



## Special Focus

### The Central Asia Regional Network for the Prevention and Control of Avian Influenza

After H5N1 HPAI virus was reported in poultry in South East Asia in early 2004, it was only a matter of time before incursions were reported in Europe and countries of the Central Asia Region. It is widely believed that the virus was mainly spread through migration of wild birds, as well as cross-border trade. Whichever the explanation might be, it was quite evident that by mid 2005 this region was experiencing a major avian influenza H5N1 epidemic. Outbreaks were reported in the Russian Federation and Kazakhstan in July 2005, followed by Mongolia in August, Turkey in October, and Ukraine in November of that same year. The first outbreaks occurred in wild birds, followed by rapid spread to domestic poultry: both, backyard and commercial flocks. In January 2006, Turkey reported its first confirmed human case of avian influenza A (H5N1) infection and death, followed shortly thereafter by Azerbaijan in February. From 2006 to 2008, H5N1 HPAI has been repeatedly reported in Pakistan, Iran, Afghanistan and Turkey, which suggests that there are continuous reintroductions from an outside source.

For the purposes of geographical definition, the Central Asia Region for FAO/ECTAD extends from the Caucasus to bordering areas of China and India. Specifically, the region comprises nine countries: Afghanistan, Azerbaijan, Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan, and three country/territories with observer status: Mongolia, Turkey, and Xingjiang Uygl Autonomous Region of China. Inclusion of these countries and territories into a common oversight scope arises from similarities in socio-cultural, economic, structural, geopolitical, environmental, and epidemiological factors.

*continued on Page 2*

#### Contents

The Central Asia Regional Network	.....	1
At a glance	.....	5
H5N1 HPAI Global Overview June 2009	.....	6
Summary of confirmed HPAI outbreaks	.....	12

**AIDEnews is an FAO ECTAD publication**

*Editor: Sigfrido Burgos, ECTAD Communication Unit (sigfrido.burgos@fao.org)*

The diverse agro-ecological systems in the Central Asia Region facilitate many wild and domestic bird interactions to take place. In general, five major and interrelated ecosystems can be identified in Central Asia as wintering and breeding grounds for wildlife, especially for migratory wild birds. The five ecosystems include the Korgalzhino Depression in Kazakhstan, the Gyzyll-Agach Reserve (Caspian Sea Area) in South Azerbaijan, the Gasan-Kuli Bay in Turkmenistan, the Aras River and reservoir, and the Syr-Darya and Amudarya rivers crossing through Kazakhstan, Uzbekistan and Turkmenistan. All these ecosystems form very important migration corridors and wintering ground for many avian species.

Following independence from the former Soviet Union in the nineties, many of the Central Asian countries had to restructure their national veterinary systems while at the same time seek alignment with international standards, processes, and obligations. When asked what the most challenging task was over the last four years of work in Central Asia, Dr. Gholam Kiani, ECTAD regional manager for the Central Asia Region, said that building trust with the country teams and establishing effective two-way communication with government officials was initially quite difficult. Dr Kiani credits the recent successes to FAO's ability to deliver exactly what was agreed with the countries in a timely manner, coupled with utmost transparency from the very outset. This, he claims, built trust and allowed national counterparts to regard FAO as a reliable partner in the fight against highly pathogenic avian influenza and other transboundary animal diseases.

There are a number of other challenges as well. Currently, there is no equivalent of regional economic bodies (like the South Asian Association for Regional Cooperation - SAARC or the Association of Southeast Asian Nations - ASEAN in South and South East Asia) who are engaged in animal health issues in the Central Asia Region. The security situation in some parts of Afghanistan and Pakistan, where a very high proportion of the population are dependent on backyard poultry for food and livelihoods, remains sensitive; but despite these challenges there has been steady progress due to the strong commitment of national counterparts, donors, and the FAO team.

At the same time, there is a lot to learn from various countries of the region. Iran, for example, has a unique insurance system for poultry producers, implemented by the producers themselves, to compensate against losses due to disease outbreaks or culling. Iran also has invested in geo-referencing all poultry farms, and all commercial poultry transport vehicles are also registered. This allows for strong prevention and control measures to be deployed rapidly and consistently.

FAO was one of the first international technical agencies to offer and effectively provide comprehensive support to the region in a manner conducive towards rapid mitigation of disease impacts, while at the same time strengthening veterinary and animal health services.

Along with FAO/ECTAD's well-recognised technical expertise and reliability, the Animal Production and Health Division brought additional topic-specific expertise such as livestock policy, socio-economics, livelihoods, agricultural markets, livestock trade, wildlife, and risk communication to provide unique multi-disciplinary perspectives and approaches in the prevention, detection and control of H5N1 HPAI and other transboundary diseases.

The FAO/ECTAD technical assistance to countries of the region was developed in 2006 under the rubric of FAO's Global Programme for the Prevention and Control of Highly Pathogenic Avian Influenza. Direct beneficiaries of the technical assistance programmes are Afghanistan, Azerbaijan, Tajikistan, Kyrgyzstan, Turkmenistan, Pakistan, Islamic Republic of Iran, Uzbekistan and Kazakhstan, along with Turkey, Mongolia and the Xingjiang Uygl Autonomous Region of China who are also considered as part of the regional network.

Support for programmes is through financial contributions from the World Bank, the Italian Government, the Asian Development Bank (ADB), and funds allocated under the FAO framework of the Special Fund for Emergency and Rehabilitation Activities (SFERA) - a multi-donor fund with contributions from various sources including Canada, France, Jordan, Norway, Saudi Arabia, Sweden, Switzerland, and the United Kingdom, among others. In some countries, FAO has been identified as a technical and implementing agency for the animal health components of World Bank investments on prevention and control of highly pathogenic avian influenza.

The core strategy for the Central Asia regional network and programme of work is to strengthen capacities for H5N1 HPAI disease management. The network and programmes aim to build common and shared approaches to deal with H5N1 virus incursions both in the domestic and wildlife sectors. The specific objectives for the Central Asia Region have been identified as:

1. Strengthening diagnostic capacities at field and laboratory level;
2. Developing appropriate response and contingency plans;
3. Raising public awareness of the potential disease risks and threats to animals and humans;
4. Establishing an information and technology network specifically for AI surveillance that is linked with other regions and feeds into the global early warning and response system for transboundary animal diseases and zoonoses (the GLEWS\* platform of FAO/OIE/WHO).

