‘One health’ and development priorities in resource-constrained countries: policy lessons from avian and pandemic influenza preparedness in Zambia

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‘One World, One Health’ has become a key rallying theme for the integration of public health and animal health priorities, particularly in the governance of pandemic-scale zoonotic infectious disease threats. However, the policy challenges of integrating public health and animal health priorities in the context of trade and development issues remain relatively unexamined, and few studies to date have explored the implications of global disease governance for resource-constrained countries outside the main centres of zoonotic outbreaks. This article draws on a policy study of national level avian and pandemic influenza preparedness between 2005 and 2009 across the sectors of trade, health and agriculture in Zambia. We highlight the challenges of integrating disease control interventions amidst trade and developmental realities in resource-poor environments. One Health prioritizes disease risk mitigation, sidelining those trade and development narratives which speak to broader public health concerns. We show how locally important trade and development imperatives were marginalized in Zambia, limiting the effectiveness of pandemic preparedness. Our findings are likely to be generalizable to other resource-constrained countries, and suggest that effective disease governance requires alignment with trade and development sectors, as well as integration of veterinary and public health sectors.

Keywords Avian influenza, preparedness, development, trade, one health

KEY MESSAGES

- The ‘One World, One Health’ concept facilitated inter-sectoral planning for avian influenza preparedness in Zambia.
- Sidelining trade and development narratives limited the effectiveness of influenza preparedness in Zambia.
- To maximize effectiveness for global public health, One World, One Health initiatives must accommodate broader development and trade perspectives.
Introduction

‘One World, One Health’ (Kahn et al. 2007) has become an important rallying theme for the integration of human health, animal health and environmental priorities in the governance of pandemic-scale infectious disease threats, a response to the mounting evidence highlighting the large contribution that zoonoses make to human infectious diseases (Cleaveland et al. 2001; WHO, FAO and OIE 2004; Stewart et al. 2005; Greger 2007). One Health found renewed relevance in the maelstrom of the Asian-lineage H5N1 avian influenza crisis, a poultry disease with zoonotic potential that was first identified in Hong Kong in 1996 (Xu et al. 1999). Following H5N1-related human fatalities, concern grew within the global public health community that this could be the start of a human pandemic. Three international organizations, the World Organization for Animal Health (OIE), Food and Agricultural Organization (FAO) and the World Health Organization (WHO), battled to control H5N1 panzootic and zoonotic outbreaks in Southeast Asia and beyond. Guided by their institutional mandates, the three organizations naturally framed the problem differently: as a technical intervention issue; a livelihood conservation issue and a socioeconomic and pandemic concern, respectively. The success of the One Health Initiative has been attributed to its utility for uniting these disparate framings (Chien 2013). However, for national governments, and of course the social determinants of health, infectious disease sits alongside broader public health imperatives, including those affected by development, trade and the economic sector. The policy challenges of integrating animal health and public health priorities in the context of trade and development issues remain relatively unexamined. Indeed, for avian influenza, Scoones (2010) has noted that the effect of global disease governance outside those countries at the epicentre of the crisis have been largely undocumented in general, despite the international response having widespread impact on national policymaking in countries such as Zambia (Mwacalimba 2012). This article addresses this gap in knowledge.

We take Scoones’ (2010) concept of ‘policy narratives’ to frame our consideration of the policy lessons from the Zambian experience. In his analysis of international responses to avian influenza, Scoones suggests that policy narratives are important framing devices, which define: how disease is understood; which actors are more or less likely to be mobilized or marginalized; which policy options are opened up or closed down and whose interests are more likely to be met. We outline dominant policy narratives in Zambia, focusing on ‘One Health’ as a co-ordinating narrative of disease response, and on consequences of the marginalization of trade and development within the policy process. For resource-poor settings like Zambia, we conclude that a strong development focus, considering the implications for trade across global networks, is an important element for developing effective disease governance policies which do not further disadvantage low-income countries.

