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Key Findings

- Nearly all poor rural households in the remoter mountainous parts of Viet Nam depend to some degree on poultry.
- The majority of Viet Nam's poor poultry keepers, however, are smallholders, living in the densely populated lowlands, where market transactions and movement of goods, livestock and people are most frequent.
- The two main HPAI risk clusters not only coincide with irrigated rice areas in the lowlands, but also with areas of good market access and high poultry transactions.

Controlling Avian Flu and Protecting People's Livelihoods in the Mekong Region

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Poultry and Poverty in Viet Nam

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Highly pathogenic avian influenza, 'bird flu', presents an unusual opportunity for international cooperation because millions of poor rural households can contribute significantly to the global commons of pandemic disease prevention. However, their participation in this effort must be better understood and indeed rewarded if success is to be achieved.

Bird flu constitutes a serious threat to poor rural smallholder poultry producers, both directly through mortality, but probably even more so indirectly through the rigorous disease control measures applied by animal health authorities. The latter may deprive households of small but valuable amounts of protein in their diets, much needed petty cash income, and, most importantly, an investment opportunity for escaping poverty.

Typically, in rural areas of most developing countries, the vast majority of households, many of them living below the respective national poverty line, keep poultry. If adverse impacts on these poultry keepers are to be avoided, and if they are to contribute to HPAI risk reduction, it is essential to develop and implement control strategies that are adapted to initial conditions and local institutions. Because of diversity in the former (both between as well as within countries) and complexity of the latter, economy-wide prescriptions and 'rules of thumb' are unlikely to achieve anything close to optimum control strategies.

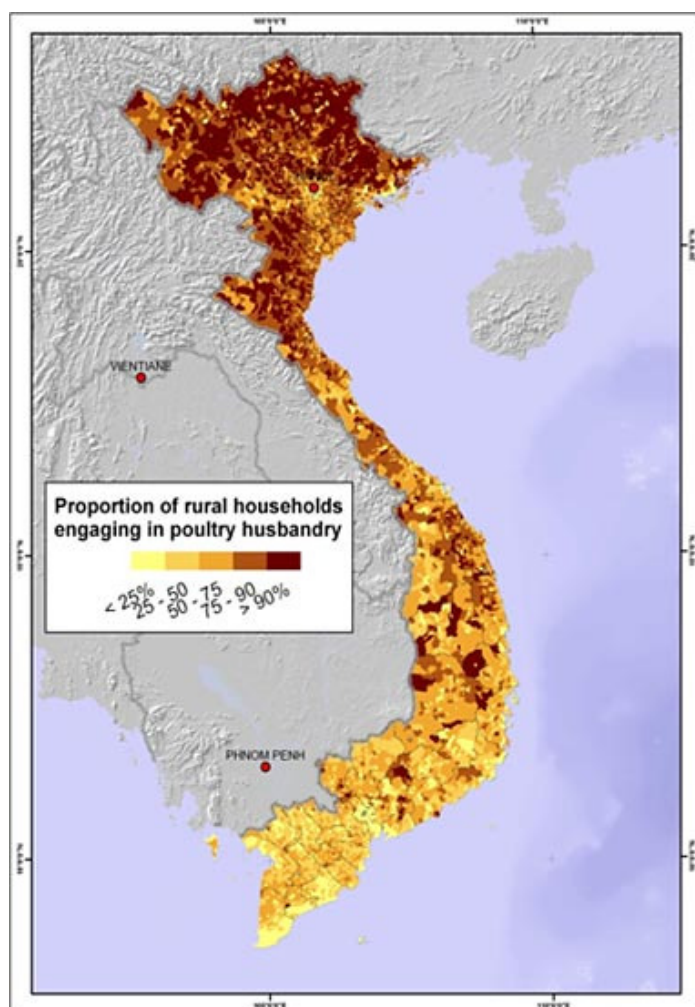
With the aim of contributing to evidence-based and equitable disease control strategies the DFID-funded HPAI Research Project is promoting a systematic approach to address the global HPAI risk, which combines rigorous epidemiological and economic analysis with risk management, stakeholder consultation and policy influence. The approach is currently being developed and applied in the

Mekong region with important insights emerging from Viet Nam, one of the most severely affected countries. This brief is a spatial description of the initial conditions in poultry keeping found in Viet Nam before the first outbreak of HPAI.