The planned activities under the programme include: capacity building at regional level; regional coordination and communication; building capacity for immediate and effective response to HPAI outbreaks; and strategic project management. A series of sub-activities were initiated and consisted of rehabilitating and strengthening the capacities of in-country veterinary services on poultry disease diagnostics (not limited only to AI), demonstrating and building active and passive disease surveillance systems, providing basic veterinary epidemiology training, building rapid response mechanisms, delivering technical advice and operational backstopping, facilitating technical support services and streamlining chains of command.

Senior in-country veterinarians were recruited as national consultants and focal points to build close technical linkages between the state veterinary services and FAO/ECTAD. Rapid outbreak response teams in a number of countries have been equipped with vehicles, communication tools, and sampling equipment for outbreak investigation. A series of training-of-trainers and national-level training on epidemiology, disease investigation procedures, surveillance, and disease diagnosis (field and laboratory) have been implemented. A number of laboratory experts have been trained at OIE/FAO reference laboratories in serology and molecular methods for poultry disease diagnosis. Regional level training has been conducted in risk/outbreak analysis and improved husbandry communication, as well as the socio-economic aspects of disease control and surveillance.

The avian influenza regional network for Central Asian continues to act as a dynamic platform for beneficiary countries to openly and transparently discuss issues and experiences in tackling transboundary animal diseases. Collaboration has increased tremendously and countries are now sharing H5N1 HPAI surveillance data and critical information during meetings to attain regional goals. A number of new initiatives are underway such as regional and national wildlife surveillance capacity building missions, as well as a comprehensive assessment of national veterinary laboratories to designate a regional centre of excellence in avian influenza research.

With the successful completion of the first phase of activities in December 2008, the next and second phase will address specific gaps detected and specific demands of participating countries through tailored solutions and a more comprehensive portfolio of activities. This will build on the achievements of the first phase and new priorities identified by countries of the region.

---

\* Global Early Warning and Response System for Major Animal Diseases, including Zoonoses <http://www.glews.net/>

## H5N1 AI OCCURRENCE SINCE 2006

Note: This list has been compiled on the basis of information up to 31 August 2009.

### 2009

<b>August</b>	Egypt, <b>Mongolia</b>
<b>July</b>	Indonesia
<b>June</b>	Bangladesh, Russian Federation, Viet Nam
<b>May</b>	China, India
<b>April</b>	China (Hong Kong)
<b>March</b>	Germany
<b>February</b>	Lao PDR, Nepal

### 2008

<b>December</b>	Cambodia
<b>November</b>	Thailand
<b>September</b>	Togo
<b>July</b>	Nigeria
<b>June</b>	Pakistan
<b>May</b>	Japan, Korea (Republic of), United Kingdom
<b>March</b>	Turkey
<b>February</b>	<b>Switzerland</b> , Ukraine
<b>January</b>	Israel, Saudi Arabia

### 2007

<b>December</b>	Benin, Iran, Myanmar, Poland
<b>November</b>	Romania
<b>October</b>	Afghanistan
<b>August</b>	France
<b>July</b>	Czech Republic
<b>June</b>	Ghana, Malaysia
<b>April</b>	Kuwait
<b>January</b>	Côte d'Ivoire, Hungary

### 2006

<b>August</b>	Sudan
<b>July</b>	<b>Spain</b>
<b>June</b>	Niger
<b>May</b>	<b>Bulgaria</b> , Burkina Faso, Denmark
<b>April</b>	Djibouti, Sweden, West Bank & Gaza Strip
<b>March</b>	Albania, Austria, Azerbaijan, Cameroon, <b>Croatia</b> , <b>Greece</b> , Jordan, Kazakhstan, Serbia, <b>Slovenia</b>
<b>February</b>	<b>Bosnia-Herzegovina</b> , <b>Georgia</b> , Iraq, <b>Italy</b> , <b>Slovakia</b>

*Green: areas which never had outbreaks in poultry*

Sources: World Organisation for Animal Health (OIE), European Commission (EC), FAO and national governments

# AT A GLANCE

The latest HPAI outbreaks for the period 1 June 2009 – 31 August 2009

**Note** AIDEnews publishes reports of **confirmed HPAI cases** using the following sources: OIE, European Commission, FAO and national governments.

## AFRICA

### EGYPT

Samples taken from poultry in 12 of the 29 Governorates (Ash Sharqiyah, Behera, Dakahlia, Dumyat, Fayoum, Gharbia, Giza, Luxor, Port Said, Qalyubiyah, Sohag and Suez) were found positive for H5 HPAI.

## ASIA

### BANGLADESH

HPAI outbreaks have been reported in poultry farms in Chittagong Division (Double Mooring Upazilla).

### INDONESIA

In July, PDSR officers visited 2,129 villages of which 159 (7.5 %) were classified as infected. Of these, 139 villages had not reported any HPAI cases in the previous six months. On the day of 31 July, and in comparison with the situation on the day of 30 June, small reductions were observed in the percentage of villages classified as 'infected' (HPAI compatible event supported by a positive rapid antigen test result). The level of surveillance (i.e. the proportion of villages visited by PDSR teams in a particular province in a specific month, relative to the total number of villages covered under PDSR in that province) varied across provinces, with DI Yogyakarta (20.1%) and Bali (10.5%) having the highest levels. Kalimantan Barat, Kalimantan Selatan, Kalimantan Tengah and Gorontalo had the lowest levels with less than 1% of villages visited. The level of infected villages detected (i.e. the proportion of villages found to be infected relative to total number of villages visited by PDSR teams in a specific month) varied across provinces with highest levels in Lampung (25.9%), and no disease was detected in Bangka Belitung, Kepulauan Riau, Jakarta, the four Kalimantan Provinces, Gorontalo, Sulawesi Tengah, Sulawesi Tenggara, and Sulawesi Utara.

### MONGOLIA

The government reported to the OIE the deaths of 56 wild species in Door nuur, Tsetserleg soum, Arkhangai Aimag, which started on 1 August 2009. The samples taken from wild species had tested positive for HA test and H5 by PCR at the National Laboratory.

### RUSSIAN FEDERATION

On 11 June 2009, 58 Great Crested Grebes (*Podiceps cristatus*) were found dead on the Coast of Uvs Noor Lake, which lies on the border between Mongolia and the Russian Federation. Samples were tested positive for influenza A H5N1 and the virus was isolated.