International policy narratives

Scoones and Forster (2010), in their examination of the international policy response to the Asian-lineage H5N1 crisis, identified three core ‘outbreak’ narratives: a veterinary narrative linking animal health and agricultural livelihoods; a public health narrative and a pandemic preparedness narrative. The veterinary narrative, and poultry-origins of H5N1, made a strong case for technical interventions within animal populations. For the veterinary fraternity, avian influenza was viewed as a technical problem to be controlled through their standardized, time-tested approaches to animal disease control. The brunt of the outbreak response focused on ‘at-source’ containment in the poultry populations of affected countries, based on mass-culling, movement controls, trade restrictions and poultry vaccinations. The public health narrative focused on the risk of human-to-human spread. Its mainstay was pharmaceutical intervention and public awareness, with western economies scrambling to ‘stockpile anti viral medications and vaccines’ (Elbe 2010, p. 476) for preparedness efforts, vaccines whose production depended on H5N1 virus strains recovered from outbreak countries (Elbe 2010).

The third, wider outbreak narrative, framed H5N1 as the potential pandemic ‘big one’: the next major humanitarian and economic disaster with potential for similar social disruption and mortality as the 1918 Spanish Influenza pandemic (Taubenberger and Morens 2009; WHO 2006). This outbreak narrative spurred the development of national contingency plans across the world, drawing on WHO pandemic preparedness guidelines (WHO 2005).

The ‘One Health’ response was advocated to mitigate this pandemic threat, focused on strengthening veterinary control systems in addition to human pandemic preparedness, addressing the pandemic risk at-source (WHO 2005). The zoonotic nature of this threat required that, at national levels, the response be driven by a close collaboration of animal health and public health institutions (WHO 2005). But, the mainly technocratic outbreak narratives were nested in a broader typology of international narratives encompassing risk and uncertainty, economy and livelihood impacts, effects on health and extent of disease and effects on food and farming.

Marginalized in international debates were framings which focused on potential underlying causes of disease outbreaks or which focused on deeper socio-ecological structures that shape endemic disease, such as poverty or equity. That the focus was on ‘outbreak’ management was partly exacerbated, argue Scoones and Forster (2008), by western anxieties around globalization and the growing risk of infectious agent spread through modern trade and travel (Kimball 2006). This resulted in a dichotomous containment strategy casting the global North as being ‘at-risk’ from ‘at-source’ outbreak areas in Southeast Asia and, later, Africa. Amidst the media speculation and scrutiny, the need for a simple presentation of the H5N1 problem and its solutions in mainstream policy discourse meant that contextual differences were perhaps downplayed in the development of the response to H5N1. The development of control strategies appropriate for Africa was not considered, for instance (Scoones and Forster 2010), but the WHO Regional Office for Africa made sweeping comparisons between Asian and African poultry production systems to justify similarities in risk and provide recommendations for prevention and control (WHO/AFRO 2005).

The complexity of the international response reflects the very different ways that pandemic influenza can be understood and
framed; and this potentially shapes the ways in which One Health is actualized in national contexts. This article takes Zambia as a case study of how international inter-sectoral policies for pandemic preparedness were implemented at a national level in a country that was outside the epicentre of avian influenza outbreaks, yet affected by the international response.

Methods
This article draws on a study of avian and pandemic influenza policy development in Zambia over the period 2005–09 which aimed to explore how risk was conceptualized by animal health, public health and trade policy makers in Zambia, and to identify international, institutional and contextual factors that influenced the implementation of multi-sectoral infectious disease risk management (Mwacalimba 2012, 2013). Data included in-depth interviews with 37 decision-makers and stakeholders, review of policy documents, participant observation in activities such as planning meetings and field simulations and a media analysis. Interviews were conducted in Zambia between 1 June and 22 December 2009, and took the interviewee through the development and current state of pandemic preparedness. Data were analysed thematically drawing largely on a ‘framework’ approach (Ritchie and Spencer 1994). This study was approved by the London School of Hygiene and Tropical Medicine (LSHTM) Research Ethics Committee and the Research Ethics Committee at the Ministry of Health (MOH) in Zambia.

