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CBAIC Community Based Avian Influenza Control Project

COMMUNITY-BASED AVIAN INFLUENZA CONTROL PROJECT

QUARTERLY PROGRESS REPORT 8

17 July – 30 September 2008

November 2008 – revised January 2009

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Cover photo credit: Jonathan Bell, CBAIC.

A provincial animal health official discuss biosecurity and AI control and prevention with a live poultry vendor in Banten province, west of Jakarta.

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EXECUTIVE SUMMARY

The Community-Based Avian Influenza Control Project faced a period of transition as it began project year three. From 17 July through 30 September 2008, the project closed down previous programmatic activities (such as training of volunteers), changed its chief-of-party, conducted an internal review resulting in a strategy white paper, and worked through several iterations of planning for the year three program, the first draft of which was submitted to USAID on 26 September 2008.

Going forward the project will target a much narrower geographic area, focusing on western Java Island. This reduces the project target area from nine provinces to three (Banten, Jakarta, and West Java), areas which comprise nearly thirty percent of the population of the entire country. This area also accounts for nearly seventy percent of all confirmed human AI infections in the country.

The final draft of the year three workplan, once fine-tuned, will continue to improve bird flu surveillance and behavior change to reduce human cases in Indonesia in western Java Island, and, overall, to reduce the risk of pandemic flu developing from H5N1 highly pathogenic avian influenza.

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ACRONYMS AND ABBREVIATIONS

AED	Academy for Educational Development
AI	Avian Influenza
BCC	Behavior Change Communication
CBAIC	Community-Based Avian Influenza Control Project
CMU	Campaign Management Unit (MOA AI)
DAI	Development Alternatives, Inc.
DSO	Disease Surveillance Officer (MOH)
FAO	Food and Agricultural Organization of the United Nations
GOI	Government of Indonesia
ILRI	International Livestock Research Institute
KAP	Knowledge, Attitudes, and Practices
KK	Koordinator Kecamatan (Subdistrict Coordinator)
KOMDA	Regional Committee for Avian Influenza Control
KOMNAS FBPI	National Committee for Avian Influenza Control and Pandemic Influenza Preparedness
MOA	Ministry of Agriculture
MOH	Ministry of Health
MT	Master Trainer
NPPP	National Pandemic Preparedness Plan
PDSR	Participatory Disease Surveillance and Response
PMI	Palang Merah Indonesia (Indonesian Red Cross)
PPE	Personal Protective Equipment
PSA	Public Service Announcement
SO	Strategic Objective
UN	United Nations
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollar
USDA	United States Department of Agriculture
VAIC	Village Avian Influenza Coordinator
WHO	World Health Organization
Y1	Project Year One
Y2	Project Year Two
Y3	Project Year Three

INTRODUCTION

Bird flu infection in humans is deadly and the threat is clear. As an expansive tropical archipelago, Indonesia's densely populated islands provide the perfect setting for endemic deadly H5N1 avian influenza to bide its time and evolve, perhaps eventually mutating into a form that passes easily between humans, causing a pandemic with the potential to kill millions. By 10 September 2008, Indonesia had accumulated 112 human deaths due to bird flu. With 137 confirmed human cases nationwide, H5N1 avian influenza (AI) infection in Indonesia has resulted in a frightening case fatality rate in excess of 80 percent (World Health Organization).

The Community-Based Avian Influenza Control Project (CBAIC) is part of the United States Agency for International Development | Indonesia strategy for reducing the risk of pandemic flu. Overarching goals include prevention of pandemic flu from the H5N1 strain of avian influenza and establishment of Government of Indonesia capacity for pandemic response; and reduced occurrence of AI infection in poultry and humans. Specifically, CBAIC is part of three USAID strategic objectives (SOs): Strengthen Government of Indonesia (GOI) planning, preparedness, and coordination among government sectors and levels, and donor agencies (SO1); increase effectiveness of H5N1 prevention and control in poultry (SO2); and decrease high-risk behavior associated with transmission of H5N1 among poultry and humans (SO4). This document details review and planning activities for the period 17 July – 30 September 2008, the first quarter of project year three.

THE CURRENT SITUATION IN INDONESIA
Distribution of the 137 confirmed human H5N1 AI cases and 112 deaths by province in Indonesia as of 10 September 2008 (WHO).

INTERNAL REVIEW

In preparation for development of the third year workplan, an internal review team was assembled to produce this white paper on avian and pandemic influenza behavior change/risk reduction. The team, led by the Community-Based Avian Influenza Control Project Chief of Party, included representatives from the Food and Agriculture Organization of the United Nations, the World Health Organization, USAID and the Johns Hopkins University Center for Communication Programs; a technical specialist in AI virology and epidemiology; and independent short-term specialists in community mobilization and monitoring and evaluation. Intensive review and field assessment activities were conducted from 19 – 29 August 2008. The internal review resulted in the development of a strategy white paper, which is found in its entirety in APPENDIX 1. Following are several key findings and recommendations of the internal review.

1) Over the last two or three years, our understanding of the transmission of avian influenza virus in Java has improved considerably. It is now clear that commercial poultry production and distribution is almost certainly a major source for the transmission of the virus. The combination of an industrial production system together with a semi-traditional marketing system, and how these both intersect with community life, produces the special risks for transmission of AI virus in Java.

2) CBAIC should target a series of interrelated human behaviors designated as Risk Reduction Packages, based on the risks stated above, and endorsed in a MOA workshop in August 2008. Key behaviors for <u>backyard poultry producers</u> include: (a) know that AI is different from Newcastle disease (ND) although it can look similar, (b) vaccinate against ND, (c) vaccinate against AI in high risk areas, (d) control the access of traders and collectors to farms and households, (e) separate new stock for two weeks before mixing with existing stock, (f) do not sell sick poultry or poultry from flocks with sick birds, (g) immediately report high percentage mortality of chickens, (h) bury dead poultry, (i) only handle sick or dead poultry with protection, (j) separate poultry from living areas, (k) separate different species of poultry, (l) do not consume sick or dead birds, (m) wash hands with soap after touching poultry. Key behaviors for <u>household poultry and egg consumers</u> include: (a) don't bring home live poultry for food, (b) wash hands after touching poultry. Key behaviors for <u>slaughterers</u>: (a) wear protection when preparing chicken meat for sale, (b) dispose of slaughter waste safely. Key behaviors for <u>commercial poultry producers</u>: (a) the same messages applicable to household poultry raisers, (b) compost chicken manure for two weeks before use or trade, (c) observe the necessary biosecurity measures. Key behaviors for <u>collectors and traders</u>: (a) Do not enter poultry production areas (i.e. Poultry houses), (b) do not purchase sick or suspected sick poultry, (c) clean and disinfect vehicles, utensils, equipment, crates used for collection and transport of poultry after unloading, (d) minimize the number of farms visited per load, (e) do not return unsold poultry from the market to the farm.