This overview is produced by the FAO-GLEWS team, which collects and analyses epidemiological data and information on animal disease outbreaks as a contribution to improving global early warning under the framework of the Global Early Warning for Transboundary Animal Diseases (TADs) including Major Zoonoses.

[glews@fao.org](mailto:glews@fao.org)

### WORLDWIDE

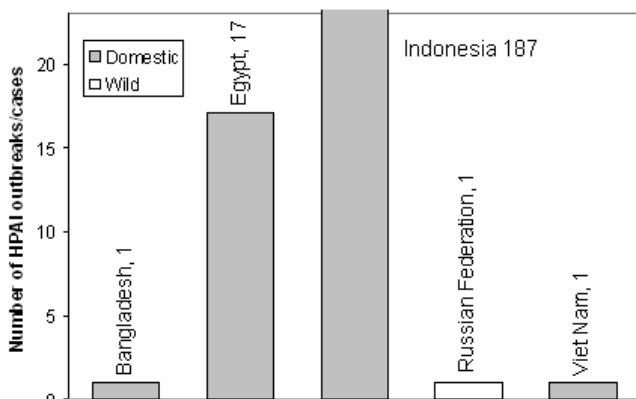
Two hundred and seven outbreaks/cases of H5N1 HPAI in poultry and wild birds were reported officially worldwide in June 2009 from five countries: Bangladesh, Egypt, Indonesia, the Russian Federation and Viet Nam. These include one outbreak of H5N1 infection in wild birds in the Russian Federation. The number of reported outbreaks/cases by country and their location are illustrated in Figures 1 and 2, respectively.

The evolution of the number of outbreaks/cases over the last six months by species group (wild or domestic) and by geographical area is represented in Figures 3 and 4, respectively.

The evolution of the number of confirmed cases of H5N1 AI infections in humans reported to the World Health Organization (WHO) by country between November 2003 and June 2009 is illustrated in Figure 5.

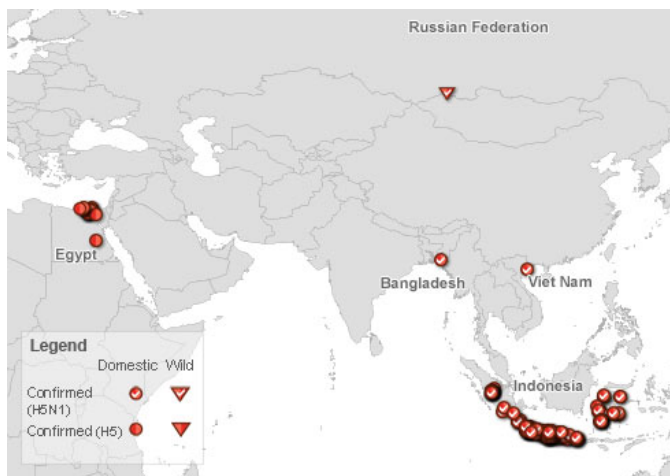
**FIGURE 1**

H5N1 HPAI outbreaks/cases reported in poultry and wild birds in June 2009  
(Source: FAO EMPRES-i)



**Figure 2**

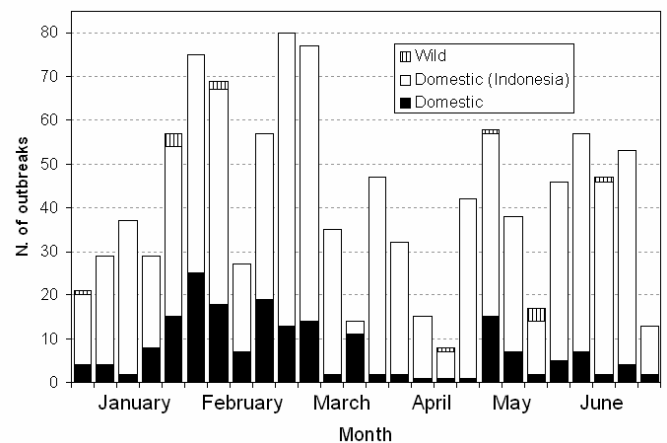
H5N1 HPAI outbreaks/cases reported in poultry and wild birds in June 2009  
(Source: FAO EMPRES-i)



**NOTE:** H5 cases are represented for outbreaks where N-subtype characterization is not being performed for secondary cases or if laboratory results are still pending. Countries with H5 and H5N1 occurrences only in wild birds are not considered infected countries according to OIE status. The original data have been collected and aggregated at the most detailed administrative level and for the units available for each country.

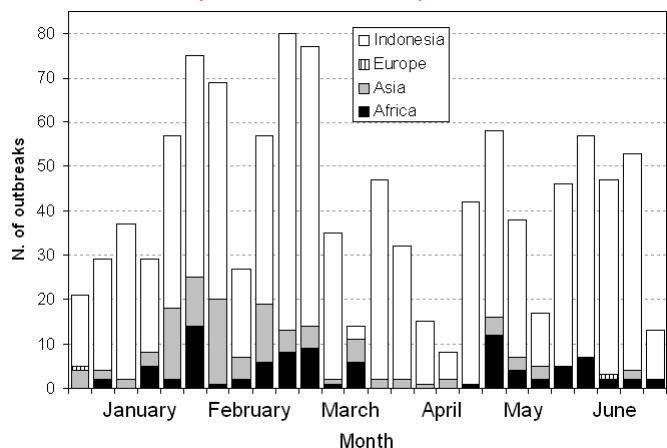
**FIGURE 3**

Weekly number of reported H5N1 HPAI outbreaks/cases per species (poultry vs. wild birds) between January 2009 and June 2009  
(Source: FAO EMPRES-i)