This article draws largely on interview data to focus on how the risk of avian and pandemic influenza was constructed in Zambia; the relationships of these national-level narrative framings to the global narratives outlined above; and the implications of the tensions between global and national narratives for the One Health concept.

Results
The initiation of the policy process in Zambia was driven explicitly by the outbreak narrative, which was evident in the call for pandemic preparedness issued by WHO, FAO and OIE at the height of the H5N1 saga in 2004 (WHO 2005). Following this call, a number of national actors were recruited to a multi-agency Task Force on avian influenza, established in 2005, and including representatives from agriculture, health, the poultry industry, academia and local media, under the guidance of representatives of international organizations including the World Bank and FAO. To Zambia, H5N1 was presented as an ‘imminent threat’ by media reports of possible ‘bird flu’ outbreaks in Zambia’s poultry (as archived by Xinua News Agency 2005) and the government’s own response to the call for pandemic preparedness through a Cabinet Memorandum issued by the then Minister of Health, Sylvia Masebo, seeking government resources to deal with, ‘the threat of the avian and human influenza which was coming’ (Interview 11, Ministry of Health). The Task Force, facilitated by FAO and attended by WHO, was co-chaired by the Ministry of Agriculture and Co-operatives (MACO) and the MOH (Mwacalimba 2012). Its membership included representatives from: the Ministry of Local Government and Housing, the Zambia Revenue Authority, the Ministry of Home Affairs, the Office of the Vice President (Disaster Management and Mitigation Unit), the Ministry of Tourism and Environment, the Ministry of Finance and National Planning, the District Health Management Team (under the MOH), FAO, WHO and USAID. A National Avian Influenza Working Group was then instituted to be the technical arm of the Task Force, made up of a core assemblage of designated personnel from the ministries of Health and Agriculture. This mix of actors brought to the table provided the scaffolding for a ‘One Health’ narrative; a narrative which reportedly mobilized collaboration:

We are approaching this disease control strategy from what we can say ‘One Medicine’ kind of approach. So the veterinary side as well as the human side are working together because of the nature of the disease . . . it cuts across livestock as well as the humans (Interview 8, Task Force).

One Health, it seems, was a plausible umbrella under which to carry out multi-sectoral avian and pandemic influenza preparedness. It espoused, for many respondents, the idea of a close and lasting collaboration among stakeholders in addressing a ‘cross-cutting’ disease problem. However, if ‘One Health’ was an effective ‘call to arms’ particularly in the context of the initial ‘imminent threat’ framing of a potential disease outbreak, it transpired that a number of different understandings of the avian and pandemic influenza problem were also utilized by various stakeholders. These alternative narrative framings motivated, or in some cases, demotivated their participation in the pandemic planning process, and had significant implications for the implementation of national policy. It is such motivations and their related narratives that define what One Health actually meant for the different actors in this policy process.

Issue framing: an overview of national narratives in Zambia
Six narratives in particular emerged from the data, suggesting some different implicit ways of framing the issue in Zambia. These problem definitions reveal the framing assumptions under which the different stakeholders acted, or chose not to act, to address national avian influenza and pandemic preparedness. We first briefly review the dominant national narratives, some of which resonated with the global narratives identified by Scoones and Forster (2008, 2010). We then explore in more detail those which articulated less easily with the dominant One Health framing, particularly those relating to trade and development.

H5N1 is an exotic emerging disease
Throughout the period 2005–09, there was a recurrent view among some veterinary stakeholders that H5N1 was alien to Zambia. As one senior veterinary member of the Task Force put it: ‘We don’t have avian influenza as you know. It is an exotic disease to us, but it is a possible emerging disease’ (Interview 4).
**H5N1 is a zoonotic disease of limited zoonotic potential**

Second, and perhaps a view that sits uneasily with the One Health concept, was a framing of H5N1 as a predominantly animal problem with limited zoonotic potential. A senior veterinary epidemiologist in MACO described avian influenza as ‘basically ... more of an animal disease which then moves into human beings’ (Interview 2). Implicit within this narrative is a justification for animal health being at the helm of any prevention measure.