3) A key behavior to address aimed at reducing human mortality and morbidity will include if a person has a high fever (>38C) with cough, or runny nose or respiratory problem, and was exposed to poultry and poultry products, they should go immediately to a health center or health personnel for treatment.

4) The Ministry of Agriculture and FAO have evaluated the criteria for selecting areas for intensified HPAI control efforts in commercial poultry in western Java. Twelve districts were identified as having a particularly high ratio of commercial poultry to people: Serang

and Tangerang in the northern part of Banten province; Karawang, Subang, Indramayu in West Java, on the north coast east of Jakarta; and Bogor, Sukabumi, Cianjur, Purwakarta, Bandung, Tasikmalaya and Ciamis in West Java in the Bogor-Bandung-Ciamis corridor. To maximize synergy and impact, CBAIC should work in these same districts. There are two other districts—Lebak and Pandeglang in Banten province—which have a high ratio of native chickens to people.

5) The following audiences should be targeted: Community and household level – Backyard poultry producers, Poultry and egg consumers; Commercial sector – Sector 3 poultry farmers, commercial traders and collectors, commercial poultry vendors, poultry slaughterers, poultry shop owners; Public sector – Animal health workers and human health workers; and Policy and advocacy – Local government officials, media professionals, community mobilizers (including local celebrities, religious leaders, and informal civil society leaders), officials in poultry feed companies, officials in poultry associations. Audiences should be prioritized once behaviors are prioritized.

6) An *AI Alert Village* campaign should be implemented according to a community based model in a selected subset of villages in the 14 targeted high-risk districts in West Java and Banten with the goal of increasing the number of *AI Alert Villages* that have adopted the Risk Reduction Packages and established processes designed to reduce the number of AI outbreaks in poultry and the number of human cases.

7) The community mobilization should be supported by mass media and printed materials Selected communication and media materials from Y1 and Y2 that are consistent with the revised Y3 strategy should continue to be disseminated and used. New communication materials should be developed according to the current understanding of risks.

8) The assessment team found that CBAIC has already made a significant investment in training master trainers and village volunteers (VAICs) in nine provinces. With modest additional investment, the efforts of these trainers and volunteers can be reinforced and sustained. CBAIC should continue the regular three-monthly subdistrict-level coordination meetings in areas where VAICs have already been trained. One team of master trainers (MTs) should be maintained in each province to coordinate these activities and to serve as an ongoing community resource. These MTs can also receive the same supplementary social mobilization training that those working on the intensified program will receive.

9) Partners should include government, private sector, and civil society organizations at multiple levels: KOMNAS, KOMDA, PDSR/MOA; MOH/Desa Siaga (Alert Village program); PMI and Muhammadiyah, VAICs and master trainers. CBAIC may also wish to consult with other cooperating agencies that are involved in community-based AI activities, such as CARE and Catholic Relief Services.

TRANSMISSION RISKS

The CBAIC internal review team, in response to the evolution of our understanding regarding the epidemiology of AI virus in Java, reviewed key behaviors that risk transmitting the virus, both from bird to bird, and from bird to human. These identified behaviors will be further vetted and prioritized by a small, informal collaborative team of CBAIC, FAO, WHO, ILRI technical specialists, which will then be shared with communications specialists to develop effective risk reduction messages. Agreed upon and tested messages will then be incorporated into informational, educational, and communications materials, and will become the basis for AI risk reduction training in year three programmatic activities. Identified key risks include:

Bird to bird

1. Adding new birds to old without quarantine
2. Selling or buying sick poultry
3. Treating AI as ND
4. Mixing different species of poultry in the same night housing
5. Not vaccinating against ND
6. Not vaccinating against AI in high risk areas
7. Not or late reporting of sick and dead poultry
8. Poultry raising without biosecurity measures, such as keeping one set of footwear per farm
9. Poultry traders coming to where poultry are kept
10. Mixing birds indiscriminately during cockfighting events

Bird to human

1. Handling sick and dead poultry without protection
2. Children handling sick and dead poultry
3. Ignoring clusters of respiratory illness in people
4. Preparing poultry for cooking without protection

Bird to bird and bird to human

1. Throwing carcasses into canals, etc.
2. Using chicken droppings as manure without treatment

These key risks were further discussed during the FAO – MOA communications workshop in September 2008. Other discussions will likely follow, including a meeting to prioritize the identified key risks. The rationale behind each high-risk behavior is detailed in APPENDIX 2.

WORK PLANNING

The resulting white paper from the internal review serves as the basis for planning of year three program activities. During the reporting period, and especially after completion of the internal review, program staff have worked through multiple iterations of activity planning for project year three. The initial draft of the year three workplan was submitted to USAID on 26 September 2008. Intensive planning efforts continue in order to best incorporate white paper recommendations, integrate communications and community mobilization interventions, and best position CBAIC for integration with other USAID AI partners – FAO, WHO, and ILRI, in particular.

GEOGRAPHIC FOCUS

It is now acknowledged that the highest risk from AI in Indonesia comes from the commercial poultry industry which has its greatest concentration of production in western Java and neighboring areas which feed poultry into the conurbations surrounding Jakarta. In preparation for the third year program in which it is planned to concentrate AI prevention efforts in synergism with FAO and other agencies within the area considered to be at highest risk within Banten and West Java, CBAIC participated in discussions with FAO on the selection of districts considered to be at particularly high risk. In the absence of detailed information on disease incidence in commercial poultry, poultry density is considered as a proxy for the presence of disease. The low prevalence of AI in humans and possible observational bias means that the

distribution of human cases does not necessarily reflect the risk factors. Thus, the indicator chosen for estimating the risk was the ratio of poultry to humans.