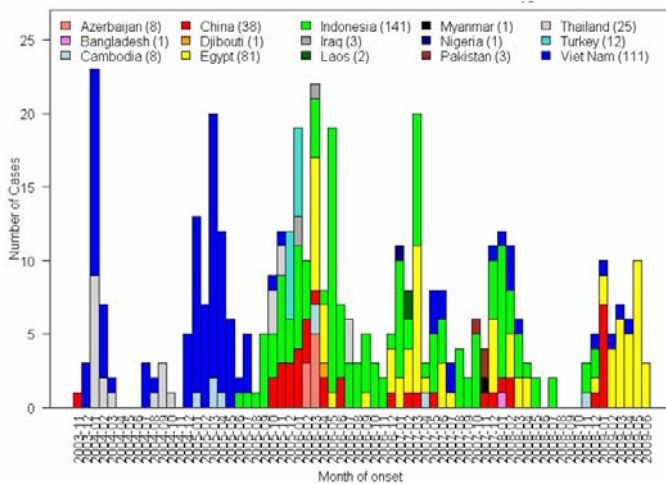


**FIGURE 4**

Weekly number of H5N1 HPAI outbreaks/cases reported by region between January 2009 and June 2009  
(Source: FAO EMPRES-i)



**FIGURE 5**  
Confirmed cases of H5N1 AI infections reported in humans by country between January 2003 and June 2009  
(Source: World Health Organization)

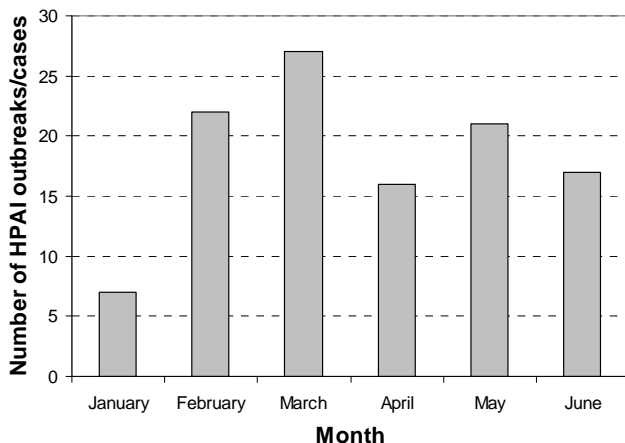


### SITUATION BY CONTINENT/REGION

#### Africa

Confirmed outbreaks of H5N1 HPAI in Africa over the last six months are presented in Figure 6.

**FIGURE 6**  
Number of reported H5N1 HPAI outbreaks in poultry between January 2009 and June 2009 in Africa  
(Source: FAO EMPRES-i)



**Egypt**, which reported its first H5N1 HPAI outbreak in February 2006, is considered endemic with regular reporting of outbreaks in almost all of the 29 governorates. The Egyptian veterinary authorities reported 17 H5 HPAI outbreaks in poultry (chickens, ducks, turkeys and geese) from nine governorates: Behaira (3), Dakahlia (4), Dumyat (1), Gharbia (1), Qalubia (4), Sharkia (1), Luxor (1), Suez (1) and Minufiyah (1). Twelve outbreaks were reported in backyard poultry and five on farms. At least two of the outbreaks occurred in vaccinated birds. The participatory disease surveillance (PDS) teams

detected two confirmed out of six suspected HPAI outbreaks in Dakahlia, and one confirmed out of two suspected outbreaks in Behaira.

Surveillance activities are being undertaken targeting both poultry and migratory wild birds around select important bird areas (IBAs) during winter. Poultry farms are required to test their birds and receive certification (H5 infection negative status) prior to any planned transportation. During June 2009, 2,749 samples were collected for this purpose and one tested positive in Qalyoubia Governorate. Compliance with certification for poultry transportation is sub-optimal as only registered farms seek such services. In terms of surveillance on commercial farms during June 2009, active surveillance detected H5 HPAI infections on two farms in Qalyoubia Governorate (out of 13 farms in four governorates), and passive surveillance detected infection on one farm in Qalyoubia Governorate (out of three farms in two governorates). In terms of surveillance in the backyard/household poultry sector, eight households were confirmed positive in five governorates through active surveillance (out of 91 samples from 13 governorates), and four samples in four governorates were found positive through passive surveillance (out of 11 samples from six governorates). Twenty two samples were also collected at road check points and one tested positive for HPAI.

The current government policy is to vaccinate poultry in backyard/household settings twice a year and to allow commercial companies to vaccinate their flocks with registered vaccines of their choice. Although there are no comprehensive official vaccination data, it is assumed that vaccines are widely used in the commercial poultry sectors. All AI vaccines used in Egypt are imported. There are at least 21 imported vaccines; all inactivated and mostly H5N1 Re-1 Chinese vaccine for household poultry and H5N2 vaccine for commercial farms. During the reporting period (June 2009), the Egyptian health authorities confirmed three human H5N1 AI cases in three different governorates: a 17-month old boy from Dumyat, a 4-year old girl from Dakahlia, and a 1.5-year old boy from Kafr el-Sheikh. All these cases had histories of close contact with dead and/or sick poultry. As indicated above, all of the human cases were in children under five years of age. In June 2009, the total number of HPAI H5N1 human infections in Egypt reached 81, of which 27 of them were fatal cases.

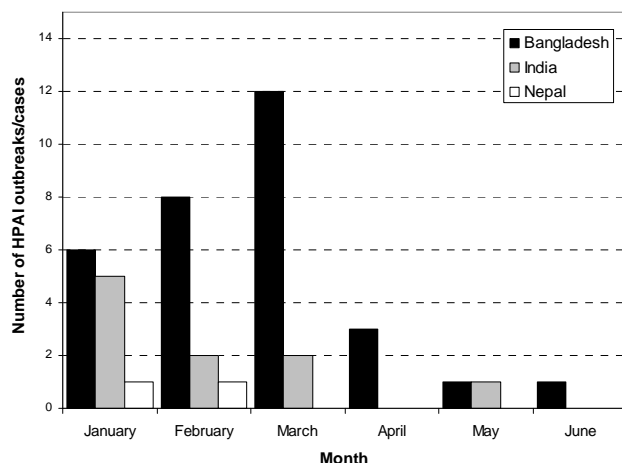
In **Ghana**, with regard to H5N1 HPAI active surveillance, 660 samples (538 swabs and 122 sera) collected between April and June 2009 were tested at the Accra Veterinary Laboratory. No H5 subtype

was detected by conventional RT-PCR. Testing is still in progress to determine if other subtypes are present.

## South and Central Asia

Confirmed outbreaks/cases of H5N1 HPAI in South Asia over the last six months are presented in Figure 7.