**The highest risk for H5N1 emergence is peasant farmers with poor biosecurity and low awareness**

Third were echoes of the international narrative on the H5N1 risk presented by smallholder, or ‘backyard’, poultry production. Despite the contextual differences between countries in Southeast Asia affected by H5N1 and Zambia (particularly with regard to typical farming practices), framed in a biosecurity narrative, smallholder poultry producers were viewed as representing the biggest risk for introducing avian influenza into the country. As one non-governmental organization poultry consultant put it:

> [W]e believe that avian influenza may come from a poor farmer who doesn’t believe in biosecurity ... we see most of these guys as lack of ... knowledge. They don’t really understand some of these issues so we think that it is from there, lack of information and knowledge that the disease can come... (Interview 6).

The debate over the relative roles of commercial vs backyard farming in avian influenza spread (see e.g. GRAIN 2006; GRAIN 2007) did not feature in the preparedness discourse in Zambia. The focus remained largely on smallholder poultry production:

> [I]t is widely accepted that these sectors (breeders and commercial producers), because of their biosecurity levels, chances of them actually getting avian influenza are pretty minor. That’s why FAO doesn’t want to deal with them...So we are dealing with (sector) three and four; these are the emerging and the traditional farmers (Interview 5, MACO).

**H5N1: a bird disease that represents a pandemic threat**

A fourth narrative, voiced by stakeholders in the health ministry was largely couched within WHO concerns about the social disruption that a fully zoonotic and pandemic avian influenza would cause, with some stakeholders’ views resonating more closely with the pandemic preparedness narrative: ‘There is an understanding that this disease of birds can now infect human beings. To what extent it affects human beings, you go back to the (WHO) avian and human influenza pandemic phases,’ (Interview 11, MOH).

**A disease whose treatment in humans is known to be highly technical and resource intensive**

Fifth, also emerging from within the health ministry, was a more practical narrative concerning triage, specifically, the health system’s (limited) capacity to cope should a massive avian influenza outbreak occur in humans. This concern underpinned an orientation towards action to prevent, rather than prepare for, avian and pandemic influenza, reflected in the statement by one communication officer:

> [T]he nature of management of a patient with avian influenza is highly technical and we are not in a position to manage to treat a lot of patients if we had... because a lot of them would need to be managed possibly under intensive care kind of management. (Interview 10, MOH).

**A disease that could affect Zambia’s trading status**

Finally, less forceful within international narratives, but noteworthy for its importance at the level of national narratives, was a problem framing that prioritized H5N1 as a real and potential threat to trade and industry, especially given that perceptions of avian influenza risk, rather than actual incidence, would impact on poultry and poultry product production. This practical concern was the likely impact that an H5N1 outbreak would have on trade, especially for Zambia’s fledgling poultry industry, ‘It poses a danger to our own exports because once the poultry products... from Zambia for example are found to be infected with that avian influenza then we cannot export it’ (Interview 17, Ministry of Commerce, Trade and Industry). A prominent member of the Poultry Association of Zambia (PAZ) also corroborated this concern, ‘You may wish to know that in the region, it’s only this country that has not recorded any major disease outbreak and hence we are considered the cleanest environment in the whole region. And we would want to remain as such’ (Interview 16, PAZ).

These definitional narratives convey the different perceptions of risk evoked by stakeholders across the animal health, public health and trade sectors. These problem definitions represent three distinct ways in which the risk of avian and human influenza was perceived in Zambia. First, the reality, as understood by decision-makers, was that H5N1 was an ‘exotic’ condition, that is, not in the country, but that it was a trade threat. Secondly, there was the understanding of its zoonotic potential and where some of the risks lay, that is, a condition of poultry whose risk of spread is related to poor ‘biosecurity’. Third, were public health concerns about the implications for Zambia should an H5N1 incursion occur and become fully zoonotic.

**Multi-sectoral pandemic preparedness in the context of trade and development**

These narratives should be examined within the wider trade and development context. If One Health had been a persuasive framework for mobilizing diverse framings within the initial Task Force in 2005, the ‘imminent threat’ framing inevitably lost its momentum over the following years as continued efforts (and funds from international donor agencies, largely the World Bank) were directed at response plans for a disease with no local cases, and still largely perceived as an ‘exotic’ threat (Mwacalimba 2013). At this point the tensions between multi-sectoral pandemic preparedness and issues of trade and development began to emerge.