Twelve districts were identified as having a particularly high ratio of commercial poultry to people: Serang and Tangerang in the northern part of Banten province; Karawang, Subang, Indramayu in West Java, on the north coast east of Jakarta; and Bogor, Sukabumi, Cianjur, Purwakarta, Bandung, Tasikmalaya and Ciamis in West Java in the "Bogor-Bandung-Ciamis corridor." In the case of Karawang and Indramayu, the high poultry population is mainly ducks. To maximize synergy and impact, CABIC should work in these same districts. There are two other districts— Lebak and Padeglang in Banten province—which have a high ratio of native chickens to people. Given the CBAIC mandate to address backyard poultry, these two districts can be added to the 12 districts prioritized on the basis of a high ratio of commercial poultry to people, making a total of 14 districts identified as high risk.

OTHER ACTIVITIES

TECHNICAL COLLABORATION

CBAIC continued its technical collaboration with ILRI on its large-scale vaccination trial. In particular, CBAIC volunteers were enlisted after the first round of the ILRI vaccination program in Bantul district, Yogyakarta, resulted in some chicken death, which created local resistance to the second round of vaccination. On behalf of the ILRI vaccination coordinators, the CBAIC volunteers worked to allay local concerns through thorough, personal explanation of the vaccination program and its objectives to communities. This facilitated the program by shoring up local support, and encouraging participation.

ASEAN TECHNICAL WORKING GROUP MEETING

CBAIC participated in the first meeting of the newly formed ASEAN Technical Working Group on Pandemic Preparedness and Response (TWG-PPR), organized by the ASEAN Secretariat and hosted by the Government of Indonesia in Medan, North Sumatra from 21 to 23 July 2008. The meeting was attended by delegates from Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, and Singapore. Representatives from the ASEAN Secretariat, Australian Agency for International Development (AusAID), World Organization for Animal Health (OIE), United Nations System for Influenza Coordination (UNSIC), United Nations Office for Coordination of Humanitarian Affairs, United States Agency for International Development (USAID), World Health Organization (WHO), Food and Agriculture Organization (FAO) Indonesia, United Nations Children's Fund (UNICEF) were also in attendance.

Mr. Bayu Krisnamurthi, Chief Executive of Indonesia National Committee for Avian Influenza and Pandemic Influenza Preparedness and Deputy to the Coordinating Minister of the Economy on Agriculture, Marine and Fisheries Affairs of Indonesia, delivered welcome remarks. The meeting resulted in the establishment of the ASEAN Secretariat One Health Working Group to facilitate and support multi-sectoral collaboration in pandemic preparedness and response in the ASEAN region. The next TWG-PPR meeting was scheduled for the end of the second quarter of 2009.

KOMNAS PANDEMIC SIMULATION

CBAIC supported and observed a KOMNAS FBPI-led pandemic response simulation in Manado, North Sulawesi from 23-26 September 2008. The first day, Deputy Chief Executive of KOMNAS

FBPI Dr. Emil Agustiono led a desktop exercise that covered review of scenarios, understanding of pandemic influenza, command-control and logistic preparation. During the field simulation, high-level officials from the province and Manado city participated in the exercise. Topics covered during the simulations were non-pharmaceutical interventions, risk communications, border control, social distancing, and command & control. An evaluation suggested that local government should encourage more sectors to have a contingency plan especially in the area of infection control in hospitals, risk communications, mental/trauma support, personal protective equipment (PPE) stock piling at essential points (military, health providers, and police), and debriefing after a simulation. KOMNAS plans to conduct a total of nine desktop simulations in the next year.

MONITORING AND EVALUATION

VAIC PROGRAM

Members of a United States congressional staff delegation visited a village in North Sumatra where a CBAIC-trained village avian influenza coordinator (VAIC) played a key role in responding to an outbreak of AI (see "Fast Response Protects Village" on the following pages). A neighborhood representative learned of a suspected outbreak of AI in poultry and reported it to local leader, who contacted the CBAIC VAIC. The VAIC contacted the government participatory disease surveillance and response team (PDSR) who in turn made contact with the district surveillance officer (DSO) from human health services.

There have been numerous confirmed reports (59 reports by PMI volunteers alone in the period April through July 2008) of VAICs successfully recognizing cases of the disease and bringing them to the notice of the government surveillance and response teams. However, in order to have a quantitative evaluation of the program a survey was commissioned to commence next quarter:

1) To determine to what extent the messages regarding AI that the VAICs have received in their training have been disseminated to their communities, particularly, but not exclusively, to owners of significant numbers of poultry in the community. (Primary objective.)
2) To determine what activities the VAICs have undertaken in their communities.
3) To determine what behavior in relation to prevention of AI in poultry and in people has been modified by members of the community in response to intervention by the VAICs.
4) To determine what proportion of VAICs remain active in promoting AI control measures in their communities after the training has finished. This refers to VAICs trained directly by master trainers, after the initial trial phase.
5) To evaluate the extent of cooperation of VAICs with the PDSR teams. This will be done particularly by assessing the proportion of VAICs contacting the PDSR in case of disease.

AED KAP SURVEY

CBAIC hosted a Chief of Party meeting attended by USAID, WHO, and ILRI on 31 July 2008. The meeting featured a presentation by AED that summarized broad stroke results of their end line KAP study. Importantly, they found that 90 percent plus of respondents reported getting information regarding avian influenza from television. As follow up, CBAIC will do further analysis from the raw data to help CBAIC design the new program focus. However, by the end of the reporting period the further analysis was not yet complete. A status report will be included in the October through December 2008 progress report.

SUCCESS STORIES

CBAIC MEDIA CAMPAIGN SUPPORTS CHANGE OF RISKY BEHAVIORS

On 27 January 2008, CBAIC launched the intensive mass media campaign, which ran through 30 April 2008. A total of 3408 TV spots were aired and 34,991 radio spots were broadcast during the campaign. Using Neilsen media research data, it was estimated that CBAIC reached 96 percent of the targeted audience – men and women aged 22 to 45 across Indonesia. This translates into an estimated 159 million viewers seeing a CBAIC behavior change television spot at least once during the campaign. And according to radio station estimates, CBAIC radio content reached an estimated 31 million listeners nationwide at least once.

