appendix F. That reviewer strongly recommended the adoption of an incident control system as a relatively simple measure that would significantly increase the efficiency of the response including by managing the span of control, dividing tasks according to function and improving information management and communication. A description of the incident control system is also presented in Appendix F.

5.11 Activities of other organizations

There are many current and proposed animal health projects in Indonesia. A potentially high risk of duplication and overlap of animal health projects exists. It is very difficult to discover what projects exist, who is conducting them and who is funding them.

Numerous international research groups are active in Indonesia. Funding for many of these projects comes from AUSAID, ACIAR, USAID, ADB, World Bank and individual countries like Holland, Germany, Japan and Singapore. It appears that most of the animal health funding from the larger funders: USAID, ADB and World bank, is for activities to do with avian influenza control and they are giving their money to FAO and WHO to manage.

ACIAR, the funder of this project, has 10 to 12 current and planned animal health projects, some of which are to do with avian influenza but others are to do with other poultry diseases or other species; cattle and pigs. These projects are mainly being delivered by Australian universities.

AUSAID is currently funding a range of FAO-managed avian influenza projects in Indonesia on control activities, epidemiology and donor coordination. They are also funding an AAHL-managed veterinary laboratory enhancement project and an AQIS-managed quarantine services strengthening project. There is considerable overlap between this project and the AQIS-managed quarantine project; this ACIAR project will be designed to complement and strengthen the activities of the quarantine project and vice versa.

The findings of two high-level investigations may have a bearing on the direction of this ACIAR project. In February 2007, an FAO-requisitioned investigation was undertaken of how the constraints of autonomy on the avian influenza control program might be overcome, and an OIE Performance, Vision and Strategy assessment of Indonesia's veterinary services is planned for May 2007.⁶

A strategy of close liaison between ACIAR, AUSAID and FAO as well as other donors is implemented by DGLS to try to minimize the risk of project duplication and overlap. However, there are many projects and the same Indonesian names seem to appear as collaborators or project counterparts in many of them. These people tend to be the veterinarians who have done post graduate training in developed countries and are the better English speakers. There is a risk that these people may over commit themselves and their department's resources to too many projects.

5.12 Inefficiencies / Opportunities for improvement

A number of inefficiencies relevant to an animal health system were highlighted. Restructuring of these activities and services would probably result in considerable cost saving for the Indonesian government and provide better quality outcomes.

Disease surveillance is conducted by four groups, (i) Disease Investigation Centres (ii) provincial and district livestock services, (iii) quarantine services, and (iv) the North Australia Quarantine Service (NAQS); none of which coordinate their activities or share information consistently with all the others.

NAQS performs disease surveys in south-east Indonesia. It was suggested that, with some program redesign, local Indonesian veterinarians and paraveterinarians could perform more of NAQS's survey sampling more cost-effectively and achieve superior temporal and spatial representation of samples than the 'snapshot' surveys that NAQS currently conduct. Likewise, as much testing of local samples as locally as possible in the Indonesian laboratory system is recommended.

There is poor interaction between animal health laboratory systems: quarantine services are developing their own diagnostic laboratories including a larger central laboratory in Jakarta, Balitvet comes under the management of the Directorate of Agricultural Research (Litbang), under the DGLS are the seven Disease Investigation Centres, and under the provinces are the 25 Class B laboratories. Despite the financial and resourcing difficulties that these laboratories continually face, there is reportedly sub-optimal sharing of resources, information or diagnostic capability.

There are also numerous research and aid projects to do with animal health and production being conducted in Indonesia by various international groups, with many from Australia including the Universities of Sydney, Queensland and Melbourne and Murdoch University, CSIRO, the Australian Biosecurity CRC, ACIAR and AUSAID. Most do not know what the others are doing and it is very difficult for staff in Indonesia in positions of

⁶ *Dr Dick Jane, a former NSW CVO will be part of the assessment team*

overview to be confident that no significant overlapping or duplication of foreign research and aid activities is occurring. No research databases are kept.

There is no animal health and production research funded or co-funded by industry, and there is no contribution to planning, conducting or funding of animal health programs by the livestock industries. In fact, there are very few formal relationships between government and the livestock industry associations. In Australia, the close working relationship between government and the livestock industries is an essential part of increasing the “efficiency” of the animal health system.