With the loss of momentum, the continued focus on a disease of poultry generated policy tensions with implications for pandemic preparedness. For livestock production, the country’s development priorities were focused on strengthening the
control of diseases of economic importance and fostering economic liberalization (GRZ 2004). Implicitly, this meant the control of cattle diseases, which meant that for decision-makers in the veterinary sector, poultry production was in general a low priority.

When you look at our focus, we are more oriented towards cattle. So most of the diseases that affect cattle are given priority…. And probably you will look at it and what you get is that birds or bird diseases are not so significant or are not so associated with major economic losses. And, I think, it’s not just because it is avian influenza and it is not there, it’s because its poultry and it’s not so significant. It’s not written but it is implied in the way we do things (Interview 4, MACO).

Cattle are historically a larger contributor to exports and subsistence, and the burden of diseases including tick borne diseases, foot and mouth disease (FMD) and contagious bovine pleuro pneumonia (CBPP) have decimated stocks for over two decades (Makala et al. 2003; Muma et al. 2009). Neither H5N1’s absence in the country, nor its strong association with poultry, could be properly reconciled with these economically ‘more important diseases’ that the veterinary department had to deal with, from limited resources:

I mean you have to remember that they [other animal diseases] already exist in Zambia. We have FMD, it’s spreading like fire, ok? So definitely the Government provides funds for FMD, because it’s there. The Government will definitely provide funds for CBPP because it’s there on the ground, right now. (Interview 5, MACO).

In this context, the finances and veterinary person-hours spent on H5N1 were essentially viewed as wasteful. Although the funding for preparedness planning had largely come from international donor agencies (Mwacalimba 2012), considerable person-hours of (limited) veterinary and other workforce had been devoted to activities such as serum sample collection in wild and domestic poultry, training and capacity building, educative extension and attendance of avian influenza emergency preparedness planning meetings. As one senior veterinary officer put it, ‘Yes you can argue for emergency preparedness but I think over and above, a lot of resources have gone into this (avian influenza) which should have been focused on the more important diseases for the country’ (Interview 4, MACO).

Around 64% of Zambian households own poultry (CSO 2004). These are largely traditional producers with around 10–15 chickens in free range conditions, using indigenous species. Zambia’s commercial poultry sector is a mix of larger backyard producers and emergent commercial broiler and layer farmers, who use locally produced feed and imported poultry breeding stock (DVLD 2009). The sector has grown since trade liberalization, with production estimates of 30 million broiler birds annually and 6 million eggs monthly (DVLD 2007; Munang’andu et al. 2012). According to our respondents, Newcastle disease outbreaks in neighbouring Zimbabwe instigated a poultry import ban in Zambia, and the collapse of Zimbabwe’s poultry industry in 2004 created a void in the market that PAZ explicitly exploited with a plan to double production (Mulemba 2009; Sayila 2008). The growing poultry production sector therefore represented not only an emerging trade opportunity, but also one with an important gender development dimension that resonated with national plans on gender equality (GRZ 2006), given that over 45% of small-scale poultry producers in the country are women (Sayila 2008).

PAZ faced both opportunities and threats from the global avian influenza situation. As unsubstantiated media reports of ‘bird flu’ outbreaks in Zambia began to impact negatively on the local industry, PAZ was motivated to counter negative reports to restore industry productivity, issuing their own media statements and producing the first information brochures on avian influenza sent out to farmers. PAZ became the official liaison between its countrywide membership and the Task Force secretariat. However, in an agricultural culture that did not prioritize diseases of poultry, PAZ remained peripheral to the core decision-making process for avian influenza prevention and control, despite avian influenza having a real and present threat in terms of local trading, with potential consequences (both positive and negative) for export markets. PAZ in particular had vested interests in a trade ban to protect emerging trading markets:

We engaged government and we agreed that we should actually go the route of banning poultry and poultry products into the country and that has been the practice up to now. We do not allow the import of poultry…[except] hatching eggs and pure lines…importation has been limited to those classes of breeding stock (Interview 16, PAZ).