While these numbers sound impressive, what do they really mean in terms of risk reduction and behavior change? Quantitative and qualitative research found that the short, intensive mass media campaign was indeed successful in promoting key behaviors, reinforcing messages that were also delivered directly to the community level. The media evaluation study found that:

1) People who saw CBAIC television messages were more likely than those who had not, to burn, bury, burn and bury, and report dead chickens to authorities;
2) The more often people had seen the CBAIC messages, on TV or in print or in person at a variety show, the more likely they were to do these behaviors; and
3) A cost-benefit analysis found that an investment of US$ 1.10 per household per message could affect positive behavior change to reduce the risk of AI transmission.

All campaign message content, from television to radio to print, was completely integrated. Messages focused on two key risk reduction behaviors: **Report** (suspected AI outbreaks) and **Burn and Bury** (dead poultry). The on-air campaign centered around two high quality, high-impact television public service announcements (PSAs) developed and produced by the project. Radio and additional television content (fillers and sponsorship of popular programs) were also utilized.

Print material included stickers, posters, banners, t-shirts, flyers, and booklets that were produced and distributed in project target areas covering the island of Java – especially the greater Jakarta area, and the islands of Bali and Sumatra. In order to increase recognition of CBAIC materials and to reinforce key messages, print materials incorporated the same messages,as well as images, colors, and branding that were included in the on-air campaign.

Irfan Hakim, right, a popular Indonesian television celebrity, served as the ambassador of the CBAIC mass media campaign and provided a strong link between its on-air and off-air elements. He infused the campaign with energy and stirred public interest in the importance of AI control and prevention. ***Photo by Arie Parikesit, CBAIC.***

Lastly, AI-themed variety shows were held in high-risk communities to stoke local interest and encourage participation in community-level AI control and prevention efforts. As with the print material, the key messages focused on in the on-air campaign were incorporated into the variety shows, as well as images, colors, and branding to increase recognition of the integrated CBAIC initiatives. In addition, the popular television personality that starred in the educational and entertaining TV filler content appeared at each variety show, raising the level of excitement and interest in each community.

Overall, CBAIC media evaluation results indicate that short, intensive mass media campaigns that are tightly linked with reinforcing print material and community-level activities can be successful in changing behaviors to reduce the risk of transmission between animals and humans.

FAST RESPONSE PROTECTS VILLAGE

On 16 June 2008, Mr. Sunar's backyard poultry were wiped out by a silent killer. Alarmed, he reported what had happened to Mr. Soyfan, his neighborhood representative. The men were concerned because they had learned from a television public service announcement that sudden death in poultry could signal an outbreak of deadly bird flu. From where they sat in their sleepy suburban neighborhood on the outskirts of Medan, North Sumatra – the third largest city in Indonesia, they could have felt panicked and alone. Instead they remained calm because the mass media message also taught them what to do: ***Report the suspected bird flu outbreak to local authorities***.

And that is what they did; they reported the case to their subdistrict chief, who next contacted their local volunteer village avian influenza coordinator (VAIC). The VAIC then promptly reported the case to the participatory disease surveillance and response officer (PDSR) of the Medan municipal animal health service. PDSR was quickly on the scene and, through rapid testing of the carcasses, confirmed that Mr. Sunar's poultry were indeed killed by the deadly H5N1 avian influenza (AI) virus. At this point the public health disease surveillance officer (DSO) was notified of the confirmed AI outbreak. The VAIC, PDSR, and members of Indonesian Red Cross carried out intensive culling and disinfection activities in and surrounding the outbreak area, followed by door-to-door canvassing to inform the community about what had happened. Simultaneously, the DSO canvassed for any suspected human cases. Fortunately, there were none.

This case well illustrates an effective community-based AI surveillance and response network in action. It also exemplifies the importance of strategic behavior change communication initiatives in "getting the word out" to ensure that the network is utilized to protect people at the community level. In this case the key communication initiative was the CBAIC mass media campaign that alerted people to the dangers of bird flu, and informed them how to respond. CBAIC also contributes to the formation of community-based surveillance and response networks through training of VAICs, who are taught to report suspected AI cases directly to PDSRs, which strongly links the surveillance and response elements crucial to the success of the network.

This story details successful AI surveillance and response in just one village; CBAIC has worked to insure that tens of thousands of villages across Indonesia have the same ability to protect themselves from deadly bird flu. The project has trained over 27,000 VAICs and subdistrict coordinators across nine provinces. And the CBAIC mass media campaign reached an estimated 159 million viewers. Combined, these interventions have increased the AI surveillance and response capacity of the country, providing many thousands of communities with the knowledge and tools necessary to prevent and control AI, ultimately reducing the risk of pandemic influenza developing from the H5N1 strain of AI.

Mr. Sunar acted quickly, and within 48-hours a deadly bird flu outbreak was stopped in its tracks. *Photo by Arie Parikesit, CBAIC.*

APPENDIX 1: Internal Review White Paper

(In Word, it is accessed by double clicking the photo on the next page.)

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INTERNAL REVIEW – WHITE PAPER

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APPENDIX 2

KEY TRANSMISSION RISKS FOR AVIAN INFLUENZA VIRUS IN JAVA

Background

Over the last two or three years, our understanding of the transmission of avian influenza virus (AIV) in Java has improved considerably. It is clear from phylogenetic studies – that is studies comparing the genetic sequence of viruses isolated in different places – that the viruses circulating in poultry in Java, which belong to clade (sub-group) 2.1, originated from a virus in China, specifically from Hunan province. It is very likely that the virus entered Java through poultry trade. Although they have spread to other Indonesian islands, there is no phylogenetic evidence to suggest that these viruses have been exported from Indonesia to a third country. Initial surveillance work conducted by the Ministry of Agriculture through the Participatory Disease Surveillance program, which concentrated mainly on the family poultry sector, has shown that the virus is endemic in Java, and now circulates in much the same way that Newcastle disease virus does in areas where it is endemic. More recent research studies have found a high prevalence of the virus in places through which industrially produced broiler chickens transit, such as collector houses. If this information is combined with the knowledge of the practices of marketing broilers which have become sick and transport of live broilers to markets and beyond to the residences of consumers, it can be concluded that commercial poultry production and distribution is almost certainly a major source for the transmission of the virus. It is the combination of an industrial production system together with a semi-traditional marketing system that produces the special risks for transmission of AIV in Java.

