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### Issue paper 5. AHI Impacts on Poverty, Livelihoods, Vulnerability and Household Coping Mechanisms of Smallholder Poultry Producers

## **DRAFT FOR DISCUSSION – PLEASE DO NOT CITE**

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### **Introduction**

Since late 2003, outbreaks of highly pathogenic avian influenza (HPAI) have continued to pose a significant threat to the poultry industry in the Southeast Asian region; nearly 140 million domestic poultry have either died or been destroyed and economic losses to the Asian poultry sector have been estimated at around \$10 billion. Despite control measures the disease continues to spread, causing further economic losses, threatening the livelihood of hundreds of millions of poor livestock farmers, jeopardizing smallholder entrepreneurship and commercial poultry production and seriously impeding regional and international trade and market opportunities. A recent economic assessment of Avian Influenza (AI) impact by the Asian Development Bank has noted that, at the microeconomic level, the losses from chicken culling and the attendant hardships are expected to be severe for rural poultry producers who have little access to social safety nets. This scenario can be expected to be replicated in other regions of the world, as the virus is currently spreading at an alarming rate across parts of Europe, the Near East and, most recently, Sub-Saharan Africa.

Moreover, the potential of the HPAI virus to become transmissible among humans is of serious concern to the global community. Under the threat of a combined Avian and Human Influenza pandemic, scenarios for which are being considered by this meeting, the ability of communities and countries to preserve the basic elements of rural livelihoods is critical in protecting households from health losses (Rau: forthcoming). This paper draws upon insights gained from the experiences of FAO in support of Member Countries analyzing the socio-economic impact of Avian Influenza in Southeast Asia, and HIV/AIDS to offer an overview of likely household-level AHI impacts on poverty, livelihoods, vulnerability and household coping mechanisms of smallholder poultry producers for consideration during the discussions of this meeting.

### **Smallholder poultry production systems**

Development of the smallholder (backyard) poultry sector is seen as an important tool in poverty reduction by FAO and others. It is also a gender equity tool as backyard poultry is often the responsibility/under the control of women. Poultry provide a source of high quality protein for the household, especially children. It is often an important livelihood option and

source of income for women. Women's income is crucial for food security, especially in poor households, as it often goes for food purchases and other aspects of household welfare.

Poultry production systems in Southeast Asia range from industrial-scale systems oriented towards export markets to small-scale backyard enterprise that form an important addition to the livelihood strategies of poor rural farmers and their families. Table 1 presents selected characteristics of poultry production systems and information on proportions of poultry numbers and producers by sector for selected Southeast Asian countries:

**Table 1. Selected Characteristics of Poultry Production Systems, Southeast Asian Countries**

System Characteristic	Sector 1: Industrial	Sector 2: Large Commercial	Sector 3: Small Commercial	Sector 4: Backyard
Animal species	Poultry	Poultry	Poultry; other domestic animals	Poultry; other domestic animals
Poultry species	Chicken or ducks	Chicken or ducks	Chicken, ducks	Chicken, ducks, geese, pigeons, quail
Typical flock size	>2000 birds	>2000 birds	50-2000 birds	<50 birds
Biosecurity	High	High	Low-minimal	Minimal
Bird/product Marketing	Commercially	Commercially	Live bird ("wet") markets	Local consumption; few enter "wet" markets
Age/species segregation	Good	Good	Moderate between species	None
External environment segregation	Good	Good	Moderate; well water	None; well water
Feeding system	Commercial feed	Commercial feed	Commercial feed	Scavenging; household scraps; some commercial feed
<b>Country</b>				
<b>Cambodia</b>		>1% poultry	>1% poultry	99.9% farms; >90% poultry
<b>Indonesia</b>	3.5% poultry, export & national consumption	21.2% poultry	1.8% poultry	64.3% poultry
<b>LAO PDR</b>		small	10% poultry	90% poultry
<b>Thailand</b>	70% production, export important	20% production	10% production + 90% producers	
<b>Viet Nam</b>	small	20-25% production, few producers	10-15% production, few producers	65% production, possibly 70% of poultry

Source: FAO 2004: 3, McLeod et. al. 2005 and Otte, Pfeiffer and Roland-Host nd.: p. 15

According to Ramalah, poultry keeping has been practised for centuries as a backyard operation among rural families in most of the South-east Asian countries. The practice of keeping native or indigenous chickens and their crosses under the scavenging system of backyard farming is still popular in rural areas. Some farmers keep the chickens enclosed during the night under their houses and sometimes also build an extension usually at the side or rear of the house made out of wooden materials, wire netting and thatched or zinc roof for keeping the birds. Village fowl are generally kept to supplement the family with income and protein diet; rarely would one find village fowl being kept under the intensive system such as the deep litter or caged system. The move towards semi-intensive systems, whereby the birds are kept in enclosed areas with a shed for shelter and provided with food and scratches, has

become quite popular for medium-scale producers in most South-east Asian countries. Farmers or people in the rural areas that rear large numbers of village chickens under the semi-intensive system normally have a ready market that pays a premium price for the bird .