For purposes of trade promotion, the Zambian government had in existence a policy framework for improving the efficiency of local and export trade service provision and strengthening sanitary and phytosanitary service delivery in MACO (GRZ 2006). Through a sustained commitment to multilateral trade negotiations within a private-sector development framework, including the strengthening of trade standards infrastructure in the country, the commerce ministry was a key factor in trade sanitary concerns, with a mandate to promote export-led economic growth and improve local competitiveness, a policy position that benefited the poultry industry:

The Ministry of Commerce, Trade and Industry… I think we have had a very healthy relationship with them… We have engaged in serious discussions with regards to trade. I think that is where we are getting hope as an industry because they seem to understand us better than our own ministry (Agriculture). It could be because of the Ministry of Commerce and Trade has taken it upon itself to try and promote the exports of the Zambian products and one among such products are poultry and poultry products (Interview 16, PAZ).

The Ministry of Commerce, Trade and Industry was therefore vested in both the poultry industry’s local and international viability. However, they were marginalized within a policy
process which framed avian influenza as predominantly an animal health concern:

[M]inistry of Commerce was not really part of our Task Force. Maybe we didn’t see it at the time as really a need for them to be on board, but in terms of controlling trade with regard to animal health issues, we are involved with Ministry of Commerce, the three line ministries in importing agricultural commodities is the Department of Vet, ZARI: Zambia Agricultural Research Institute, and the Ministry of Commerce. So with regard to trade, we do work with Ministry of Commerce, but with regard to avian influenza, we really didn’t have them in the Task Force (Interview 2, MACO).

Furthermore, commerce representatives largely shared a view that their role was properly marginal both in the initial Task Force and continued preparedness activities: ‘We are not [the ones] to handle this…Basically this is an issue of medicine and the veterinary services’ (Interview 18, Ministry of Commerce, Trade and Industry).

The limited involvement of trade and commerce representatives in the Task Force and other inter-sectoral pandemic preparedness policy initiatives was evident in the lack of shared knowledge about disease risks and mitigation strategies across the sectors of trade, health and agriculture. One senior representative from MOH, for instance, believed that there was not a trade ban in place: ‘It was not a policy of government, no’ (Interview 9) and a representative of the Ministry of Commerce was unaware of the risk from poultry: ‘We have not defined what avian flu is…what I have gathered is that it is transferred through human beings, right?’ (Interview 17).

The marginalization of trade and broader development issues from dominant policy narratives in Zambia had practical implications for the effectiveness of the poultry trade ban, instigated by the Veterinary Department in 2006. Zambia’s long and porous borders with eight other countries, over which considerable movement and trade occurs, are nearly impossible for the understaffed veterinary department to monitor. The porousness of the borders was evident during a surveillance trip to investigate the finding of day old chicks from Tanzania on the Zambian side of the border. Personnel from the Department of Veterinary and Livestock Development, after questioning how the chicks had arrived in Zambia under the nose of local veterinary officials, later camped at a lodge on the Tanzanian side of the border, accessed by a road with no checkpoint. Effective trade constraints would normally rely on a statutory instrument initiated by the Sanitary and Phytosanitary (SPS) committee, an organization which already brought together trade, agriculture and veterinary specialists to monitor and control cross-border plant and animal product trade. This would provide customs officers with a mandate to confiscate and destroy goods. However, the SPS committee had no such mandate for avian influenza policy, or even representation on the Task Force. The 2006 trade ban was announced, but never implemented through such a statutory instrument. Outside these systems, and reliant solely on poorly resourced veterinary teams, the trade ban as instituted was ineffectual and largely symbolic. More importantly, given that almost all poultry breeding stock are air freighted into Zambia, a critical link to the global poultry industry, there was no link to the potentially productive point of surveillance of the Ministry of Commerce’s existing Automated System for Customs Data programme, a trade customs management system used in the generation of trade data for statistical economic analysis.