However, industrial poultry production is inseparable from urban living, and it is not feasible to stop it, and in the short term, that is in less than a year, it is not feasible to restructure the industry so that refrigerated carcasses are transported instead of live birds. Therefore an attempt has been made, through a consensus of epidemiologists, both veterinary and human, and other technical specialists, including a researcher, all thoroughly acquainted with current knowledge regarding the epidemiology of AIV in Java, to identify key preventable risks for the transmission of the virus. That is to say risks contributing to the spread of the virus, but risks which it is feasible to consider reducing and yet those whose reduction could have a significant impact on the transmission of the virus. It is clear that if transmission of the virus in birds could be prevented it would no longer be a risk to humans, and yet at the same time transmission from birds to humans must be prevented in the meantime, so risks in both these categories are considered, and also risks for transmission both from birds to birds and birds to humans.

Bird to bird

1. Adding new birds to old without quarantine

Addition of live birds to a population of naïve birds without a period of separation would seem to be one of the major causes for the perpetuation of AIV. There is much anecdotal evidence, about, for example, an outbreak of the disease after the introduction of a male duck to mate with females, or the bringing home of a live broiler to eat followed by an outbreak of the disease in the family poultry. If they are kept apart for a period of two weeks before contact with the existing population then this risk is removed.

2. Selling or buying sick poultry

A raiser of broiler chickens, and a keeper of family poultry, knows that when chickens start dying the remainder are likely to succumb also. An economic solution to this problem is to sell the remainder quickly before they die too. In this case, it is possible that they may be incubating the virus but not showing any sign of disease. Therefore, it is more difficult for the purchaser to not buy infected poultry than it is for the vendor not to sell it. The consequences for the transmission of the virus, through its introduction into a place in which it was not previously present, are obvious.

3. Poultry traders coming to where poultry are kept

Anyone who moves frequently between different places where poultry is kept is potentially an efficient agent of transmission of AIV, and this is all the more so for a poultry trader who could be carrying birds that have been deliberately sold because they are carrying disease. There are particular risks associated with cages or vehicles used to transport poultry, which will inevitably become infected with the virus after time. If the traders deal with their customers at a spot away from where the poultry is kept, the transmission risks are reduced, and regular cleaning and disinfection of containers and vehicles would also reduce the risks.

4. Commercial poultry raising without biosecurity measures

This refers to any poultry production in confinement for commercial purposes, for which a number of biosecurity measures become necessary. Failure to observe any of the following measures increases the risk of AIV transmission:

1) Producing birds on an all-in, all-out basis rather than keeping birds of different ages in the same housing
2) Restricting entry of unnecessary visitors to poultry houses
3) Situating poultry houses away from other poultry
4) Keeping dedicated clothing and footwear for use only in the poultry house
5) Disinfecting vehicles and footwear on entering farms and footwear on entering poultry houses
6) Following each lot of birds, and any case of disease, treating the poultry house in the following sequence: dry cleaning, washing, disinfection, leaving empty for 2 weeks, re-disinfection
7) These measures do not apply to keeping very small numbers of free ranging poultry, which is altogether a much less risky enterprise than raising large numbers commercially

5. Treating AI as ND

Newcastle disease (ND) is a fatal viral disease of poultry that is not dangerous to humans. It can be confused with AI. If this is done, then the risk of transmission to people will not be appreciated.

6. Not vaccinating against ND

Newcastle disease is easily preventable by a single serotype of vaccine in all types of production systems. If vaccination against ND is not done, there are likely to be frequent outbreaks of disease with high mortality, which will make it difficult to spot cases of AI and take appropriate action.

7. Not vaccinating against AI in high risk areas

Vaccination greatly reduces the amount of virus that is shed by birds, without eliminating shedding altogether, as well reducing loss of birds. The disadvantage of vaccination in areas where the virus is not very prevalent is that it makes outbreaks of the disease harder to notice. Vaccination against AI is complicated because of the gradual antigenic changes in the virus. A large-scale research project is currently underway to test the efficacy of widespread vaccination in Java.

8. Mixing different species of poultry in the same night housing

Ducks can carry AIV without showing any symptoms. Therefore, there is a risk that if they are mixed with chickens or other species of poultry the previously unapparent virus can fatally infect the species other than ducks. This risk is already well recognized.

9. Mixing birds indiscriminately during cockfighting events

Any movement of birds is a transmission risk, including transportation of birds for cockfighting. In Thailand, movement of cocks is controlled by issuing them passports.

Bird to human

There have been very few human cases compared to the large number of people exposed to the virus, so less is known about the risks for bird to human transmission than about the risks for bird to bird transmission. Most likely, exposure is necessary but insufficient to explain illness. The reason some people become ill and others not maybe a question of genetic susceptibility. This hypothesis is supported by the fact that human victims forming 'clusters' of human cases have been blood relatives.

1. Handling sick and dead poultry without protection.

This is a clear risk that is already well acknowledged.

2. Children handling sick and dead poultry

There is clearly a significant risk of transmission to children if they handle sick or dead poultry since they will not necessarily observe protection measures.

4. Preparing poultry for cooking without protection

Before cooking, the feathers and blood of dead chickens constitute a significant risk of virus transmission to the handlers. Feathers in particular are a replication site for the virus. There is also a risk of cuts on the hand coming into direct contact with poultry products.

5. Ignoring clusters of respiratory illness in people

A cluster of people with respiratory illness – particularly blood relatives – could signal human cases of AI, and ignoring it would increase the risk of transmission of the disease, as well as denying the victims the necessary prompt treatment.

Bird to bird and bird to human

1. Inappropriate disposal of dead poultry, such as throwing carcasses into canals

Improper disposal of dead poultry is a major risk factor for the transmission of AIV. It can contaminate water bodies that could infect humans as well as birds. This risk is currently well recognized.

2. Not or late reporting of sick and dead poultry

If an AI outbreak goes unreported, then the risk of transmission to both other birds and to humans is exacerbated, since appropriate response measures and enhanced medical monitoring cannot be carried out. This risk is currently emphasized, and rightly so.

3. Using chicken droppings as manure without treatment

Chicken droppings can spread AIV very effectively, both to people and to other birds, if not treated by extended exposure to sunlight, for example. It can be a source of contamination for children in particular without necessarily being recognized.