In Africa, most poultry production is undertaken through the extensive system at village or family level. Poultry provide a good source of protein and ready cash for villagers. The financial gains in turn help to sustain the village economy and contribute to the prevention of urban migration. The benefits from family poultry production go directly to the rural poor, in most cases to the women, they being the principal caretakers (Goodger, Bennett and Dwinger 2002: 134).

Kitalyi describes three family poultry management systems for Africa, which are differentiated on the basis of flock sizes and input-output relationships: intensive, semi-intensive and extensive/scavenging. Table 2, based on his description, summarises selected characteristics of poultry production systems and information on proportions of poultry numbers and producers by sector for family systems in Sub-Saharan Africa:

**Table 2. Selected Characteristics of Poultry Production Systems, Africa**

<b>System Characteristic</b>	<b>Intensive</b>	<b>Semi-intensive (Backyard)</b>	<b>Extensive (Scavenging)</b>
<b>Animal species</b>	Poultry	Poultry; other domestic animals	Poultry; other domestic animals
<b>Poultry species</b>	One species, usually chicken	One species, usually chicken	Multiple species; chicken, guinea fowl, ducks, geese, turkeys, etc.
<b>Typical flock size</b>	>1000 birds	50-1000 birds	3-130 birds
<b>Biosecurity</b>	High	Minimal	Minimal
<b>Bird/product Marketing</b>		“Fledging value chain” system; hawkers; local markets	Local consumption; hawkers; local markets
<b>Age/species segregation</b>	Good	Variable	None
<b>External environment segregation</b>	Good	Vaeiable	None
<b>Feeding system</b>	Commercial feed	Commercial feed; home mixes	Scavenging; household scraps

Source: Kitalyi

Intensive systems are based on specialized breeds and constitute less than 30 % of the total poultry population in Africa. These are found mainly in urban areas, where there are markets for eggs and chicken meat. Producers in this production system aim at using the recommended standard practices. Semi-intensive production systems, sometimes referred to as backyard production systems, produce poultry at low-input, low-output levels and are the commonest type of family poultry production. These systems are highly variable and require additional characterisation, especially in peri-urban settings. Both intensive and semi-intensive production systems are based on one species and mostly the domestic chicken (*Gallus domesticus*)

In the extensive or scavenging management systems, different poultry species are kept; chickens, guinea fowls, ducks, geese and turkeys. Chickens are dominant in terms of both

numbers and economic contribution. Guinea fowl are common in the flocks of West Africa, coming second to chickens. Flock sizes in these production systems are highly variable, and larger flock sizes are associated with more intensification in housing, feeding, disease control and marketing.

Management of poultry has been associated with women for various historical and social reasons (Bradley, 1992). Surveys in Ethiopia, The Gambia, Tanzania and Zimbabwe have shown that women dominate most activities except for shelter construction and marketing (Kitalyi, 1998). Family poultry is easily managed within homesteads, and in rural areas this is the main resource which women farmers have more access to benefits accrued.

### **Impacts and Coping Strategies of Poultry Producers: a Case Study from Viet Nam**

In the aftermath of an AI outbreak in Viet Nam in December 2003, the FAO provided the Viet Nam General Statistics Office (GSO) with resources and technical support to conduct an investigation of the socio-economic impacts of Avian Influenza. Eight hundred and eight farms, industrial, commercial, small commercial and no poultry) were interviewed. Of the four identified groups of poultry farms, backyard farms were the largest single category, representing 94% of farms and 53% of number of birds in the sample. Commercial and industrial farms are specialized earning about 50% (commercial) and 80% (industrial) of their total income from poultry-keeping, while smaller commercial and backyard farms keep poultry as a secondary activity after rice farming or a variety of other occupations. Backyard farms display a wide array of different wealth statuses but, more than the others, hosts poor farmers.