Discussion

We have suggested that global governance, and international donor funding, successfully articulated a One Health framing within Zambia, but that this framing marginalized important national trade and development stakeholders from the initial Task Force. National narrative framings reflected international ones, in that they focused primarily on emergency management, and then on building capacity in the veterinary sector, but these sidelined key national policy actors whose involvement would have strengthened and sustained the response. The marginalization of trade and development in particular, two sectors that are crucial to broader livelihood and public health planning, limited the immediate effectiveness of a trade ban, and hindered the longer term sustainability of any multi-sectoral disease control strategy. Under the Zambian government’s overarching objective of promoting economic growth (GRZ 2006), a stronger commerce ministry presence may have provided a more coherent link between the avian and pandemic preparedness agenda and wider country trade and development priorities. We have shown how the trade sector’s view of the risk from H5N1 in Zambia was essentially pragmatic, in line with the wider ramifications of H5N1 for the poultry industry’s wellbeing. Sideline from the Task Force, the commerce ministry was largely unaware of H5N1’s zoonotic potential, or the potential implications for Zambia’s health system. Furthermore, few stakeholders reflected on the broader implications of animal or human health for development priorities, despite these being core to Zambia’s development plan (GRZ 2006).

What can the One Health Initiative learn from this? Integration is important, but the complexity of the global policy arena entails meshing national priorities with those of global disease governance (Mwacalimba 2012). The One Health movement, in focusing on human and animal health primarily through the lens of infectious disease risks, downplays the political and social determinants of public health (Green 2012). In the case of avian and pandemic preparedness in Zambia at least, our findings suggest that there were significant challenges to integrating a disease control initiative that lacked a strong development narrative. In the case of Zambia, a donor-defined policy process influenced the politics of the preparedness agenda, putting stakeholders such as Agriculture at the helm of what they viewed as a marginal poultry problem. Stakeholders from health, however, framed the issue as a resource-intensive public health threat, and trade stakeholders primarily identified a threat to commerce. Our findings help explain the conclusions drawn by Ortu et al. (2008) that the preparedness plans they reviewed in African countries, while robust in their address of influenza in animals, were weak in their response to pandemic influenza. The ‘imminent threat’ of an H5N1 outbreak in Zambia was constructed from an
international ‘at-source control’ agenda, largely generated from the erroneous lumping of south-east Asian and African farming practices as equally dangerous in the outbreak concerns of the international community. This, we suggest, resulted in an inadequate scoping of the real and potential contextual ramifications of H5N1 in the national context of Zambia. Problem framing at international level, that is, the ‘outbreak’ narrative, was very different from the reality and the framing assumptions of the avian and pandemic influenza problem nationally. In particular, international donor requirements which sidelined the commerce ministry, and ignored completely a development focus in the process meant that existing structures for multi-sectoral interaction and information sharing were not best utilized. Global financing for health related interventions have increased substantially over the last decade, coinciding with a growing incidence in the emergence of zoonotic and pandemic threats. But there are contextual constraints to how these threats can be managed. The One Health Initiative is an effective framing for closer collaboration between veterinarians and physicians, but to maximize likely effectiveness in the face of pandemic and zoonotic threats, it must also recognize the social and political dimensions of disease control. As Coker et al. (2011) have recently argued, research to support One Health disease governance requires a ‘grand narrative’ which can unite disparate policy framings. We suggest that this needs to include development and livelihood narratives, particularly in resource-poor contexts.

Conclusion
Infectious disease threats such as avian influenza highlight the interconnectedness between humans, animals and their shared environment, and One Health has been a successful initiative for co-ordinating multi-sectoral responses. However, in resource constrained settings such as Zambia, which is neither at the centre of international responses, nor at the epicentre of avian influenza outbreaks, a narrow focus on infectious disease risk downplays the more pressing needs for public health, including those related to trade and development. Pandemic response plans which foster national health priorities, as well as mitigating the perceived risks of the resource-rich countries at the helm of global health governance, will require closer attention to the existing health development needs of resource-constrained countries.

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