Rural Agricultural Income

Agriculture, being the source of over 60% of rural income, remains the predominant source

Figure 1: Share of rural households engaged in poultry raising.



Source: Ag. Census 2001, Authors' calculations

of income in rural Viet Nam. Although crop production is the most important aspect of rural agriculture, livestock make an important contribution to rural household income.

Livestock is generally more important in the northern part of the country, where it contributes up around one quarter of rural household income, compared to slightly less than 10% in the South.

Within the livestock enterprises, poultry production constitutes an important contribution to rural household income. Although accounting for only slightly above 3% of the total rural income at a national level, poultry accounts for almost one quarter of the total income from livestock.

As with livestock overall, poultry production tends to be more important in the North compared to the South, ranging from 27% of rural livestock income in the northern uplands, to 18% in the Mekong River Delta.

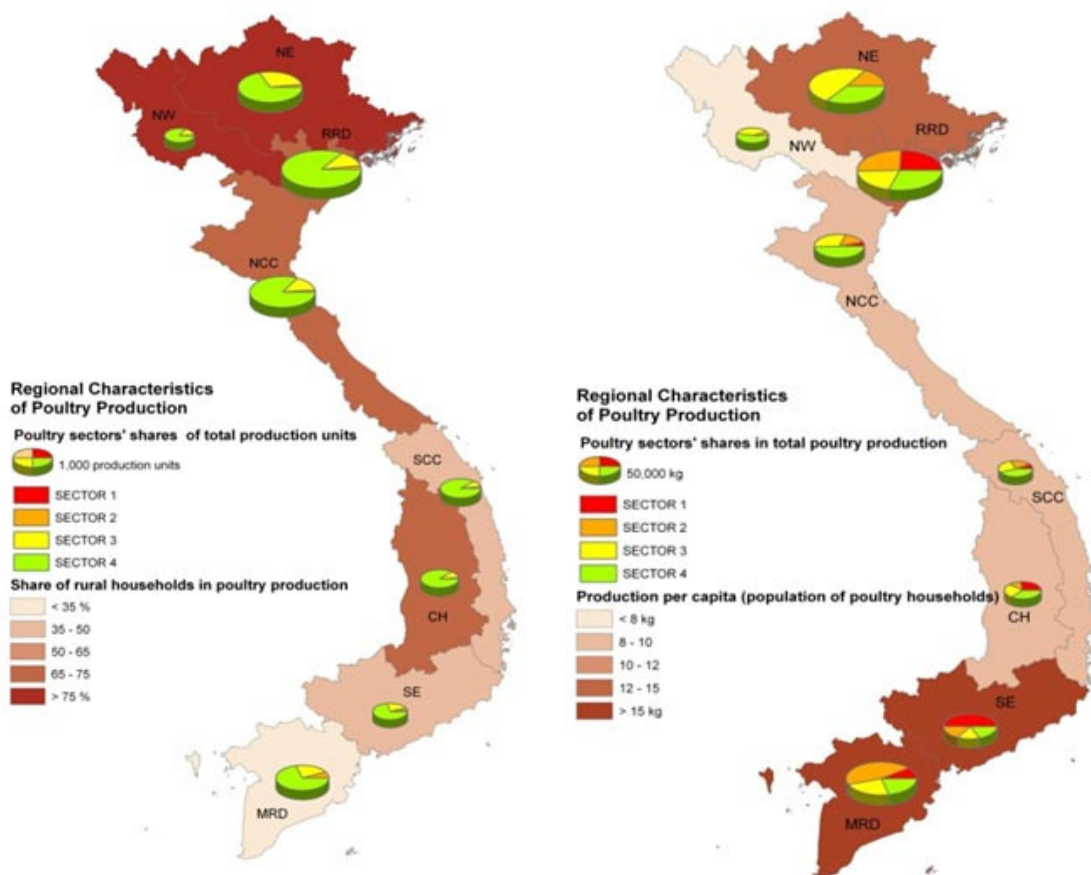
Characteristics of Poultry Producers

Poultry keeping is very prevalent in Viet Nam, particularly in the northern mountains, where in many communes almost all households keep poultry – typically over 90% of all households in this region (Figure 1). Although most rural households in Viet Nam derive the bulk of their subsistence income from cropping, poultry act as an important source of protein and constitute an investment, which yields extremely high returns. In Viet Nam, approximately

half of all households, rural and urban, keep chickens. While chicken are the most common species of poultry in Viet Nam, ducks are the predominant poultry species in the Mekong River Delta. Ducks and geese have been shown to play an important role in the epidemiology of HPAI in Southeast Asia. Epidemiological models of the spread of avian influenza therefore need to take into account spatial differences in poultry population structure, and related to that, production cycles and marketing patterns.

In Viet Nam, poultry are mostly kept as backyard flocks by smallholder farmers who achieve an average annual per capita income of less than USD 200 per year. Birds are left to scavenge for feed and receive minimal inputs. Average flock size prior to the HPAI epidemic

Figure 2: Regional characteristics in poultry keeping and production.



Source: VHLSS 2002, Authors' calculations

was around 16 birds (4 hens, 1 cock and 11 growers and chicks), with slight variation between regions. In general, flocks are fewer but larger in the South compared to the North of Viet Nam. Only one percent of flocks consisted of more than 100 birds.

For ease of communication, FAO has subdivided poultry production into four broad sub-'sectors', S1 to S4. Categorization is based mainly on scale of production and market-orientation. Drawing on data from the 2002 VHLSS, households were classified as falling into one of the four sub-sectors according to their annual production based on the following

