Working with veterinary scientists: social science contributions to ‘biosecurity’ research.

by

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December 2008
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‘Applied sociology’ is currently something of a buzzword, with the 2008 TASA conference theme focusing on sociology’s contribution to emerging social issues. This paper discusses this theme with reference to sociological contributions to agricultural (specifically veterinary) science work, by looking at collaborative research to understand and improve ‘biosecurity’ (the risk of spread of animal diseases). Using two case studies as illustrations, it concludes that despite the challenges of working across disciplines, if we take care to ask both applied, but also theoretical and political research questions, and if we speak the appropriate language to engage in productive dialogue, positive outcomes can be achieved.

Keywords: applied sociology; Mode 1 and 2 research; agricultural science; cross disciplinary dialogue

Word count: 3170

The 2008 TASA conference theme focuses on ‘re-imagining’ the contribution sociology can make in engaging with emerging social issues in innovative ways – a goal which the developing field of applied sociology, recently described in Nexus, embraces. This paper
seeks to discuss this theme with reference to the sociological contribution to agricultural (specifically veterinary) science, by exploring work done to understand and improve, ‘biosecurity’.

The context

Sociologists, like academics generally, are increasingly encouraged to attract money from outside sources undertaking collaborative, cross disciplinary, practically oriented research designed to answer others’ questions (Marginson 2000; Turner 1998; Coady 2000; Hazelkorn 2005; Cooper 1998; Tight 2000; Cooley 1981; Turner 1998). The result has been what Gibbons et al (1994) have identified as a trend away from ‘Mode 1’ research (homogenous academic work with clear disciplinary boundaries) to ‘Mode 2’ research (heterogenous, multi or transdisciplinary and applied research). Mode 2 research is driven by the need for knowledge to be of use to someone, usually industry or the state, and requires cross disciplinary/multi-sector collaboration.

It is within this context that the sociology department at Murdoch University was approached by colleagues from the Murdoch veterinary school, and researchers from the Department of Agriculture and Food WA and a private veterinary research company, to collaborate on a project in Southeast Asia. The project, entitled “Understanding livestock movement and the risk of spread of transboundary animal diseases”, recognizes that animal diseases in Southeast Asia cause significant economic losses. These diseases are primarily spread through livestock movements, which are often the result of legal and illegal trade. Significantly, the project acknowledged that movement patterns are driven by multiple complex factors (including social, cultural and economic factors), and that
therefore social scientists would be important collaborators. The ultimate goal of the project is to understand livestock movement patterns in Cambodia and Laos and their influence on the spread of disease, enabling both identification of high risk areas (allowing preventative actions to be taken) and development of novel (non-regulatory) strategies to minimise the risk of disease spread. The four year project is funded ($1.2 million) by the Australian Centre for International Agricultural Research (ACIAR), the money forming part of the federal government’s development assistance program (AusAID). While social scientists were not involved in the development of the project proposal, sociologists have been recruited to undertake part of the research itself.

The invitation to participate in this project indicates that sociologists are beginning to be recognized in the field of agriculture and veterinary work. Frank Vanclay’s work is perhaps best known in Australia. Vanclay encouraged agricultural scientists to recognize that when farmers do not adopt ‘improved farming practices’ it is not because they are stupid or recalcitrant (1992). He argued that farmers carefully consider whether to adopt new practices advocated by those promoting biosecurity, and make decisions based on rationality, economics, and on alternative ‘indigenous knowledges’.

Insights from sociology have been adopted by the veterinary and agricultural sciences in a variety of ways, including improvements to ‘extension work’ (outreach education directed at farmers), and raising levels of understandings of social networks, community, gender, animal/human interaction, the influence of culture, and the nature of risk.
Sociology has also had a significant impact on the study of sustainability, and in social impact studies in rural areas.

However, participating in collaborative research with agricultural and veterinary scientists is not without its challenges. For this paper I focus on the possibilities of dialogue across disciplinary boundaries, and the value of retaining autonomy simultaneously with collaboration. I do this by exploring two examples, one from the current research, and another from related work by an American anthropologist.

**Collaborative cross disciplinary animal health research.**

One of the challenges of interdisciplinary work is paradigm conflicts (Goode 2006; Barry 1999; Cooper 1998; Walt et al 2002; Tilbury 2007). Some have argued that cross disciplinary collaboration is doomed at the outset, because it is impossible to share understandings across disciplines. Masse (2000) suggests constructivist research paradigms now favoured in the social sciences are fundamentally at odds with the framework of logical empiricism which most of our ‘science’ colleagues use. He concludes that there are ‘ontological and teleological incompatibilities’ in trying to mesh the different approaches of different sectors, and fundamental incommensurability in the ultimate goals of research, “which are to understand instead of to demonstrate, to interpret instead of to objectify or measure, to reveal the plurality of the dimensions of reality instead of to look for consensus and norms” (Masse 2000:419).
This has been a concern in the ACIAR project. The veterinary epidemiological approach aims to develop more effective ways to promote animal ‘health’ by determining current practice and levels of knowledge regarding livestock trade and animal health, using quantitative methods, and then improving these, primarily by encouraging individuals to take responsibility for animal health by adopting safer practices and more vigilant monitoring. Their ultimate goal in research is to develop and test ‘biosecurity’ messages or interventions.