6 Discussion

Decentralisation and autonomy are considerable constraints to delivery of efficient animal health services in Indonesia, however there are other constraints, unrelated to autonomy that may be more easily overcome resulting in improved animal health service delivery. These include the constraints caused by inefficiencies such as duplication of surveillance activities and laboratory systems. Decentralisation cannot be blamed for all of the short comings of the animal health system in Indonesia.

Decentralisation is here to stay for the foreseeable future. It may also be some time before the Law for Animal Health is in place, enforced and delivering changes. Therefore, it makes sense that any initiatives to strengthen delivery of animal health services should use the framework of the existing system rather than try to change the framework, circumvent it or wait until the Law for Animal Health is passed. This is a fundamental agreement that must be reached by stakeholders before developing animal health projects.

The process of setting and allocating complementary animal health budgets at the central, provincial, district, quarantine and research levels so that all components of the Indonesian government system can work together effectively to control serious animal diseases is a significant challenge under autonomy. An improved annual process of identifying priority activities which should be funded at the central level must be defined, and this must be complementary to a similar process at the regional level involving province, districts and subdistricts. This cannot be seen as just winding back autonomy, but as improving the efficiency and effectiveness of the whole system.

The opportunities to strengthen the current animal health system within the existing framework are numerous beginning with working on overcoming some of the inefficiencies unrelated to autonomy. Many opportunities are related to integrating activities of the central, provincial and district animal health services by (i) establishing effective forums for developing policy and plans and negotiating agreements, (ii) sharing resources and information, (iii) clearly defining roles and responsibilities, (iv) creating rapid, two-way pathways of communication and (v) committing to a process of dispute resolution.

Using incident control systems to manage and deliver animal health projects might be an effective way of integrating activities of stakeholders. Staffing the different sections: planning, logistics, operations and control, would bring together representatives from each of the stakeholder groups including private industry. Incident control systems should be tested, particularly at the district and regional levels.

Recognising the attributes of the different stakeholders and how they might contribute to delivery of an animal health project is an important part of the integration process. The disease control expertise of central government, the oversight and coordinating position of provinces and the field services role of districts are an example of complementary attributes of different groups that might be integrated. There will be many other attributes

of stakeholders that will lead to clearly defined roles and responsibilities in animal health projects. These attributes should be identified and flagged for clearly defined roles in animal health projects.

Enhancement of the oversight and coordination role of provinces seems the sensible means of integrating animal health activities and resources of districts at field level. Provinces are the important intermediary between central government and districts.

National animal health oversight, coordination and animal disease control expertise must somehow be connected to district frontline activities. Connection with 33 provinces is manageable but connection with 444 districts is impossible. Methods of enhancing the coordinating role of provinces should be tested.

The first steps toward integration are to gather the stakeholders, listen to their views and agree on a way forward. Consultants may be asked to contribute ideas. These steps are easy. The challenge is to follow up on the workshops and consultant's reports and convert thinking into reality. There must be a real commitment to getting projects up and running.

There is already agreement on essential ingredients for projects. They must be SMART: specific, measurable, achievable, realistic and time-bound. They must strive to integrate stakeholders, be rolled-out in small incremental steps and have a high likelihood of success.

Outcomes include increased prosperity and health of livestock owning communities, increased training for animal health professionals and in time, development of useful models of animal health service delivery that if multiplied across Indonesia would result in a strong, nationally integrated animal health system.

Enter Normal text

7 Project Implementation

The reviewers were advised a number of times that implementation of projects in the current age of autonomy should be as pilot projects with a step by step (incremental) and integrated (consultative and participatory) approach and it must be done within the confines of the existing political administrative structure.

The reviewers were reminded that in Indonesia, interactions between people and groups are highly complex and socially sophisticated and ways of doing something are done that way for a reason, often a socially and culturally complex one. Whereas once, simply administered line control may have effected change, in the age of greater autonomy that system no longer applies. Instead, for the cultural change required to strengthen animal health services in Indonesia, a large amount of effort must be directed toward facilitating the steps of consultation, negotiation and agreement toward an agreed and demonstrated better alternative. That is the challenge for this ACIAR project; to help the Indonesians help themselves to get different groups cooperating.