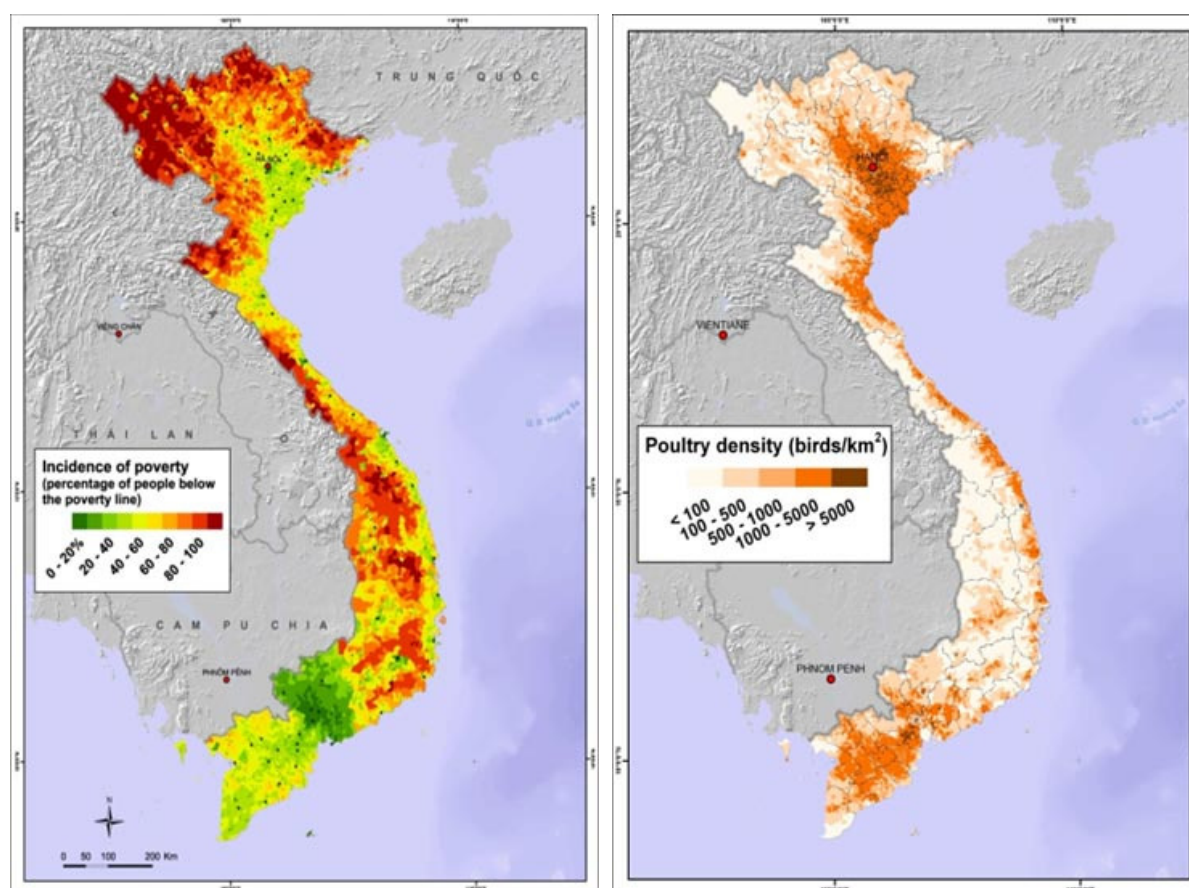
definitions: S1: >2000kg; S2: 201-2000kg; S3: 51-200kg; and S4: 1-50kg. As can be seen in Figure 2, the vast majority of poultry keeping households falls into Sector 4 across all regions.

The right map in Figure 2 depicts the contribution of poultry sub-sectors 1 to 4 to regional poultry production. While the vast majority of the poultry keepers are smallholders, a large share of the total poultry output is produced by the relatively few larger poultry farms. In the Southeast, nearly half of total poultry produce stems from farms classified as S1 while in the Mekong River Delta S2 farms provide almost half of the regional production. In the Red River Delta, the region with the highest overall production, around one half of poultry production stems from S1 and S2 farms. In the Northeast, which produces almost as much poultry as the Red River Delta, S4 and S3 farms account for more than three quarters of poultry production, similar to what can be observed in the remaining regions.

Poultry Keeping and Poverty

Poultry keeping is of considerable importance to the poor in many parts of the country.

Figure 3: Spatial patterns in poverty incidence and poultry distribution.



