



# Highly-Pathogenic avian influenza and sustainable livelihoods (HPAI): Managing risk and developing options



© FAO - Duck farm in Thailand with newly installed net to keep ducks and wild birds apart, a measure against spread of the avian flu virus.

In late 2003 and early 2004, a number of Southeast Asian countries almost simultaneously reported outbreaks of Highly Pathogenic Avian Influenza (HPAI). Since then, FAO has worked with 95 affected and at-risk countries to strengthen disease intelligence and emergency preparedness, but also has taken a sustainable livelihoods approach (SLA) to provide analysis of and advice on the social and economic consequences of both the disease and its control.

Policy lessons learned from the application of the SLA to the HPAI emergency suggest that health and safety in the poultry sector cannot be achieved without recognition of the linkages between poultry and local livelihoods. HPAI presents complex development challenges. Incorporating a sustainable livelihoods approach can provide an opportunity not just to manage risk but also to maintain development options for poor people dependent on poultry. This brief argues that an SLA approach is of great value in addressing this challenge.

## Key points

- The backyard poultry sector may be marginal in terms of financial value, but as a livelihood strategy, backyard poultry can be an important means of survival.
- Control of HPAI is not only a biosecurity issue but also a development challenge that requires long-term planning and a supportive institutional and policy framework.
- Operation of backyard poultry production systems is best understood through a livelihoods approach centred on analyses of local strategies and objectives.
- With HPAI endemic in many countries, there is a need to move from single measures – such as culling and vaccinations – to reviewing packages of measures and their impact on livelihoods, gender dynamics and vulnerable groups.

## Introduction

The risk of a human pandemic caused by HPAI has been well reported since 2003, amid much speculation and some estimation as to its potential economic consequences and effect on human lives. Much less attention has been paid to the losses that HPAI causes for people dependent on poultry for their livelihoods. Yet, these people suffer both direct losses, as a consequence of an outbreak, and indirect losses, as a result of drastic control measures that have led to wide-scale culling, consumer panic and related market shocks.

The short-term impact of HPAI on local livelihoods differs, depending on the socio-economic status, gender and location of the poultry producers as well as the characteristics of the poultry production system in which they operate. Similarly, long-term adjustments to the poultry sector driven by the objective of HPAI containment will have differing effects on local producers' livelihoods, depending on the capital assets available and the role of poultry in their livelihood strategies.

HPAI must be regarded not only as a risk to poultry health and production but also as complex development and livelihood challenge. This requires an extensive understanding of the role that poultry plays in local livelihood strategies and outcomes as well as the underlying drivers that shape the poultry sector.

Current approaches to working with poultry producers threatened by HPAI do not provide an adequate basis for addressing this challenge. The Food and Agriculture Organization of the United Nations (FAO) classifies poultry producers according to four sectors based mainly on biosecurity considerations, namely:

- sector 1 – industrial;
- sector 2 – independent commercial;
- sector 3 – smallholder commercial;
- sector 4 – backyard or village systems (see box 1).

FAO's recent work with HPAI looks at all of these sectors with a livelihoods approach which is important both for analysing HPAI impacts and for long-term planning in the poultry sector. This brief focuses specifically on the impact of HPAI on sector 3 and 4 producers because their livelihoods are directly impacted by the outbreaks and control operations.

## BOX 1: The FAO HPAI sector approach

Characteristics	Systems			
	Industrial and integrated	Commercial poultry production Bio-security High	Low	Village or backyard
	Sector 1	Sector 2	Sector 3	Sector 4
Production systems	Fully integrated	Independence or part integrated	Smallholder	Scavenging, semi-scavenging
Range of poultry kept*	>10 000–200 000	10 000–1 000	1000-50	<50 (usually 10)
Household or unit dependency on poultry	High	High	Very High	Low
Biosecurity	High	Mod-High	Low	Low
Birds kept	Indoors	Indoors	Indoors/Part-time outdoors	Out most of the day
Breed of poultry	Commercial	Commercial	Commercial	Native
Food security of owner	High	Ok	Ok	From ok to bad

A livelihoods approach can help disaggregate the sectors and lead to the design of support structures based on an understanding of diversity within poultry production systems. National statistics do not attribute much economic value to backyard poultry production yet, when seen from a livelihoods perspective, its value in terms of development is significant.

Even the smallest flocks fulfil multiple livelihood objectives. For instance, eggs and meat provide both a source of protein and, when sold, of easily accessible cash. They also provide manure, insect control, exchange and cultural capital. But what really makes poultry a key factor in supporting local livelihoods is its flexibility, low maintenance costs and accessibility by vulnerable groups.