8 Benefits for Australia

There are valuable opportunities for strengthening the Australian animal health system by having state and federal government veterinarians participate in animal health projects in Indonesia. Australian veterinarians would gain policy development and project management experience that can be applied back in Australia.

Valuable experience can also be gained working with exotic diseases such as avian influenza, Newcastle disease, hog cholera, Jembrana disease, surra and haemorrhagic septicaemia, all the more important since AAHL has ceased running exotic disease training courses with live animals.

Strong, lasting, friendships usually develop between counterparts from such projects. In time, as peoples' careers develop and they rise to positions of influence in government, such friendships may become extremely valuable when having to resolve complex regional disease control or animal trade issues.

Above all, there are obvious major benefits to Australia in helping better animal disease control in Indonesia. The opportunities for spread of unchecked zoonoses through both legal and illegal movements of people and products as well as wildlife remain and have significantly increased during the last decade. Only a progressive strengthening of capability at all levels of the Indonesian system will provide sustainable improvements to this situation.

9 Conclusions and recommendations

The National Coordination workshop was welcome and timely – avian influenza is concerning everyone, the stakeholders seizing the opportunity to share their views with others, which they did, and felt that they were heard, which they were. The presentations and the ensuing discussions were pleasingly open and frank and highlighted the key problems facing the animal health system and avian influenza control.

Both Drs Scott-Orr and Jubb were particularly impressed with the high level of knowledge and understanding of the necessary components and systems for a successful animal health system. What was clearly apparent was the lack of money, resources, skills, training, and perhaps confidence to convert the knowledge and understanding into effective delivery systems. This makes for a clear role for the proposed ACIAR activities – the activities' potential for high impact is evident, they are the means to capitalize on the heightened awareness created at the workshop, but most importantly, the activities are a much needed mechanism to move forward on animal health problems.

Tensions and some confusion of roles between the Directorate General of Livestock Services and the Agency for Quarantine, the two main players in animal health in Indonesia, were evident at the workshop. Participants, well aware of this confusion and the inefficiencies it causes, recommended as a priority that the DGLS and Quarantine meet regularly and work together.

The new Law number 24, Year 2007 is a major breakthrough because many autonomous districts were uncommitted to avian influenza control and not allocating resources or budget for it. Other disease control programs such as for rabies, anthrax and brucellosis, faltering because of decentralization and autonomy, may receive spin-off benefits from this new law.

The anthrax control workshop was very informative and provided a poignant lesson as to why a thorough understanding of social, cultural, environmental and economic factors, is essential to achieve disease control. An extraordinary insight was provided into the reasons why anthrax occurs all too regularly in people in NTT. In Flores and Sumba, the local people believe that they will be burying or burning their future prosperity if they bury or burn dead animals rather than eating them. This, coupled with the lack of any slaughterhouse facilities in many areas, let alone any ante- or post-mortem meat inspection service, means that standard anthrax control policy and procedures as promulgated by DGLS cannot be implemented.

Altogether, the workshops and the fortnight's other formal and informal meetings, were informative and rewarding. From a project perspective, we now have solid ideas for project activities supported by key animal health personnel in the Indonesian government. From a workshop perspective, views of the range of stakeholders in the Indonesian animal health system were presented - problems were highlighted, ideas were generated, networks were established, recommendations were made, agreed and recorded, and the depth and breadth of the Indonesian government veterinary services knows what the ACIAR project is trying to achieve – all the things that should be expected of successful workshops.

2.

Sufficient information was collected from the two workshops and the many meetings with key Indonesian government veterinarians to prepare a final project application to ACIAR⁷ for an animal health project in Indonesia. Notes providing background to some of the project ideas are attached as Appendix 5.

The highlight of the National Coordination workshop occurred in the opening speeches when the Director of Disaster Management of the Ministry of the Interior announced a new law, Law number 24, Year 2007, declaring different disaster types, avian influenza being a non-natural disaster and therefore, provinces and districts must work together and allocate budget and resources for its control.