Source: Minot *et al*, 2006, Ag. Census 2001, Authors' calculations

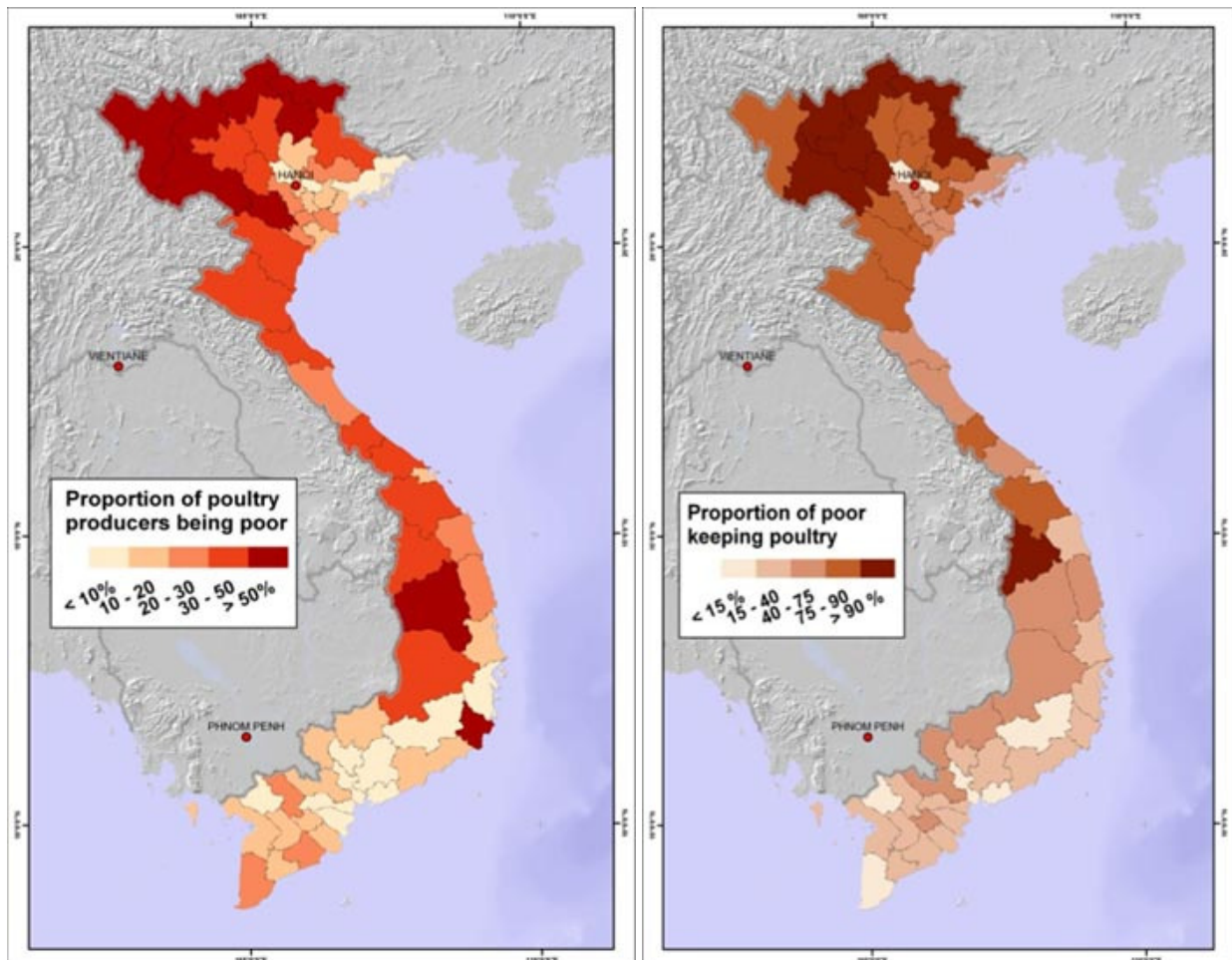
Although an average contribution of less than five percent to total household income might appear relatively small, for households living below the poverty line, this contribution can be

critical. Indeed, the lower the income group, the higher the average contribution to income made by poultry.

A glance at the maps depicting the incidence of poverty in communes on the one hand, and the spatial distribution of poultry on the other (Figure 3), illustrates that the vast majority of the poultry are kept in the relatively less poor lowland areas.

While this might appear to be implying that poultry are not a typical poor man's / woman's livestock, Figure 4 illustrates that poultry is in fact very much a livestock asset of the poor: Poultry is particularly important to the poor in the northern mountains and in the central highlands, where almost all poor households keep poultry, and where the majority of poultry keepers are poor.

Figure 4: Poultry keeping and poverty.



Source: VHLSS 2002, Authors' calculations

Furthermore, as illustrated in Figure 5, the majority of the country's poor live just where the vast majority of the birds are kept. Indeed, most poor poultry keepers live in the densely populated lowland areas of the two large river deltas and along the coast.