**FIGURE 7**  
Number of reported H5N1 HPAI outbreaks in poultry between January 2009 and June 2009 in South Asia  
(Source: FAO EMPRES-i)



In **Bangladesh**, one outbreak of H5N1 HPAI was reported in a layer flock in Double Mooring, Chittagong. With outbreaks of H5N1 HPAI reported almost every month since the first occurrence in February 2007, the status of the country is believed to be endemic. Poultry vaccination against H5N1 AI is prohibited by the government. As of 30 June 2009, a total of 325 outbreaks were recorded in 47 out of 64 districts on both commercial farms and in backyard holdings and nearly 1.7 million birds had been culled. FAO is coordinating and supporting active surveillance that is currently conducted in 150 upazillas (sub-districts) across the country, including the innovative use of the Short Message Service (SMS) gateway (method of sending and receiving SMS messages between mobile phones and a computer) as a reporting tool. Daily, 450 community animal health workers employed by the active surveillance programme send SMS coded text messages to the Department of Livestock Services, reporting disease and death in poultry. SMS messages of suspected HPAI events are automatically forwarded to the livestock officer in the area, who starts an investigation.

In **India**, no outbreaks were reported during June 2009. During June 2009, 4,263 active surveillance samples were received at the High Security Animal Disease Laboratory (HSADL), Bhopal. Testing was completed on 6,783 samples and another 4,402 were pending. The periodical reports (available on-

line at <http://www.dahd.nic.in/birdflue.htm>) also include the number of samples received and tested per state. An Uttar Pradesh Wildlife Department project has collected about 240 samples since January 2009, mostly from migratory bird species. Another 150 wild bird samples have been submitted from samples collected at Chilika Lagoon, Orissa and Koothankulam Reserve, Tamil Nadu, from birds trapped as part of an FAO-facilitated satellite tag marking project ([http://www.fao.org/avianflu/en/wildlife/sat\\_telemetry\\_india.htm](http://www.fao.org/avianflu/en/wildlife/sat_telemetry_india.htm)). Samples are in the process of being tested at HSADL. The project is to continue for a three-year period.

In **Nepal**, no HPAI outbreak was reported during June 2009. Measures taken in seem to have succeeded in containing the disease to just one district (Jhapa). The major threat is to the intensive commercial production areas in the central region. The haemagglutination (HA) gene from the virus isolated from the index case was sequenced at the Veterinary Laboratory Agency (VLA), demonstrating ~99% similarity with publicly available sequences from contemporary viruses in Eastern Asia, including viruses originating from India (West Bengal). Post-outbreak surveillance was continued in the infected district for three months following the last outbreak and FAO has been assisting the Department of Livestock Services (DLS) in conducting enhanced surveillance in three adjoining districts over a pilot three-month period. For the rest of the country the national surveillance plan is implemented by the district livestock service offices with varying efficiency. The DLS has informed FAO that the regional veterinary laboratories received over 7,000 samples – mainly swabs – for diagnosis over the last twelve months and 3,000 of these have been sent on to the Central Veterinary Laboratory. Eighty samples (mainly tissues) were sent to the VLA in the United Kingdom for diagnosis and virus characterisation during the outbreak period.

## South East Asia

Confirmed outbreaks/cases of H5N1 HPAI in South East Asia over the last six months are presented in Figures 8 and 9.

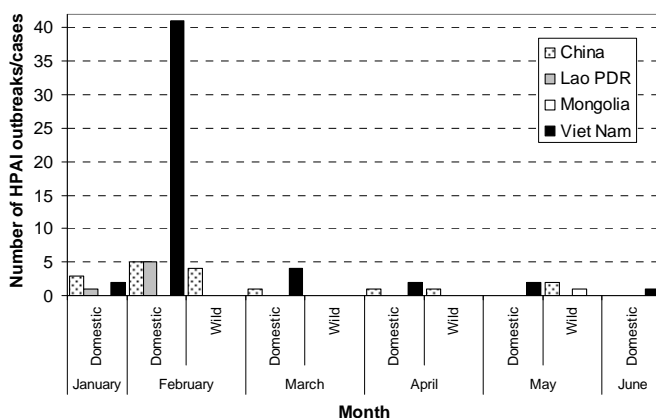
In **Cambodia**, after the human case and poultry outbreak reported in Kandal Province in December 2008, no additional H5N1 HPAI events have been reported. Cambodia regularly reports the results obtained from their surveillance activities through two hotlines supported by FAO at the National Veterinary Research Institute (NaVRI) that receives reports on suspicious cases from the field as well as inquiries on how AI is transmitted, what are the prevention measures, etc. During June 2009 no



callers reported sick and dying poultry. Also ongoing, a duck market surveillance study in 12 live bird markets in 11 provinces conducted by NaVRI since 2007. None of the samples collected so far have tested positive for H5N1 HPAI. Wild bird surveillance conducted by the Wildlife Conservation Society from wild birds in the wetlands and in the markets also yielded negative results as tested by NaVRI.

**FIGURE 8**

Number of H5N1 HPAI reported outbreaks/cases in poultry/wild birds between January 2009 and June 2009 in South East Asia (excluding Indonesia)  
(Source: FAO EMPRES-i)



In **China**, since 2004, over 100 H5N1 HPAI outbreaks have been reported in poultry and wild birds in 23 provinces and a total of over 35 million poultry have been culled to control the spread of the disease. No outbreaks were reported in June 2009. During the winter 2008-2009, surveillance activities found 45 H5N1 HPAI positive samples of chickens, ducks and geese at markets in the provinces of Fujian, Chongqing, Guangdong, Guangxi, Guizhou, Henan, Hubei, Shandong and Sichuan.

Vaccination has been an important component to control the infection since 2004. On mainland China, vaccination coverage officially reported is still very high in all provinces. Mean vaccination coverage through September 2008 is reported to be higher for most provinces than for the same period in 2007. Additionally, all but one province, Xinjiang, reported 80% vaccination coverage or higher. Some of the current challenges are that 1) the current commercially used H5N1 inactivated vaccines do not allow for serological distinction between vaccination and field infection; 2) it is difficult to access poultry raised on backyard and small-scale farms; 3) vaccination coverage in domestic waterfowl is relatively low; 4) layer and breeder ducks in particular, since they do not display clinical signs, are often only vaccinated when they are young, but no booster vaccination is administered on most

farms; and 4) waterfowl raised for meat consumption are usually not vaccinated because of the age at the time of marketing (4-6 weeks).