Dr Scott-Orr's workshop presentations gave participants a clear understanding of what the ACIAR project was trying to achieve and both presentations were warmly and enthusiastically received. The presentations and the many informal discussions they led to, laid the groundwork for potential projects and allowed Dr Scott-Orr (and Dr Jubb) to acquaint themselves with some of the major players in the Indonesian animal health system.

Another highlight in Bali was the invitation to Drs Scott-Orr and Jubb to an Avian Influenza Control Socialisation Meeting convened by the head of the District of Tabanan and the Director of the Denpasar Disease Investigation Centre where approximately 300 village leaders, sub-district officials, district and provincial animal health officials participated.

An outline of the proposed ACIAR project agreed with senior government veterinarians is presented in Appendix 6. English translations of the outcomes of the National Coordination workshop discussion sessions and the final recommendations are presented in Appendix 7.⁸

⁷ To be submitted by early June 2007

⁸ The workshop was conducted mainly using Bahasa Indonesia

10 References

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11 Appendixes

11.1 Broad outline of proposed activities

ACIAR Project – Strengthening delivery of government veterinary services in a decentralized Indonesia

A 5-year ACIAR project is proposed, the objective of which is to improve delivery of government veterinary services by better coordinating the resources of central government, the 33 provinces and the 444 autonomous districts.

Activities will be of three types.

1. Consultative system analysis and improvement

Consultative analysis of methods to improve coordination, emergency response capability and service delivery between central, provincial and district levels of Indonesia's government veterinary, quarantine and human health services is needed.

2. Familiarisation of Indonesian government veterinarians with Australia's decentralised animal health system

Study tours of Australia by groups of senior Indonesian veterinarians and other leaders will observe the integrated animal health systems, processes and emergency response arrangements at the Commonwealth, State and District levels that underpin Australia's success in maintaining a very high animal health status. Adaptation of some of the different models to Indonesia may address some of the systemic issues identified in 1 above.

3. Pilot studies for managing specific animal diseases

The case studies will combine an institutional capability strengthening and operational activity potentially leading to a larger scale regional disease control programs. Preliminary suggestions include:

- **Avian influenza in West Java and Bali** - an improved incident response system
- **Rabies control in Flores** - improved awareness and surveillance, vaccination coverage, epidemiology and inter-island quarantine to improve control on Flores and prevent spread to other parts of NTT or NTB and more widely.
- **Anthrax control on Sumbawa** - improved awareness and surveillance, targeting and implementation of vaccination, epidemiology and inter-island quarantine. This fits with the aspiration of NTB to eventually be declared free of anthrax.
- **Bovine brucellosis control on Timor** – review impact of autonomy on the current brucellosis control program started under the Eastern Islands Veterinary Services Project and implement changes as required.
- **Food safety in Bali** – investigate a *Salmonella enteritidis* market assurance-based control program in Balinese poultry to improve both local and tourist public health.

These case studies all address high priority diseases, most of them zoonoses, for Indonesia and Australia. Other case studies may be proposed or preferred by the Government of Indonesia at the May Bali workshop and the later regional workshops.

Public health is probably a necessary driver for an initial round of animal health projects in Indonesia. All the DGLS top priority diseases are serious zoonoses, all are endemic to parts or all of Indonesia, and all are high priority exotic diseases for Australia. Additionally, Indonesian laboratory diagnosticians are familiar with diagnostic procedures for these disease and many field veterinarians are familiar with these diseases from having worked with them in previous and or existing regional control programs. Success is more likely with this familiarity.

Other funds will be sought to implement improved programs recommended by each case study.

11.2 The Kecamatan Development Program

(Retrieved from <http://www.worldbank.org/id/kdp> on 19/3/07)

The Kecamatan Development Program (KDP) is a national Government of Indonesia program, implemented by the Ministry of Home Affairs, Community Development Office aimed at alleviating poverty, strengthening local government and community institutions, and improving local governance. KDP began in 1998 at a time of tremendous political upheaval and financial crisis. Currently, KDP is in its third phase, and is expected to run until 2009.

The program is funded through government budget allocations, donor grants, and loans from the World Bank. It provides block grants of approximately Rp. 500 million to 1.5 billion (approximately US\$50,000 to US\$150,000) to sub-districts (kecamatan) depending upon population size. Villagers engage in a participatory planning and decision-making process to allocate those resources for their self-defined development needs and priorities. KDP focuses on Indonesia's poorest rural communities.