Conclusions

Poultry is a relatively small, but important source of food and income for poor households in large parts of Viet Nam. Most households in the mountainous parts of the country depend to some extent on poultry, with the majority of them being poor. The vast majority of Viet

Figure 5: Poverty density.

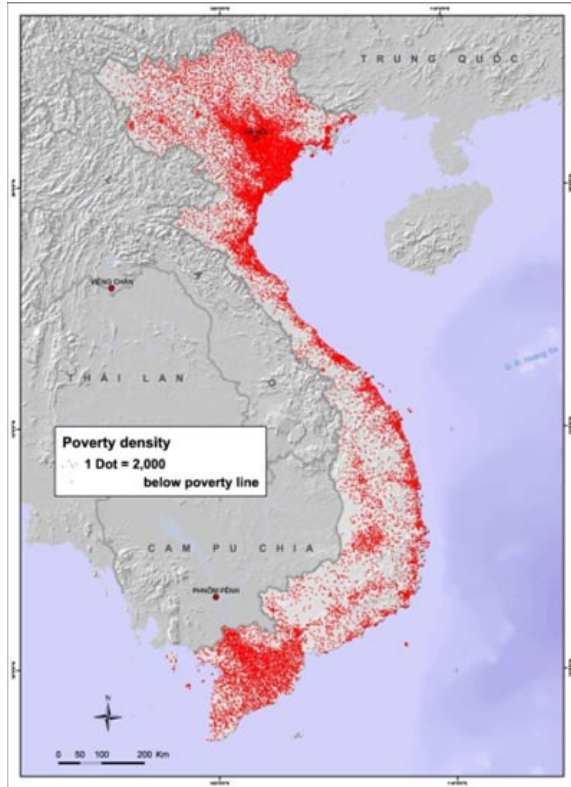
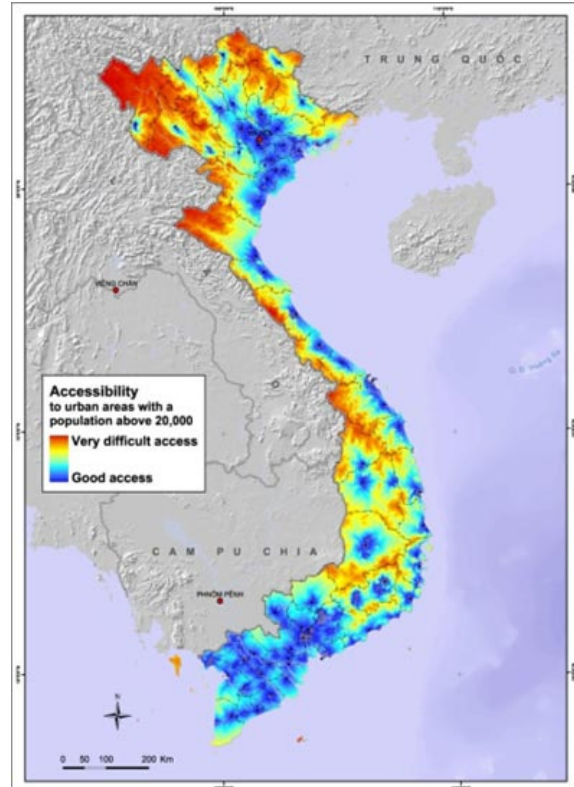


Figure 6: Accessibility to towns.



Source: Minot *et al*, 2006, Authors' calculations

Nam's poor poultry keepers, however, live in the lowlands, where densities of people and livestock are highest, movements of goods, livestock, and people most intense, and market transactions most frequent. These market transactions are likely to play an important role in the transmission of HPAI between flocks. The two main HPAI risk clusters identified based on past outbreaks not only coincide with irrigated rice areas of the lowlands, which have been identified as an important risk factor, but also with areas of good market access (Figure 6). This becomes particularly clear in the most recent epidemic wave, where a number of outbreaks appear to be associated with roads leading into the northern hinterland.

References:

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