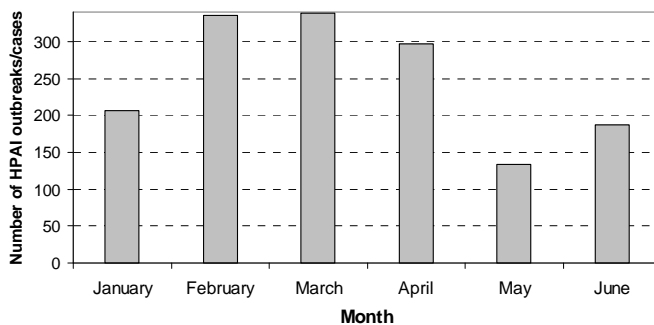
**Indonesia** continues to report a high number of H5N1 HPAI outbreaks in poultry, as it has for the past three years. HPAI is endemic on Java, Sumatra, Sulawesi and probably Bali islands, with sporadic outbreaks reported elsewhere. Village prevalence varies widely. Only two of its 33 provinces have not reported the occurrence of H5N1 HPAI. The high number of reported outbreaks each month is partially explained by the implementation of the 'participatory disease surveillance and response' (PDSR)<sup>2</sup> programme that targets village-type poultry production systems (mainly backyard) and reports evidence of virus circulation in the village environment. The programme is financially supported by FAO with USAID and AusAID, and is operating in 331/448 (74%) districts through 31 Local Disease Control Centres (LDCCs) in 27 out of 33 provinces in Java, Sumatra, Bali, Sulawesi and Kalimantan, including all known endemically infected areas. Larger and less densely-populated provinces report HPAI outbreaks less often than more densely populated provinces.

During June, PDSR officers visited 2,112 villages, of which 193 (7.1%) were infected (187 were newly found, while the remaining six carried over the infection status from the previous month). This was lower than the May 2009 infection rate of 9.1%. During the previous 6 months, PDSR officers visited 10,667 villages (16.5%) in the 331 Districts under PDSR surveillance. Since May 2008, they have visited about 34% of villages under coverage of the program. An average of 14.3% of the villages visited during the previous six months was classified as infected at the time of visit. Bali continued to have infected villages. Cases over the last six months were concentrated in provinces on Java and Sulawesi islands other than Gorontalo and North Sulawesi Provinces.

In June 2009, for the fourth consecutive month, **Lao People's Democratic Republic** reported no H5N1 HPAI outbreak.

<sup>2</sup> PDSR case definition in Indonesia: *When poultry mortality events are encountered in which more than one bird died suddenly, with or without clinical signs, Participatory Disease Surveillance and Response (PDSR) teams carry out an influenza type A rapid test. A mortality event consistent with clinical HPAI and a positive rapid test in affected poultry is considered a confirmed detection of HPAI in areas where HPAI has previously been confirmed by laboratory testing.*

**FIGURE 9**  
 Number of reported outbreaks of H5N1 HPAI  
 between January 2009 and June 2009 in Indonesia in  
 poultry  
 (Source: FAO EMPRES-i)



In **Viet Nam**, one H5N1 HPAI outbreak was reported affecting chickens, ducks and muscovy ducks on four small household farms in Quang Ninh Province. Disease control measures include stamping out of infected farms, movement restrictions for 21 days, compensation (up to 70% of market value; around USD 1.3/bird) and vaccination. Vaccination is implemented throughout the country in two annual campaigns (March/April and October/November), but in some areas, vaccination between the seasonal campaigns is also being practiced. By the end of the April-May seasonal vaccination campaign, 154.4 million poultry had been vaccinated (70.9 million ducks and 83.5 million chickens) as reported by the Partnership for Avian and Human Influenza (PAHI). Recently the Department of Animal Health changed the vaccination regulation, with full financial support now available for vaccination of commercial flocks below 2000 head/flocks (instead of 500 previously applied).

Based on the surveillance activities, three currently circulating virus clades have been isolated: 1) HA clade 1 (predominant in Southern Viet Nam and also isolated in Cambodia); 2) HA clade 2.3.4 (predominant in Northern Viet Nam and also circulating in China); and 3) HA clade 7 (detected in poultry seized at the Chinese border and at markets near Hanoi on active surveillance samples).

No human cases were reported during June 2009, leaving the figure at 111 human cases confirmed, of which 56 have been fatal since 2004.

## Europe

After no cases or outbreaks in over six months, the **Russian Federation** reported an outbreak in wild birds on the coast of Ubsu-Nur Lake, Ovursky, Respublika Tyva which lies on the border with Mongolia. Fifty-eight great crested grebes *Podiceps cristatus* were found and the H5N1 AI strain was confirmed by PCR. The outbreak started on 11 June 2009. This is the same place where an outbreak

took place in June-July 2006 (a total of 3,749 birds, predominantly grebes died). Unofficial sources mention that 420 more dead birds were found, mainly great crested grebes plus an unidentified species of gulls (apparently as a result of scavenging on carcasses).

## Non-infected countries/territories

There have been no HPAI outbreaks reported in **Australia**, **New Zealand**, the **Pacific Community**, **Papua New Guinea** (outbreaks have occurred in the Indonesian province of West Papua) or the **Philippines**. To date, no outbreaks have been reported in **Timor-Leste**, but here surveillance capacity is weak. In South Asia, **Sri Lanka**, **Maldives**, and **Bhutan** have not experienced disease. Some Asian countries regularly report the negative results obtained from their surveillance activities and suspected cases. **Bhutan** produces a clinical surveillance report weekly for each administrative level (available at <http://www.moa.gov.bt/birdflu/main/reports.php?show=all>).

**Iraq**, where the last H5N1 HPAI outbreak was in February 2006, reported recent laboratory results of their surveillance activities for June 2009 for all governorates except Kurdistan Province, in the north of the country. All samples taken were negative for H5N1 [poultry farms (196), backyard poultry (740), game and wild birds (75), and markets and slaughterhouses (965)]. Sample from a poultry farm in Mosul Governorate tested PCR-positive to H9N2 low pathogenic avian influenza.