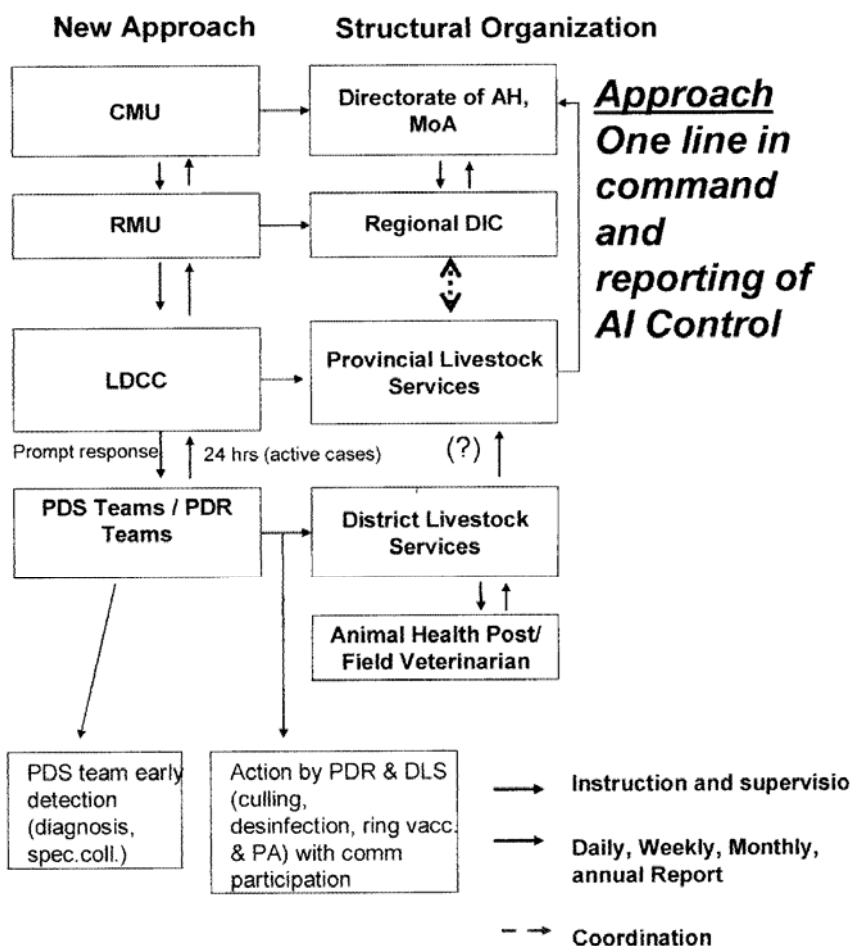
From 1998 to 2006, KDP has covered 34,233 of the poorest villages in Indonesia, covering approximately 49 percent of the entire 69,956 villages in the country.

Geographical Levels	KDP I Coverage 1998-2002	KDP Coverage July 2005	Total KDP Coverage 1998-2006	Total in Country*/	Total KDP Coverage To Date
Provinces	22	30	30	33	91 (%)
Districts	130	239	260	440	59 (%)
Sub-districts	986	1,520	1,983	5,358	37 (%)
Villages	16,000	25,651	34,233	69,956	49 (%)

Data sources: MIS - KDP National Management Consultants

11.3 Control structure for Avian Influenza response

AI Control in Animals (build-in existing Structural Organization)



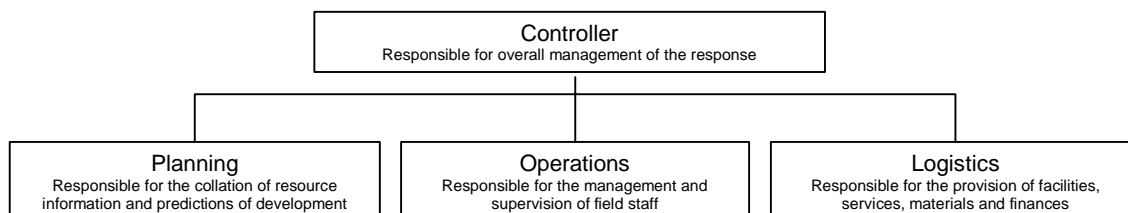
11.4 Incident control systems

“Recommendation 2: Establish an incident control structure with planning, operations and logistics sections within the CMU and within the existing and proposed LDCCs and establish forward command posts in each of the 444 districts.