- Flexibility of capital assets – poultry can be a resource for financial or human capital. Few assets have such flexible multiple functions that can be so easily converted and used for a number of household livelihood strategies.
- Low maintenance costs – using family labour for backyard poultry has a low opportunity cost, considering the high cost of entering into intensive poultry production and the low returns to other forms of labour. The fact that poultry production can be managed from home with little land and capital is especially important for women. If they lose their flocks to disease or control activities, they have few options for replacing the lost nutrition and cash autonomously and would have to depend on support from external programmes or projects.
- Easy accessibility – the vulnerability of the vast number of backyard poultry producers increases the developmental value of sector 4. For example, village or backyard poultry is usually owned and managed by women (70 percent of backyard poultry in Africa and Asia is owned by women). Thus, even though the financial value of the sector may be marginal, a livelihoods perspective reveals that backyard poultry as a livelihood strategy can be an important means of survival.

## Short-term livelihood impacts of HPAI outbreaks and their control

While HPAI has far reaching livelihood implications in all sectors, sectors 3 and 4 are of particular policy concern when it comes to the interaction of biosecurity and livelihoods. Until now, the policy response to HPAI has always been in an emergency mode, as governments and international agencies have struggled to stamp out the disease and establish surveillance systems for its continued control.

- Culling has been the main means of control when an outbreak is first discovered. However, culling causes loss of livelihoods, discourages reporting and encourages panic selling. Market shocks originating from consumer fears and country protective action may occur during and even before outbreaks.
- Compensation schemes provide incentives to report disease outbreaks and, at the same time, reduce the economic damage culling causes producers. However farmers in sectors 3 and 4 are particularly hard to target for compensation as their record keeping is minimal, birds may be indigenous with different market values and farmers often need immediate cash compensation.
- Vaccination programs fall somewhere between emergency and long-term disease control measures. However, farmers in sectors 3 and 4 are unlikely to carry out on-going vaccination routines unless supported by costly public sector campaigns.

In short, these emergency measures have been effective in fighting outbreaks in some countries, but they are not socially and economically sustainable and recent studies by FAO have shown that their costs to livelihoods are immense.

As noted, short-term livelihood impacts vary widely depending on the socio-economic status, gender and location of the poultry producers, as well as the role of poultry in household livelihood strategies. At the same time, the strategies used to cope with the impact of HPAI also vary widely, depending on the capital assets available to the households as well as the policy environment surrounding HPAI. The following list indicates typical capital assets of backyard poultry producers and views those assets in terms of the sustainable livelihoods approach, in order to give a broad picture of the impacts of emergency measures on their households.

**Human capital:** The human capital losses from HPAI emergency measures are caused by a decrease in household income and nutrition. The sex and age composition of the household, as well as the knowledge and skills available, have significant impact on the search for alternative livelihoods to compensate for losses. Households headed by women, as well as those with young and old dependents, find the search for alternative livelihood strategies most difficult. FAO studies using a livelihoods approach in Egypt, undertaken since the HPAI pandemic struck, found many women who lost their birds to the pandemic are in debt, because they had bought their poultry on credit.

**Physical capital:** Equipment related to poultry production may go unused when small producers' flocks are culled or restricted by emergency measures. If flocks are replenished and the equipment is needed again, it may require maintenance due to lack of use, or upgrading if it must meet new safety regulations. Any requirements for capital outlay on physical assets will hit the most vulnerable poultry producers the hardest.

**Natural capital:** HPAI containment measures may require changes in natural resource use, in particular if households must source their protein and cash needs from natural resources instead of poultry.

**Financial capital:** The loss of income due to HPAI emergency measures has a direct impact on local livelihoods and repercussions on human capital. In particular, income from poultry production managed by women is often spent on household human capital, such as school fees or health expenses. In Vietnam the loss of birds and up to three months of poultry production and consumption after the 2004 outbreak were estimated to have cost the effected backyard producers from US\$69 to US\$108, a large sum in an area where the average income is US\$2.00 a day or less.

**Social capital:** The lack of access to poultry for production and exchange may inhibit the household from meeting social obligations or participating in religious ceremonies. This loss also can have indirect knock-on effects as it can hinder household capacity to source work; in many countries social status is closely linked to economic opportunities. In Turkey, sector 4 producers surveyed said that losses from HPAI affected not only household nutrition and income but their capacity to take part in social exchanges as they had nothing to offer visitors.