## CONCLUSIONS

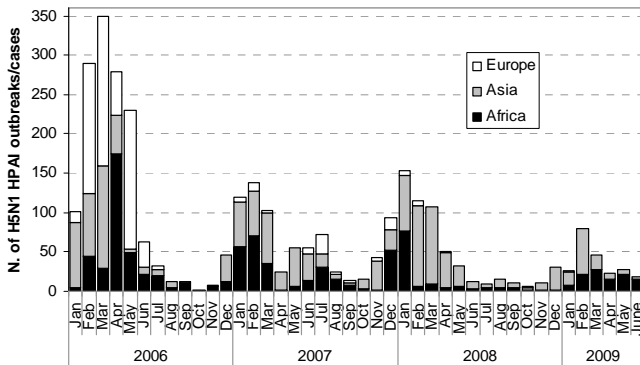
Since 2003, 62 countries/territories have experienced outbreaks of H5N1 HPAI. Effective control measures for outbreaks in poultry have been associated with reduced risk of human infections in several countries. However, H5N1 HPAI remains entrenched in poultry in parts of Asia and Africa (Egypt), and thus the risk of human infection remains, as proven by the three human cases reported this month in Egypt.

Data from previous years have shown a peak in the number of outbreaks/cases during the January-March period in both poultry outbreaks (Figure 12) and human cases (Figure 5) with February 2009 representing the peak in this period. A secondary peak has been shown in 2007 and 2008 also during the June-August period, although this year it has not yet been observed.

**FIGURE 10**

Number of reported H5N1 HPAI outbreaks/cases by continent since January 2006

(Source: FAO EMPRES-i; Indonesia data are not included, because the epidemiological unit definition for the PDSR data was modified from household level to village level in May 2008 and is not comparable)



It is difficult to undertake thorough epidemiological analysis of H5N1 HPAI globally, based on official disease reporting and the poor disease outbreak investigations carried out in some affected countries. HPAI prevalence and incidence are likely to be much higher. The disease remains most active in those countries considered endemic: Bangladesh, China, Egypt, Indonesia and Viet Nam. The disease seems to be under control in those countries that experienced a re-emergence of HPAI over the last few months, namely Cambodia, India, Lao People's Democratic Republic, Nepal and Thailand. It remains unknown whether these new cases occurred because of (a) re-introduction of the infection, or (b) the undetected circulation of the virus at a low level.

In May 2009, 107 great crested grebes, 3 bar headed geese and 11 brown headed gulls found dead in Genggahu Lake, Hainan Prefecture, Qinghai, tested positive for the H5N1 AI virus. Later on that month, another 163 dead wild birds were found in Nanhai Prefecture, also in Qinghai, at around the same time as a migratory swan was found dead in Mongolia (Doitiin Tsagaan Lake, Ugii-nuur Soum, Arkhangai). This month, 58 great crested grebes *Podiceps cristatus* were found in Ubsu-Nur Lake, Ovursky, Respublika Tyva, which lies on the border with Mongolia. These reports seem to follow a similar pattern that occurred in South East Asia and southern Siberia in Russian Federation in 2006. In 2006, these reports marked the start of a wider dissemination of H5N1 AI to many countries across Europe and Asia.

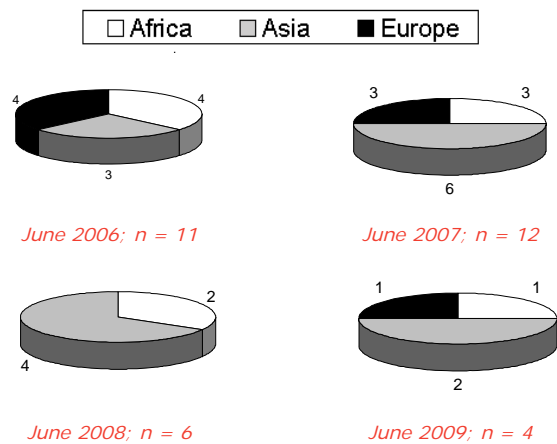
June 2009 showed similar activity when compared to June 2008, both in terms of affected countries (4 vs. 6 - Figure 11) and number of outbreaks (19 vs. 12 - Figure 12). When compared to June 2006 and June 2007; however, H5N1 HPAI activity seems

to be much lower in June 2009. Although there has been an improvement in disease awareness, outbreaks/cases of HPAI are still likely to be underestimated and under-reported in some countries and regions because of limitations in the capacity of veterinary services to implement sensitive and effective disease surveillance for H5N1 HPAI, and because of weak compensation schemes.

**FIGURE 11**

Number of countries by continent that reported H5N1 HPAI in June 2006, 2007, 2008 and 2009

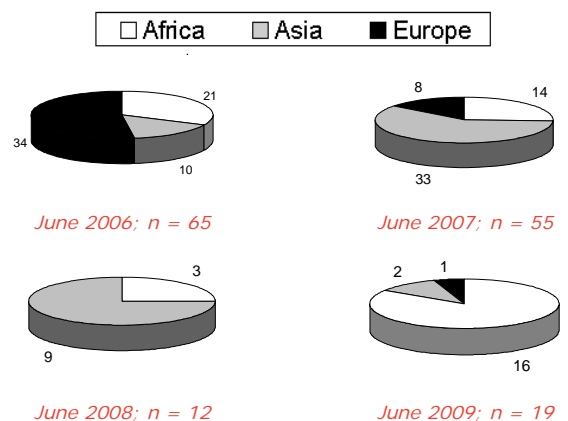
(Source: FAO EMPRES-i)



**FIGURE 12**

Number and distribution of H5N1 HPAI outbreaks/cases by continent in June 2006, 2007, 2008 and 2009

(Source: FAO EMPRES-i; Indonesia data are not included, because the epidemiological unit definition for the PDSR data was modified from household level to village level in May 2008 and is not comparable)



An animated map showing the evolution of outbreaks over the last six months including June 2009 is available at:

[www.fao.org/ag/againfo/programmes/en/empres/maps.html](http://www.fao.org/ag/againfo/programmes/en/empres/maps.html).

EMPRES welcomes information on disease events or surveillance reports on H5N1 HPAI (and other TADs), both rumours and official information. If you want to share any such information with us, please send a message to [glews@fao.org](mailto:glews@fao.org).