All types of farms—due to specialisation of commercial/industrial farms and high poverty incidence among small commercial/backyard farm households—are quite vulnerable to the shock of the loss of poultry-raising as an activity. Post AI decrease of food intake was found to be common among all categories; higher in larger farms but probably more dramatic in smaller farms, among which, under normal conditions, several already have a minimal food intake.

Important study findings:

- Culling was mostly concentrated on larger farms (72% of the commercial and 85% of the industrial).
- Labour impacts at household level do not seem to be very marked; however, national level projections of survey results give estimates of 13,500 job units lost.
- After AI, the capacity of farms to secure new loans to recover production was directly proportional to the farm size and corresponded to about half of the pre AI period
- Informal sector provided a much higher disbursement than normally.
- Initial compensation offered farmers was insufficient (5,000D per bird as opposite to 30,000D of average value), did not cater for differences of species and of production (broilers and layers) and in some provinces was late in delivery. It was changed afterwards to a 50% of the market value pre-outbreak. The low compensation at the beginning served as an incentive for farmers to quickly sell the animals in order to obtain a higher price than 5000VND, hence increasing HPAI disease spread across provinces.

Coping strategies

- **Intensification of already existing non poultry activities**; on average 13% of farms have intensified other existing activities. The rates are not very different between groups with the exception of backyard sector which displayed a halved rate (7%).
- **Switch to new activities**; 9% went into new enterprises, mostly pig farming; larger commercial farms more so than small commercial or backyard farms; other farmers had ambition to initiate new activities but could not do so
- **Use of savings**; large commercial farmers, backyard did not (no savings?)
- **Selling off of family labour**; low in backyard and small commercial farms
- **Asset sales**; only large-scale commercial farms

### **Possible livelihood effects on smallholder poultry producers under UNSIC Model Scenarios**

As noted in the documentation for this meeting, The UN System Influenza Coordination Office (UNSIC) is in the process of developing three scenarios for the purposes of pandemic planning and preparedness:

- Model One. ***Extended Phase 3 with continuing outbreaks of avian influenza.*** Outbreaks of avian influenza continue to spread, but the virus does not acquire efficient and sustained human-to-human transmissibility.
- Model Two. ***Slow-onset Phase 4-5 with moderate and localised impact.*** The virus only progressively acquires human infectiousness. It spreads slowly and to a small number of regions.
- Model Three. ***Rapid-onset escalation to Phase 6 with widespread impact.*** The virus develops the ability for efficient and sustained human-to-human transmission. A human influenza pandemic rapidly spreads throughout the globe with a high infection rate.

Much of the previous discussion is perhaps very relevant for considering humanitarian response under Models One and Two. However, as both the animal and human disease situation moves towards a Model Three scenario, a wider range of effects on human populations and their livelihoods are expected to emerge. Many such effects have been observed in impact studies of other disease pandemics, e.g., HIV/AIDS, using a Sustainable Livelihoods (SL) approach. The SL approach is well-documented elsewhere (see, for example: DFID/FAO, 2000). Briefly, households are seen to possess five sets of capital assets essential to their livelihood strategies: human capital, natural capital, financial capital, social capital, and physical capital. Utilizing these assets, households adjust to their physical, social, economic and political environments through a set of livelihood strategies designed to strengthen their well-being. The contexts in which households operate involve a number of threats that render them vulnerable to negative livelihood outcomes. These threats can include periodic droughts, floods, pest infestations, conflict and civil unrest, as well as the illness and death of household members. Households are viewed as being sustainable if they can adjust to threats without compromising their future ability to survive shocks to their livelihoods (Stokes, 2002: 2).

Stokes has constructed a framework for examining livelihood effects of HIV/AIDS on various household asset or capital groups. As an aid for reflection, the remainder of this paper lists these effects along with indications of potential importance of these effects for smallholder poultry producers under the three model scenarios under consideration by this meeting.