Risks no longer emphasized

The risks listed above are those the prevention of which is seen to be key to reducing the transmission of AIV. There are other transmission risks which have been emphasized in the past which are no longer considered to be sufficiently significant, or preventable, to warrant targeting. Explanations of the rationale behind this follow for each message.

1. Allowing small numbers of indigenous poultry to roam freely

The major economic advantage of the family poultry production system over raising large numbers of birds in confinement is that free ranging birds find their own feed. If birds are caged this economic advantage is lost, and the advantage of the industrial system, which is one of scale, is not gained. In addition, there is an increased risk from confinement of some other diseases such as coccidiosis. Within the population that is housed there is more potential for transmission of infectious diseases, including avian influenza (AI). Therefore the question can be asked whether the advantage of continuously confining small numbers of village poultry - reducing the risk of transmission between neighboring poultry flocks – is outweighed by the disadvantages. Night housing is a different issue, as it has the advantage of protecting birds against predators, and making them accessible for vaccination without the disadvantage of losing their scavenging feed resource base. Depending on the individual circumstances of the poultry smallholder with respect to availability of land, fencing could provide the epidemiological advantage without the disadvantages of caging.

2. Not washing poultry cages at frequent intervals

If family poultry is not caged, then of course it is not necessary to wash cages. If the poultry in the cages is already infected, then nothing will be achieved by taking them out, washing the cage, and then replacing them. What is indispensable is the sequence of cleaning washing, disinfecting and leaving empty of cages used for the raising of poultry in confinement in between batches of birds, as detailed above under biosecurity measures. It is even more important that these measures be carried out following disease.

3. Touching poultry

Handling poultry, both by adults and children, is an integral part of Javanese culture, and so it is not seen as easily preventable. The transmission risk is only from handling sick or dead poultry.

4. Not cooking poultry and eggs well

Consuming incompletely cooked poultry and eggs is a risk for the transmission of avian influenza from birds to humans. However, in most cases people do already cook poultry well in any case, and there do not seem to have been any human cases from eating uncooked poultry meat or eggs. For these reasons, if it is only possible to target a few key risks, this one may not be of the highest priority. The risk from handling poultry in preparation for cooking would seem to be greater. But under no circumstances should the risk from consuming incompletely cooked poultry meat or eggs be negated.

References

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3) Mariner, J. Quoted in: *Indonesia struggles to contain H5N1 bird flu* http://www.fao.org/newsroom/en/field/2006/1000455/index.html
4) Ivo Claassen Review of activities of the Indonesian-Netherlands Partnership for Prevention and Control of HPAI. Presented at CBAIC, 5 February 2008.
5) Eric Brum, personal communication.

APPENDIX 3: Project performance monitoring – APRIL – 16 JULY 2008

COMPONENT A Indicators [RFI = USAID AI control results framework indicator]	Unit of Measure	Year 1 Total	Year 2 Target	Year 2 Q1	Year 2 Q2	Year 2 Q3	Year 2 Q4	Year 2 Total	Notes
1. Status of country capacity for preparedness and planning for a human influenza pandemic during the past three months. [RFI 1.2.2]	Level	I	III	I	II	III	III	Level III (not cumulative)	**Level III**: A cross-sectoral, NPPP has been developed and disseminated by the national AI working group with input from relevant groups such as government agencies, private sector, civil society, and FAO, and WHO. This met the year two target.
2. Number of policies, plans, SOPs, or guidelines regarding H5N1 control and influenza pandemic preparedness developed with USAID support. [RFI 1.2.5]	Number of documents	0	2	1	0	0	1	1	The NPPP, drafted in September 2007, was finalized on 14 April 2008.
3. Number of simulation/desktop exercises for containment of an early shift in virus to efficient human to human transmission. [RFI 1.2.6]	Number of simulations	0	1	0	0	1	1	2	A simulation was held in Serpong, Banten in January 2008, and an epicenter response simulation was held in Ba i in April 2008.
4. Number of forums, national and international, where best practices and lessons learned related to AI are shared. [RFI 1.3.1]	Number of forums	2	5	10	4	9	6	29	In Q4, CBAIC shared lessons learned at six national and international meetings. (120% of the year two target)
5. Number of USAID-supported coordination meetings (donor, central and local government, multi-sectoral) in the past three months. [RFI 1.3.3]	Number of meetings	38	29	13	9	35	35	92	In Q4, CBAIC supported 35 coordination meetings. (120%+ of the year two target)

COMPONENT B Indicators [RFI = USAID AI control results framework indicator]	Unit of Measure	Year 1 Total	Year 2 Target	Year 2 Q1	Year 2 Q2	Year 2 Q3	Year 2 Q4	Year 2 Total	Notes
6. Number of villages with trained USAID-supported VAICs. [RFI 2.1.2]	Number of villages	12,166*	15,424	972**	2391	2994	5902	11,287***	*villages through 16 July 2007. **last volunteers trained with year one budgeted funds (17 July – 30 September 2007). ***training reports are still being received as of 4 November 2008.
7. Percent of VAICs submitting reports that include information on poultry and humans [RFI	Percent of VAICs	N/A	60	N/A	N/A	N/A	N/A	N/A	
8. Percent of VAICs reporting suspected cases of AI to PDSR. [RFI 2.1.8]	Percent of VAICs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	94 (# of suspected positive reports)
9. Percent of VAIC reports eventually confirmed as outbreaks of avian influenza. [RFI 2.1.9]	Percent of reports	N/A	60	N/A	N/A	N/A	N/A	N/A	59 (# of confirmed positive reports)