From what has been observed HPAI also can have a severe livelihood impact on sector 3 poultry operations because of their lack of diversification and alternative livelihood strategies. These are small-scale commercial producers who usually do not consider poultry a flexible capital asset to be used for various household livelihood strategies. However, small commercial flocks are often family run enterprises built up by taking considerable investment risks. Further, sector 3 has been especially hard hit by HPAI regulations because the sector combines low biosecurity with relatively large flock numbers and is therefore considered a high risk sector. In some developing countries that have experienced HPAI, such as Indonesia and Vietnam, sector 4 may still account for approximately a third of all birds but sector 3, which had previously been expanding, has now diminished.

The livelihoods approach is critical for understanding the factors that enable people to cope with the impact of HPAI. In particular, the SLA's focus on the vulnerability context helps identify:

- groups of producers who need particular policy attention due to their exposure to wider economic shocks, weather-related calamities, war and displacement, and
- Seasonal stresses and structural vulnerability caused, for example, by ethnicity, gender, physical and mental disabilities, and a lack of political voice.

### Longer term livelihood impacts

A livelihoods approach is important not only for understanding the impact of HPAI but also for planning long-term sector adjustment measures that can meet both biosecurity and livelihood objectives. Biosecurity improvements in sectors 3 and 4 are difficult to impose and enforce, due to the sectors' internal diversity and low investment capacities. Thus, suggestions have been made that long-term sector adjustment should limit the existence of these sectors, allowing their operations to continue only in particular zones and under rigorous supervision. However any sector adjustment plan needs to take into account the real risks throughout each sector including the livelihood losses and opportunity costs that such measures would entail. For instance, the isolation of some sector 4 producers makes them a low biosecurity risk while the same production systems in densely populated areas may be more risky.

Emergency contingency planning has not given sufficient thought to the recovery phase of HPAI and, as a result, uncertainty over restocking regulations and programmes continues to disrupt poultry-dependent livelihoods. Any efforts to deal with the complexity of sectors 3 and 4 by imposing stringent regulations and restrictions should not be undertaken without a good understanding of both epidemiological risk and the operation of the sector. These producers and traders have little incentive to cooperate with authorities and often find illegal ways to move birds across borders to avoid regulations. This illegal movement is hard to monitor and holds huge risks of disease transmission.

As the dust has cleared and lessons have been assimilated from the emergency responses, the consensus has been that more work is needed to assist with the prioritization and targeting of outbreak control systems and strategies. Moreover, with HPAI endemic in many parts of Asia and potentially in Africa, there is a need to move from examining single measures to reviewing packages of measures for their potential impacts on livelihoods, gender dynamics and vulnerable groups.

Recent work on avian influenza by FAO, much of it done from a livelihoods perspective, has generated some ideas and guidelines as to how HPAI policies can mitigate negative livelihood impacts.

- **Target interventions** – While existing control systems, such as culling, vaccinations and compensation programmes, may continue, improved targeting can reduce both the financial and livelihood cost of such measures. For example, taking location and market linkages of producers into account can help separate those areas where there are fewer risks from marketing small-scale poultry from those where small-scale producers should be required to adopt new biosafety practices. Even though sector 4 households often have poor animal health systems, targeting would recognize that because they are often isolated, intensive surveillance, culling and vaccinating may not be justified.

A livelihoods approach can shift the focus from understanding production systems according to sectors and sizes to understanding the livelihood strategies of which they are a part. Such an approach could contribute to defining feasible zoning and compartmentalization of strategies within countries and the rationalization and targeting of surveillance and prevention measures. In Vietnam, for example, it is the intention to make vaccination more sustainable by reducing the scale of government vaccination campaigns. Now they will target only higher risk communities at particular times of the year, while ensuring that sufficient vaccine is readily available for purchase by commercial farms between campaigns.

- **Provide livelihood options** – If relocation or closing of sector 3 and 4 is required to improve biosecurity in urban areas, then this should be accompanied by the provision of alternative livelihood options as well as compensation for any birds culled. In addition, microcredit schemes directed at women might be an effective tool for HPAI policy, as women who manage poultry may lose control of portions of household income normally directed towards household welfare (see box 2). In Vietnam, where restocking has been offered as a possible alternative to cash compensation, members of restocked households were required to attend courses on poultry management.