Numerous constraints apply to the control of avian influenza in Indonesia not the least of which is the complexity and fragmented nature of the response. There appears to be no clear administrative structure at any level to deliver the national strategic plan. The Campaign Management Unit at the Ministry of Agriculture has become large and unwieldy with frequent reshuffling of positions and poorly defined roles and responsibilities. Although KOMNAS is a gesture toward a whole of government approach there is otherwise little incorporation of whole of government functions into the current response structure. Communication lines are unclear, sharing of information and resources is confused, and there is inequitable distribution of workloads. These same issues appear to be present, though on a lesser scale, at the local disease control centres and district offices.

Many of these problems would be overcome by the introduction of an incident control system with the thoughtful rearrangement of existing positions and creation of new positions. It is recommended that a basic framework of a controller, and managers of planning, operations and logistics be used (Figure 1).

Figure 1: Basic incident control structure with controller, planning, operations and logistics sections



Managing equipment, particularly the stable and secure storage of PPE, vaccines and disinfectant has become a significant problem for some LDCCs and district offices. A logistics section would manage this problem.

Currently, there is little or no disease intelligence applied at the local level. A planning section in the LDCC would provide disease prediction, disease control planning and industry liaison at the local level.

A system of debriefing field teams immediately they return from the field needs to be established. This is an important function of an LDCC operations section to ensure that (i) data forms returned by field teams are completed correctly, and (ii) a person in a position of overview can collect information from field teams on constraints affecting their activities.

One of the key roles for FAO advisors should be to coach and mentor the four key positions in the CMU namely the controller, and the managers of the planning, operations and logistics sections. This will keep the avian influenza program moving forward by helping the Indonesian managers of these sections work through difficult decisions, and advising them when necessary on managing workloads and time by prioritizing and delegating tasks.

The large number of districts (444), and their variable staffing arrangements lend the district offices to become forward command posts if the offices are near to field activities.”

Incident control systems

The incident control system can be adapted to any emergency. It provides a structure that delivers uniform terminology, clearly defined roles and responsibilities, and an adaptable and scalable approach to the size and complexity of the incident. Three key principles apply: (i) management by objectives (ii) management of the changing span of control as incidents expand or contract, and (iii) the division of tasks according to function.

The four main functions defined in the structure are control, operations, planning and logistics; however key functions such as safety, training, public information and media management are easily incorporated into the structure.

The operations function assists control and coordination of the incident and is responsible for implementing the operational plan. The planning function involves assessing resource requirements, monitoring the status of resources and developing the operational plan. The logistics function involves identifying and coordinating support, equipment and supply services required for the response.

An incident control structure ensures that there is one clearly identified person that will always be in control of the incident. At a small incident the controller usually also performs

the operations, planning and logistics functions. As the incident develops in size or complexity, responsibility for managing these functions may be delegated to other officers.

It is also the responsibility of the controller to establish a control centre where members of the incident management team can work and where representatives of responding agencies and site managers can meet to discuss the operation.

The AUSVETPLAN management manuals on control centres provide detailed information on emergency management structures for animal disease outbreaks including detailed role descriptions from which job cards can be developed. The manuals are publicly available and can be retrieved from the website of Animal Health Australia.

One of the benefits of the incident control structure (such as that adopted in AUSVETPLAN) is that critical control points for information flow and decision making readily identify themselves. The interdependency within and between sections on flow of information/instruction requires these potential choking points to be monitored closely. Too large a span of control is the most common cause of choke points, followed by poor communications systems then by poor information management systems. Multi-skilling of staff rather than increasing staff numbers is the preferred method of relieving choke points. Cross training and access to standard operating procedures are necessary to achieve a multi-skilled emergency workforce.