COMPONENT C Indicators [RFI = USAID AI control results framework indicator]	Unit of Measure	Year 1 Total	Year 2 Target	Year 2 Q1	Year 2 Q2	Year 2 Q3	Year 2 Q4	Year 2 Total	Notes
10. Status of country capacity for avian and pandemic influenza communications in the past three months. [RFI 4.1.1 & 4.1.2]	Level	N/A	2	1	1	1	5	5 (not cumulative)	Level 5: simulation/desktop exercises conducted sub-nationally to test massages and mechanisms that are part of the national A&PI communication plan. (exercises conducted in Bali and Tangerang)
11. Total number of people trained in USAID-supported AI BCC in the past three months. [RFI 4.3.1]	Number of people	N/A	40	0	0	57	0	57	CBAIC conducted two regional government trainings (Surabaya and Bogor) in Q3, exceeding the year two target.
12. Number of each IEC material produced or aired over (the number distributed or aired). [RFI 4.3.2 & 4.3.3]	Total Numbers	246,991	4,372,282	**355,000 (214,336)**	**377,000 (210,950)**	**3,671,000 (1,981378)**	**216,500 (2,152,848)**	**4,619,500 (4,559,512)**	98. 70% distributed.
12.a. AI booklets	Number	32,672	163,310	50,000 (10,000)	52,000 (41,337)	68,000 (96,678)	19,000 (32,119)	189,000 (180,134)	95. 30% distributed
12.b. Banners	Number	14,985	163,310	50,000 (24,000)	55,000 (38,520)	60,000 (83,015)	20,000 (22,131)	185,000 (167,666)	90. 60% distributed
12.c. Flip charts	Number	371	0	-	(62)	-	(4)	(66)	100% distributed.
12.d. AI control flyers	Number	178,551	753,000	240,000 (154,000)	260,000 (122,735)	253,000 (376,305)	93,000 (130,350)	846,000 (783,390)	92. 60% distributed.
12.e. T-shirts	Number	10,412	32,662	15,000 (10,344)	10,000 (8,296)	30,000 (13,644)	- (22,440)	55,000 (54,724)	99. 50% distributed.
12.f. Key AI message books	Number	10,000	N/A	-	-	-	11,000 (11,000)	11,000 (11,000)	100% distributed.
12.g. Key AI message CDs	Number	N/A	N/A	-	-	-	11,000 (11,000)	11,000 (11,000)	100% distributed.
12.h. Airings of radio PSA	Spots	N/A	15,000	15,277	180	18,802	11,491	45,750	-
12.i. Airings of TV PSA	Spots	N/A	3000	N/A	N/A	1971	1437	3,408	-
12.j. Airings of radio drama	Spots	N/A	700	715	N/A	156	117	988	-
12.k. Calendars	Number	N/A	100,000	N/A	N/A	100,000 (99,601)	0 (399)	100,000 (100,000)	100% distributed.
12.l. "Report" and "Burn & Bury" posters	Number	N/A	285,000	N/A	N/A	285,000 (115,940)	30,000 (170,060)	315,000 (286,000)	90. 80% distributed.
12.m. "Report" and "Burn & Bury" stickers	Number	N/A	1,425,000	N/A	N/A	1,425,000 (575,200)	30,000 (868,300)	1,455,000 (1,447,200)	101. 40% distributed.
12.n. "Report" and "Burn & Bury" flyers	Number	N/A	1,425,000	N/A	N/A	1,425,000 (575,000)	2500 (872,000)	1,427,,500 (1,447,200)	101. 40% distributed.
12.o. AED AI control videos	Number	N/A	25,000	-	-	25,000 (25,000)	-	25,000 (25,000)	100% distributed.
12.p. Radio talkshows	Number	N/A	N/A	N/A	N/A	66	32	98	-
13. Percent of villages in coverage areas where IEC materials have been distributed. [RFI 4.3.4]	Percent of villages	100	80	100	100	100	100	100	IEC materials were distributed in every village where CBAIC trained VAICs.

APPENDIX 4: Year two training verified by subcontractor reports

PMI : 1 Oct-31 Dec 07

Province	District	# of Subdistricts	# of Subdistrict Coordinators (KK)	# of Villages	# of VAICs	# of KKs+VAICs	# of Trainings
Sumatera Utara	Binjai ('C)	6	5	32	30	35	2
	Simalungun	4	5	48	49	54	3
	Serdang Bedagai	4	0	39	40	40	3
	Medan ('C)	7	7	47	47	54	3
Lampung	Lampung Barat	1	1	11	11	12	1
	Way Kanan	14	14	155	174	187	14
	Bandar Lampung ('C)	13	13	80	97	110	6
Banten	Tangerang	6	5	55	58	63	3
DKI Jakarta	Jakarta Utara	6	6	32	31	37	2
	Jakarta Barat	11	8	70	55	63	3
	Jakarta Timur	16	13	62	61	73	4
	Jakarta Selatan	12	12	66	72	84	6
	Kep. Seribu	2	2	7	6	8	1
Jawa Barat	Bogor ('C)	6	6	67	68	74	3
	Sukabumi ('C)	7	3	22	37	40	2
Jawa Tengah	Banyumas	4	3	26	30	33	2
	Brebes	4	4	55	69	73	4
	Tegal	6	6	81	83	89	5
	Pemalang	2	2	15	16	18	1
Jawa Timur	Mojokerto	1	1	19	19	20	1
	Banyuwangi	9	10	79	74	83	6
	Probolinggo	3	3	49	47	50	3
	Pasuruan	2	2	26	27	29	2
Bali	Klungkung	3	1	10	13	14	1
	Bangli	1	1	8	9	10	1
	Denpasar ('C)	1	1	10	10	12	1
TOTAL		**151**	**134**	**1171**	**1233**	**1365**	**83**

Muhammadiyah: 1 Oct-31 Dec 07

Province	District	# of Subdistricts	# of Subdistrict Coordinators (KK)	# of Villages	# of VAICs	# of KKs+VAICs	# of Trainings
Sumatera Utara	Deli Serdang	6	6	116	116	122	6
	Tapanuli Selatan	3	3	86	86	89	3
	Asahan	9	9	111	111	120	6
Lampung	Lampung Selatan	4	4	75	73	78	4
Banten	Lebak	4	4	48	48	52	4
Jawa Barat	Cianjur	12	12	119	119	131	6
	Garut	5	5	36	36	41	2
	Kuningan	6	6	66	66	72	3
Jawa Tengah	Karanganyar	2	2	19	19	21	1
	Klaten	3	3	33	33	36	2
	Pekalongan	4	4	41	34	45	2
	Semarang	6	6	69	69	75	4
	Purbalingga	6	6	75	75	81	4
DI Yogyakarta	Gunung Kidul	4	3	39	40	43	2
Jawa Timur	Ponorogo	2	2	47	46	48	3
	Jember	6	6	40	40	46	2
	Lamongan	3	3	51	51	54	3
	Gresik	4	4	71	69	73	4
Bali	Gianyar	2	2	16	14	16	1
	Tabanan	6	6	74	81	87	4
TOTAL		**97**	**96**	**1232**	**1226**	**1330**	**66**