- **Offer technical advice** – Clear and affordable technical advice is the starting point for persuading farmers to improve biosecurity. FAO reports from Egypt identified animal husbandry practices, such as appropriate carcass disposal, litter disposal, contact with wild birds and quarantine arrangements for sick birds, as risky practices that could be improved at little additional cost to the government. One of the most effective methods – confinement to enclosed spaces – has been found to be the most difficult as it is the free-range aspect of poultry production that makes it cost effective and attractive to poor producers. Recommendations for improved animal husbandry practices that are cognizant of local constraints and capacities have a higher chance of succeeding. In Vietnam, for instance, the Women’s Union has been active in adapting recommendations to local conditions by looking for ways to confine poultry that use local resources such as bamboo and minimize labour requirements. Without such considerations, restructuring recommendations, such as the upgrading of premises, have the potential to exclude women from poultry markets.
- **Ensure effective communication** – Communication and awareness-raising campaigns targeted at backyard poultry producers need to take account of their particular circumstances. As noted, very little attention has been paid to gender issues in HPAI control strategies despite the fact that women constitute the vast majority of small-scale poultry producers. Further, effective communication would prevent the damage caused by panic-fuelled reactions to HPAI outbreaks. In a review of measures undertaken in HPAI outbreaks, one of FAO’s main findings was the importance of good communication and information delivered through trusted media. Good communication can reduce the market impacts of HPAI outbreaks radically. Understanding how information can “motivate desired behaviour” is critical when it comes to effective HPAI containment. As shown in the FAO reports from Egypt, improved awareness has improved animal husbandry practices and many backyard producers are restocking despite the continued presence of HPAI in the country.

### **Conclusion: trade-offs for policy formulation**

Countries developing long-term strategies for the poultry sector face difficult trade-offs. Most plans for sector adjustment include measures to shift production away from low biosecurity systems, regulate transport, raise market entry regulations and relocate poultry keeping away from densely populated areas. Yet, many of these measures pit risk reduction requirements against local livelihoods dependent on poultry production. For countries committed to the achievement of the Millennium Development Goals (MDGs), especially MDG 1 on food security and MDG 3 on women’s advancement, these are hard choices.

As recent FAO work has demonstrated, the livelihoods approach is a very effective analytical tool that can generate practical policy implications on how to negotiate this trade-off. The institutional response to the HPAI emergency and the structures that have been established are geared towards tackling emergencies and are not sufficient to support long-term sector planning.

# THEMATIC brief



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HPAI needs to be considered a development challenge that requires a supportive institutional and policy framework. The Sustainable Livelihoods Approach recognizes that not all important assets can be quantified and that some are actually "hidden". It also shows how the first short-term measures taken by policy-makers to ensure biosecurity often damaged people's livelihoods.

The response to HPAI has been led by agencies focusing principally on animal and human health at both the international and national levels. Now, long-term policies need to take into account trade issues, poverty reduction targets, livestock development programmes and economic planning at both local and national levels. Livelihoods approaches have shown that while the financial value of backyard poultry is small, it is a useful and flexible resource for local people's livelihoods. This wealth of information – acquired by donors, international and national organizations, NGOs and others who have recognized the importance of poultry for supporting livelihoods of poor rural people – points to the overall importance of finding a means through which biosecurity requirements can be balanced with livelihood demands of the producers who are affected.

## BOX 2: HPAI in vulnerable households

Samira's family is composed of three sons and three girls, five of them attend primary and preparatory schools and the youngest son is still under school age. Her husband is unemployed for health reasons. Samira, the household's only breadwinner trades poultry and rabbits for the people in her village. She collects the animals from the villagers to sell at village markets six days a week. Because of avian flu, Samira is heavily in debt. Last year she borrowed EGP 350 (US\$63) from an NGO to invest in poultry birds. When her small backyard flock – composed of 32 chickens, 90 Pekin ducks, 16 Balady ducks and 2 turkeys – all died of avian influenza, she still had to repay the debt topped up with a high interest rate. Because business was so bad last year with hardly any birds to trade, she took a second loan of 450 EGP (US\$82) from another NGO to cover part of the interest of the first loan and to restock. Her restocked flock composed of 11 Balady ducks, 9 Pekin ducks, 11 geese, 9 chicken, 3 turkeys, and 24 pigeons. For the second time, her flock was infected and the birds died. She then took a third loan of 400 EGP (US\$78) to cover part of the interest of the first two loans and to buy a blanket for the winter season. Although the flock died this woman has an outstanding debt to pay to the three NGOs.

"Samira" (by Zahra Ahmed and Ellen Geerlings)  
14 March 2007, Beni Suef

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