## HIV/AIDS Effects/Impacts on Livelihoods that may have relevance for AHI (Based on Stokes 2002)

### Human Capital Effects

- **Illness and/or death of one or more household members;** *Under an AI-dominated scenario, morbidity is likely to occur first among those who handle poultry during the production, processing and marketing process. This includes prime-age adults but may include children and the elderly (depending of who takes care of poultry) who are often affected during HI outbreaks. Adult morbidity/mortality may well become increasingly important as scenario shifts from Model 1 to Model 3*
- **Out-fosterage of one or more children orphaned by the epidemic;** *HPAI is likely to affect vulnerable age brackets (i.e., children and elderly people) first because of the immune system's specificities. I presume it is more likely that it is the children getting the disease and passing it on to parent who would be taking care of them during illness; although some increase in orphanhood may be realised through prime-age adult mortality, it is unlikely that this will be as important a problem as with HIV/AIDS*
- **Addition of adult relative to assist with farm production, housework and/or child care;** *unlikely to become important in Model 1, especially where smallholder production is diminished due to AI control measures or sector restructuring; similarly in Models 2 and 3 where movement is restricted and/or high adult mortality/morbidity affects labour supply as well as demand*
- **Temporary migration for wage work;** *may be important under Model 1, as labour shifts away from poultry production to other enterprises due to AI control measures or sector restructuring (shift could also be from Sectors 3-4 to Sectors 1-2); expected to become less feasible livelihood strategy under Models 2 and 3, with imposition of movement restrictions*
- **Change in the household dependency ratio;** *possible effect as human morbidity/mortality increases in Models 2-3; direction of change (+/-) will be determined by age-specific morbidity/mortality patterns*
- **Loss of farm and off-farm labour;** *possible effect as human morbidity/mortality increases in Models 2-3; direction of change (+/-) will be determined by age-specific morbidity/mortality patterns*
- **Withdrawal of children from school;** *dependent on age-specific morbidity/mortality patterns in all models; withdrawal may be more linked to avoidance of infection, movement restriction and collapse of educational services under Models 2-3*
- **Intra-household reallocation of labour;** *household members take on other (non-traditional) roles/responsibilities for household productive and reproductive tasks with domestic labour force changes; all models, but more likely and important effect as human morbidity/mortality increases (Models 2->3)*
- **Decrease in area cultivated (increased fallow);** *more important as scenario shifts towards Model 3*
- **Decline in crop variety;** *more important as scenario shifts towards Model 3*
- **Change in cropping patterns and/or animal production to less labour intensive practices;** *crops: more important as scenario shifts towards Model 3; livestock: option for less intensive practices/systems may be eliminated due to AI control measures or sector restructuring (Model 1); if possible, may become more important as scenario shifts towards Model 3*
- **Declining yields;** *more important as scenario shifts towards Model 3*

- **Loss of agricultural knowledge, practices and skills;** *might become more important as scenario shifts towards Model 3*
- **Lengthening of the working day;** *might become more important as scenario shifts towards Model 3*

#### **Financial Capital Effects**

- *These effects are expected to be medium to high importance in Models 1 and 2, high importance in Model 3; increasingly important as production option options erode*
- **Reductions in income from farm and off-farm sources;** *due to loss of production options and restricted mobility*
- **Liquidation of savings accounts;**
- **Seeking remittances from family;**
- **Change in degree of reliance on off-farm income among female-headed households;**
- **Change in wage earning among female-headed households;**
- **Change in income-generating activities among female-headed households;**
- **Sale of stores of value (jewellery; household goods, non-draught animals);**
- **Borrowing from informal sector (relatives, friends, neighbours, rural coops, rotating and savings club associations)**
- **Borrowing from rural traders or money lenders (often at exorbitant interest rates)**
- **Pledging of future crops**
- **Exhaustion of credit resources**

#### **Natural Capital Effects**

*These effects focus on cropland and are of minor importance in Models 1 and 2, but may become important in Model 3 as the situation deteriorates:*

- **Reductions in soil fertility**
- **Declines in on-farm conservation and/or irrigation practices**
- **Decreased biodiversity due to asset stripping, selling of firewood, increased harvesting of wild food, game etc.**
- **Fallow land returning to bush**
- **Decline in quality of land in permanent crops**
- **Renting or leasing out portions of the household's landholdings**
- **Sale of land**

#### **Social Capital Effects**

*These effects are expected to be of medium-high importance in Models 1 and 2, and high in Model 3 as the situation deteriorates*

- **Relationships with extended family members;**
- **Linkages to formal and informal community organizations** (social support groups)
- **Community labour sharing for agricultural production, housework, and/or child care**
- **Extended family and/or community willingness to foster orphaned children**
- **Community willingness to support educational and nutritional needs of orphaned children** (school fees, uniforms, supplemental feeding, etc.)

#### **Physical Capital Effects**

*These effects are expected to be of medium-high importance in Models 1 and 2, and high in Model 3 as the situation deteriorates*

Once savings and credit resources have been exhausted and liquid assets have been disposed of, households resort to selling of other assets.

- Housing (condition may deteriorate)
- Livestock
- Household goods
- Equipment
- Tools
- Bicycles
- Radios

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