PMI: 1 Jan-31 Mar 08

Province	District	# of Subdistricts	# of Subdistrict Coordinators (KK)	# of Villages	# of VAICs	# of KKs+VAICs	# of Trainings
Sumatera Utara	Pematang Siantar ('C)	5	4	50	50	54	3
Banten	Tangerang	2	3	16	16	19	1
Jawa Barat	Majalengka	10	10	115	115	125	7
	Sumedang	12	12	134	134	146	7
Jawa Tengah	Banyumas	7	7	90	90	97	8
	Kebumen	17	17	227	227	245	17
	Cilacap	7	7	120	120	127	7
	Banjarnegara	5	5	67	67	72	5
Jawa Timur	Mojokerto	4	4	63	63	67	4
Bali	Badung	2	2	12	12	14	1
	Buleleng	4	4	23	23	27	1
	Denpasar ('C)	3	3	33	33	35	2
TOTAL		**78**	**78**	**950**	**950**	**1028**	**63**

Muhammadiyah: 1 Jan-31 Mar 08

Province	District	# of Subdistricts	# of Subdistrict Coordinator (KK)	# of Villages	# of VAICs	# of KKs+VAICs	# of Trainings
Sumatera Utara	Deli Serdang	3	3	19	19	22	1
	Karo	3	3	32	30	33	2
	Tapanuli Selatan	19	19	427	388	407	19
	Asahan	2	2		36	38	
Lampung	Lampung Selatan	7	6	98	90	96	4
Banten	Tangerang ('C)	4	4	36	35	39	2
	Lebak	4	3	48	48	51	3
Jawa Barat	Cianjur	1	0	10	10	10	1
	Garut	21	19	168	168	187	9
	Ciamis	25	25	231	221	246	15
Jawa Tengah	Klaten	8	7	139	141	148	8
	Pekalongan	6	1	18	18	19	1
	Semarang	4	4	49	49	53	3
	Karanganyar	9	9	89	90	99	4
	Wonosobo	4	4	69	66	70	4
	Boyolali	1	1	14	13	14	1
	Kendal	3	3	42	41	44	3
	Purbalingga	4	1	36	36	37	2
	Gunung Kidul	7	6	46	45	51	2
Jawa Timur	Ponorogo	13	11	146	144	157	6
	Jember	12	10	10	81	91	5
	Lamongan	9	9	115	118	127	7
	Pacitan	3	3	45	34	37	2
	Surabaya ('C)	9	9	54	49	58	3
	Gresik	3	3	54	54	57	3
Bali	Gianyar	2	1	8	10	11	1
	Karang Asem	4	4	29	29	33	2
TOTAL		**190**	**170**	**2032**	**2063**	**2235**	**113**

PMI: 1 April - July 08

Province	District	# of Subdistricts	# of Subdistrict Coordinators (KK)	# of Villages	# of VAICs	# of KKs+VAICs	# of Trainings
Sumatera Utara	Kota Medan	14	14	105	105	119	7
	Serdang Bedagai	2	0	36	36	36	2
Lampung	Lampung Tengah	25	25	273	273	298	15
	Tanggamus	8	8	106	106	114	8
Banten	Tangerang	7	7	94	94	101	8
Jawa Barat	Sumedang	14	14	142	142	156	9
	Majalengka	17	17	221	212	229	13
	Karawang	24	24	314	314	338	17
Jawa Timur	Pasuruan	8	8	116	116	124	7
	Probolinggo	8	8	95	95	103	8
	Banyuwangi	1	1	14	14	15	1
	Bondowoso	8	8	89	89	97	9
	Bojonegoro	7	7	110	110	117	6
	Kediri	6	6	97	97	103	6
Jawa Tengah	Cilacap	2	2	28	28	30	2
	Magelang	9	9	159	159	168	9
	Banjarnegara	2	2	33	33	35	2
	Kudus	9	9	130	130	139	8
	Wonogiri	14	14	159	159	173	13
	Temanggung	16	16	235	235	251	16
TOTAL		**201**	**199**	**2556**	**2547**	**2746**	**166**

Muhammadiyah: 1 April - July 08

Province	District	# of Subdistricts	# of Subdistrict Coordinators (KK)	# of Villages	# of VAICs	# of KKs+VAICs	# of Trainings
	Tapanuli Selatan	28	28	553	507	535	23
	Tapanuli Tengah	6	6	53	56	62	3
	Karo	5	5	98	90	95	5
	Kota Tanjung Balai	6	6	30	37	43	1
Sumatera Utara	Padang Sidempuan	6	5	98	82	87	4
	Lampung Selatan	4	4	57	61	65	2
Lampung	Lampung Timur	17	17	144	144	161	7
Banten	Kota Tangerang	9	9	52	59	68	3
	Cilegon	8	8	40	41	49	3
Jawa Barat	Kota bandung	30	30	155	145	175	8
	Ciamis	2	0	3	3	3	2
	Kuningan	16	15	153	155	170	9
	Tasikmalaya	9	9	73	73	82	4
	Kota Tasikmalaya	8	8	68	69	77	4
	Kota Depok	6	6	64	59	65	3
Jawa Tengah	Karanganyar	3	2	19	23	25	1
	Klaten	10	10	132	116	126	4
	Kendal	10	10	137	136	146	11
	Wonosobo	5	5	72	65	70	4
	Boyolali	16	16	225	220	236	11
	Kota Pekalongan	4	4	46	48	52	2
	Kota Tegal	4	4	27	26	30	2
	Kota Magelang	2	2	13	15	17	1
	Kota Semarang	6	6	62	62	68	4
Jawa Timur	Ponorogo	1	1	14	12	13	1
	Kota Surabaya	22	21	109	102	123	8
	Gresik	4	4	54	55	59	2
	Pacitan	3	3	36	44	47	2
	Lamongan	2	2	27	27	29	2
	Madiun	13	13	159	156	169	7
	Tuban	12	12	187	186	198	10
	Ngawi	13	13	147	149	162	7
	Trenggalek	14	14	157	152	166	8
	Kota Malang	3	3	35	35	38	2
DI Yogyakarta	Kota Jogja	14	14	47	45	59	4
TOTAL		**321**	**315**	**3346**	**3255**	**3570**	**174**