11.5 Visit to Bali and Flores by H. Scott-Orr

11.5.1 Avian Influenza in West Java and Bali

There is a massive effort going on in Indonesia to control Avian Influenza, but human cases and deaths are still occurring and disease spread in birds being noted. Much work is still needed on the implementation of ongoing control measures especially from the Regional Management Unit (RMU) down through province, kabupaten, kecamatan, desa, dusun and neighbourhood levels. The PDS/PDR system can fit in well with the more layered organisational structure by enlisting / training / funding staff and volunteers at the lower levels and developing comprehensive role / reporting relationships for them. Considerable work needs to be put in to operationalise this.

It is proposed to pilot the use of the Incident Control System used widely in Australian Emergency Management as a means of assisting this, initially in three target kabupaten in West Java (Indramayu, Bandung and Garut), which are being targeted for intensive action by FAO. This will be included in the documentation of the proposed ACIAR project.

Fine tuning national policy to fit in with local poultry husbandry, management and trading practices is critical. Detailed epidemiological risk assessment should be the basis for this fine tuning. For example, chickens in Bali are more likely to be kept in walled house compounds where the flock size is essentially those owned by a family, as opposed to other parts of Indonesia where it may be difficult to define flock sizes any smaller than a whole village as single epidemiological units because of the free range nature of the poultry and lack of effective separation of the chickens.

In particular, slaughter out zones around infected birds should be kept as small as possible, subject to risk assessment, and emphasis placed on rapid ring vaccination. Likewise, movement controls on birds between areas within Bali should be minimised with emphasis on allowing movement 2-3 weeks after vaccination of a neighbourhood. These two policies are likely to improve villager and trader compliance with the program and minimise economic losses for the poultry owners.

Dr Agung of DIC Denpasar is keen to get a commitment of funds sufficient to implement a comprehensive eradication of avian influenza from Bali by thrice yearly vaccination of all Bali's estimated 5 million sector 4 poultry, combined with a very comprehensive sero-surveillance program to complement the PDS/PDR system. This obviously requires a detailed operational plan with consideration of field and laboratory personnel numbers and remuneration, and operational and capital costs including vaccine provision, cold chain and transport, laboratory consumables, compensation for slaughtered birds, and a well designed information system, as well as a major mass communication component, and ongoing technical and economic monitoring.

Regular meetings of RMU, DIC, provincial and kabupaten staff from the whole of Bali would be essential to assess and adapt operational programs and policy if such a campaign is implemented. Likewise ongoing "socialisation" meetings such as the one attended in Tabanan, at kabupaten and lower levels, are needed to get a consistent message across, build and maintain support, and identify practical operational problems which need addressing.

Recommendations

The Australian Incident Control System be implemented in three target kabupaten in West Java under the proposed ACIAR project, starting in early 2008, through the proposed ACIAR project.

Australia consider either direct (via AusAID) or indirect (via FAO) support of a comprehensive mass vaccination program in Bali subject to approval of a detailed operational plan as set out above. Ideally, such a plan would be approved by all donors who wish to contribute and their various contributions would be complementary. All would participate in regular program review.

11.5.2 Rabies in Flores Iuenza

Control of rabies in Flores must start with the realisation that the dog is valued for meat in Flores, with values of 200,000 – 300,000Rp per adult dog (approximately AUD\$30 – 40, a significant cost to the locals), and that rabies control policies which involve mass culling will be strongly resisted. Vaccination policy will have the best chance of control but comprehensive vaccine coverage is a challenge.

Most dogs in Flores are allowed to roam around their owners' houses / crops to guard them and are not normally restrained in any way. There is also a significant monkey population in Flores and the dogs are said to guard crops against monkey predation. There have been no reports of rabies in monkeys in Flores but animal health staff are concerned that this could occur.

There is a need to assess the detailed ecology of dogs and other potential rabies hosts on the island and whether or not there is a significant wild dog population. Dogs are encountered by day and night roaming along the main road between Maumere and Ende, often with no houses or people visible for some distance.

Because of the very difficult terrain in Flores, with many villages being located well off main roads, reachable only by hiking up steep mountain slopes, a comprehensive injected vaccination campaign for all the island's dogs would be very difficult to implement. The possibility of an oral vaccination campaign should be investigated, with a review of the successful strategies implemented in Europe since the '70s.

Issues that would need to be assessed include

- The effectiveness of current oral vaccines widely used for fox rabies in Europe, at promoting immunity in dogs.