## SUMMARY OF CONFIRMED HPAI OUTBREAKS (as of 31 August 2009)

**Sources:** OIE, European Commission (EC), FAO and national governments – WHO for human cases/deaths  
**Note:** Highlighted countries indicate those in which there has been only one officially confirmed outbreak or occurrence

<b>AFRICA</b>	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Benin	7 November 2007	15 December 2007	Domestic poultry	-
Burkina Faso	1 March 2006	20 May 2006	Domestic poultry - wild birds	-
Cameroon	21 February 2006	28 March 2006	Domestic poultry – wild birds	-
Côte d'Ivoire	31 March 2006	31 January 2007	Domestic poultry – wild birds	-
Djibouti	6 April 2006	6 April 2006	Domestic poultry	<b>1 / 0</b>
Egypt	17 February 2006	<b>5 August 2009</b>	Domestic poultry – wild birds	<b>85 / 27</b>
Ghana	14 April 2007	13 June 2007	Domestic poultry	-
Niger	6 February 2006	1 June 2006	Domestic poultry	-
Nigeria	16 January 2006	22 July 2008	Domestic poultry – wild birds	<b>1 / 1</b>
Sudan	25 March 2006	4 August 2006	Domestic poultry	-
Togo	6 June 2007	8 September 2008	Domestic poultry	-
<b>ASIA</b>	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Afghanistan	2 March 2006	2 October 2007	Domestic poultry – wild birds	-
Bangladesh	5 February 2007	<b>21 June 2009</b>	Domestic poultry	<b>1 / 0</b>
Cambodia	12 January 2004	16 December 2008	Domestic poultry – wild birds	<b>8 / 7</b>
China	20 January 2004	<b>27 May 2009</b>	Domestic poultry – wild birds	<b>38 / 25</b>
China (Hong Kong SAR)	19 January 2004	<b>27 April 2009</b>	Wild birds	-
India	27 January 2006	<b>20 May 2009</b>	Domestic poultry	-
Indonesia	2 February 2004	<b>July 2009</b>	Domestic poultry – pigs (with no clinical signs)	<b>141 / 115</b>
Japan	28 December 2003	<b>7 May 2009</b> (raccoons, seropositive)	Domestic poultry – wild birds – raccoons (with no clinical signs)	-
Kazakhstan	22 July 2005	10 March 2006	Domestic poultry – wild birds	-
Korea, Rep. of	10 December 2003	12 May 2008	Domestic poultry – wild birds	-
Lao PDR	15 January 2004	<b>25 February 2009</b>	Domestic poultry	<b>2 / 2</b>
Malaysia	7 August 2004	2 June 2007	Domestic poultry – wild birds	-
Mongolia	10 August 2005	<b>1 August 2009</b>	Wild birds	-
Myanmar	8 March 2006	23 December 2007	Domestic poultry	<b>1 / 0</b>
Nepal	8 January 2009	<b>17 February 2009</b>	Domestic poultry	-
Pakistan	23 February 2006	17 June 2008	Domestic poultry – wild birds	<b>3 / 1</b>
Thailand	23 January 2004	10 November 2008	Domestic poultry – wild birds – tiger	<b>25 / 17</b>
Viet Nam	9 January 2004	<b>18 June 2009</b>	Domestic poultry	<b>111 / 56</b>
<b>NEAR EAST</b>	First outbreak	Latest outbreak	Animals affected to date	Human cases / deaths to date
Iran	2 February 2006	10 December 2007	Domestic poultry - wild birds	-
Iraq	18 January 2006	1 February 2006	Domestic poultry – wild birds	<b>3 / 2</b>
Israel	16 March 2006	1 January 2008	Domestic poultry	-
Jordan	23 March 2006	23 March 2006	Domestic poultry	-
Kuwait	23 February 2007	20 April 2007	Domestic poultry – wild birds - zoo birds	-
Saudi Arabia	12 March 2007	29 January 2008	Domestic poultry	-
West Bank & Gaza Strip	21 March 2006	2 April 2006	Domestic poultry	-

<b>EUROPE</b>	<b>First outbreak</b>	<b>Latest outbreak</b>	<b>Animals affected to date</b>	<b>Human cases / deaths to date</b>
Albania	16 February 2006	9 March 2006	Domestic poultry	-
Austria	10 February 2006	22 March 2006	Wild birds – cats	-
Azerbaijan	2 February 2006	18 March 2006	Wild birds – domestic poultry – dogs	<b>8 / 5</b>
Bosnia-Herzegovina	16 February 2006	16 February 2006	Wild birds	-
Bulgaria	31 January 2006	30 May 2006	Wild birds	-
Croatia	21 October 2005	24 March 2006	Wild birds	-
Czech Republic	20 March 2006	11 July 2007	Wild birds – domestic poultry	-
Denmark	12 March 2006	22 May 2006	Wild birds – domestic poultry	-
France	17 February 2006	14 August 2007	Wild birds – domestic poultry	-
Georgia	23 February 2006	23 February 2006	Wild birds	-
Germany	8 February 2006	<b>10 January 2009</b> mallard, wild	Wild birds – domestic poultry – cats – stone marten	-
Greece	30 January 2006	27 March 2006	Wild birds	-
Hungary	4 February 2006	23 January 2007	Wild birds – domestic poultry	-
Italy	1 February 2006	19 February 2006	Wild birds	-
Poland	2 March 2006	22 December 2007	Wild birds – domestic poultry	-
Romania	7 October 2005	6 December 2007 (cat)	Wild birds – domestic poultry – cat	-
Russian Federation	15 July 2005	<b>11 June 2009</b>	Domestic poultry – wild birds	-
Serbia	28 February 2006	16 March 2006	Wild birds – domestic poultry	-
Slovakia	17 February 2006	18 February 2006	Wild birds	-
Slovenia	9 February 2006	25 March 2006	Wild birds	-
Spain	7 July 2006	7 July 2006	Wild birds	-
Sweden	28 February 2006	26 April 2006	Wild birds – domestic poultry – game birds – mink	-
Switzerland	26 February 2006	22 February 2008	Wild birds	-
Turkey	1 October 2005	9 March 2008	Domestic poultry – wild birds	<b>12 / 4</b>
Ukraine	2 December 2005	11 February 2008	Wild birds – domestic poultry – zoo birds	-
United Kingdom	30 March 2006	22 May 2008 (H7N7)	Wild birds – domestic poultry	-

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned. The views expressed in this information product are those of the author(s) and do not necessarily reflect the views of FAO.

© FAO 2009