- The duration of immunity produced by the local rabies vaccines and possible effectiveness of an ear tag for identifying vaccinated animals (current Indonesian recommendation is annual vaccination, while in other countries duration is said to be 3 years)
- Relative future roles and cost-benefit of aerial application, hand distribution of oral vaccines and injected vaccines in Flores.

Very few of the local people speak English and in more remote areas older people may not speak Bahasa Indonesia. Any systematic rabies control program will need to be implemented by Indonesians, preferably from Flores. Consequently a capability-building program should be implemented which pairs any foreign expert with at least one local counterpart, and also possibly with one from DGLS, who are funded by ACIAR through the project to follow a local or Australian Masters or PhD program with some co-supervision from the expert(s).

Recommendations

A review of rabies control in Flores be undertaken in 2008 with Glen Saunders or Peter Fleming of NSW DPI looking at the dog ecology aspects and an expert on oral rabies vaccine programs working with Indonesian counterparts.

At least one and preferably two Masters or PhD students, preferably Indonesian, and university co-supervisors be identified to work on relevant data collection and technical issues identified by the expert review.

Discussions be held with other donors and NGOs re development of a longer term project.

11.5.3 Anthrax in NTT and NTB

Anthrax in NTT and at least Sumbawa occurs all too regularly in people, with mortalities due to consumption of dead animals or slaughter of sick animals. In Flores and Sumba, people believe that they will be burying or burning their future prosperity if they bury or burn dead animals rather than eating them. This, coupled with the lack of any slaughterhouse facilities in many areas, let alone any ante- or post-mortem meat inspection service, means that standard anthrax control policy and procedures as promulgated by DGLS cannot be implemented.

A sustained effort is needed to improve anthrax control, which could involve

- a long term community education (“socialisation”) program with involvement of all levels from the province and kabupaten down
- detailed epidemiological mapping of anthrax occurrences including use of oral history sources to retrieve and validate data from as long ago as possible
- research / surveillance by ELISA monitoring
- long term planning of vaccination strategies and implementation in target risk areas
- consideration of identifying vaccinated stock by coloured ear tags denoting year of vaccination, and linkage of movement controls to this
- research on detection of spores in soil
- soil cleaning policy, procedures and implementation for known or suspected contaminated areas
- provision of training, equipment, vaccine, antibiotics in endemic kecamatan
- development of simple village-level slaughtering facilities and training in very basic meat inspection.

Recommendation:

A review of anthrax control in NTT and NTB be carried out in 2008, possibly linked with the planned meeting on anthrax control in Flores in Maumere in May 2008. as part of the proposed ACIAR project. This could be undertaken by Bruce Christie or Helen Scott-Orr with Indonesian counterparts Dr Soedarmono from DGLS and others from the two provinces and DIC as appropriate.

Involvement of local post-graduate students be considered as early as possible, as above for rabies.

A multi disciplinary approach with economics and possibly sociology be built in together with the veterinary technical inputs.

11.6 Outline of the proposed ACIAR project; its aim, objectives and activities

The project's aim is to reduce the impacts of serious zoonotic and transboundary animal diseases by strengthening veterinary service delivery in Indonesia.

There are two project objectives.

Objective 1 is to improve the veterinary system, policy and operations in four specific areas in the animal health system leading to strengthening of INDOVETPLAN.

Activities undertaken under objective 1 include:

- Facilitate the development of a single list of notifiable diseases agreed between DGLS and Agency for Quarantine
- Annually review and document the roles, responsibilities and resources within the Indonesian animal health system
- Improve exotic disease preparedness through conducting incursion scenario exercises
- Arrange study tours of Australia by senior Indonesian veterinarians for them to observe functioning animal health systems in a decentralised political system.

Objective 2 is to improve the effectiveness and efficiency of five endemic zoonotic disease control programs.

Activities undertaken in objective 2 include:

- Pilot testing incident control systems for avian influenza control in West Java and Bali
- Development of a cost-effective control program for anthrax on Nusa Tenggara Timor and Nusa Tenggara Barat
- Development of a cost-effective control program for rabies on Flores
- Development of a cost-effective control program for bovine brucellosis in West Timor
- Development of a Salmonella free market assurance program for eggs in Bali