While Vanclay (1995:105) cautions against sociologists making stereotypical assumptions about scientific epistemology, he notes the tendency of agricultural scientists to apply positivist paradigms. Certainly the ACIAR project veterinary scientists use a traditionally positivist understanding of social research. Their focus is on quantification. What are the numbers of animals being moved, where are they moved to, what are the prices etc? The ‘why’ of the movements is presumed to be found in the ‘what’. Thus, when the author offered to undertake ethnographic research involving participant observation, interviews and focus groups with farmers and livestock traders, at appropriate sites such as villages, local markets and abattoirs, the veterinary partners in the project were unable to see this as ‘research’. In a concrete instance of this, a set of open ended exploratory questions designed to guide the ethnographic research was returned by the veterinary epidemiologists, ‘helpfully’ re-formatted as a questionnaire, and with the addition of a number of quantitative measures of numbers of animals bought and sold, prices, and directions of movement. The problem with this approach is that it is unlikely to provide insights into the ‘culture’ of livestock movement and disease
management that the vets are interested in. This quantitative bent is also evident in the funding application which has the sociologist providing training in ‘sociological techniques’ at various points in the project. The word ‘technique’ implies a technical method which can be applied to produce a specific result. It is unlikely that ‘thinking critically’ or ‘applying theory’ are among the ‘techniques’ envisaged.

Another indicator that sociologists and veterinary scientists often talk different languages, and that hard scientists may be under certain misapprehensions about what social scientists can offer, is a growing list of questions the author has been asked by the veterinary scientists, which are unanswerable, or ‘it depends’, questions. One was “how can we stop the formation of a cargo cult in relation to research projects” (i.e. the project being seen as a ‘cash cow’ [excuse the pun] for in-country partners and participants). Another is the fascinating question: “At what proportion does something become ‘normal’”. This question was asked in relation to animal tagging – unusual in the Lower Mekong region and therefore noticeable. The vets wish to tag animals in order to track them, but since tagging is unusual it is unlikely the tagged animals would be treated as other ‘normal’ animals would, and therefore their movement patterns are unlikely to reflect normal patterns (this is known as the Hawthorne effect in methodological circles). The proposed solution was to tag enough animals for it to be seen as a ‘normal’ practice. It was assumed the sociologist would have an empirical statistical answer to the question of what proportion that would need to be.
Apart from these differences of methodology there are broader theoretical and philosophical concerns. From a sociological point of view, even the term ‘biosecurity’ raises number questions. For example:

- A Foucaultian perspective might see animal disease identification, and interventions to change livestock producers’ practices, as just another form of surveillance, another technology of control and self-governance. The question becomes one of in whose interests these regimes are being implemented – the target countries’, neighbouring countries’, or the funding country’s.

- Risk theorists might see the focus on ‘biosecurity’ as another example of contemporary ‘risk society’ (Beck 1992) – modern human-made risks (or human controlled, in terms of farmers ‘unsafe’ practices) are targeted, at the expense of those sectors of the population often least able to absorb the cost of risk management.

- Development theorists might be interested in the politics of the situation and issues of globalization. One political concern is the nature of the local economic system. Massive inflows of ‘development’ money to Cambodia support a system of corruption based on kick backs and ‘incentive payments’ – internationally funded research is no different (Ear 2005). How this affects data collection, and policy implementation, are important questions.

- Marxist analysis would lend itself to a focus on the exercise of power within a burgeoning capitalist market system, and the question of whose interests are being pursued.
A related concern is the long term effects of biosecurity interventions. For example, two initiatives within the ACIAR project are to develop livestock traders’ associations, and a price monitoring system, but no modeling has been done to see how these will affect the livelihoods of village people.

Finally there are numerous questions of ethics, including the fact that because numerous funding bodies are undertaking ‘development’ work in the region, there are many researchers doing similar work, causing research fatigue among the target population.

These issues provide the wider context for the research, but are not of particular interest to the agricultural scientists, nor, most likely, the funding body.

I have outlined a number of concerns and confusions, which might lead one to conclude that sociologists should not engage with veterinary scientists. Instead I would argue that we can and should, and that collaborative research can be most productive when we bracket out Mode 1 and Mode 2 aspects, without trying to impose Mode 1 insights onto Mode 2 questions. This involves developing the ability to speak in two languages. One is the language of the ‘hard’ sciences, which insist on hard facts applicable to resolve practical problems. However speaking this language should not be to the exclusion of our own language, and the insights from within sociology that will help advance knowledge, although in a different direction from that expected by the ‘hard’ scientists. A neat illustration of this comes from anthropologist Ben Hickler, who has undertaken
research similar to the ‘transboundary disease’ project. His project looks at issues of biosecurity in relation to avian influenza and foot-and-mouth disease. In a blog with fellow social scientists (Hickler 2007a) Hickler introduces his work thus:

Recent outbreaks of highly pathogenic avian influenza (HPAI-H5N1) and foot-and-mouth disease (FMD) in Southeast Asia have created a situation where the same animals promoted by the United Nations Food and Agriculture Organization (FAO) to alleviate poverty in the region are now also viewed as biological reservoirs for intolerable disease threats to human health and industry. Both diseases are the subject of transnational networks of experts working to identify risk factors, develop prevention and containment measures, and assess the impact of “biosecurity” (animal disease control) measures on the lives and livelihoods of rural poor communities. … Using ethnographic documentation of local dilemmas, I show how contemporary biosecurity activities instrumentalize and rework human relationships, ranging from relations within households to political relations between citizens, communities, and the state. My findings illustrate the minor conflicts and major disconnects between community concerns in the countries of the Lower Mekong and transnational efforts to control HPAI-H5N1 and FMD.

I have quoted the extract at length to illustrate the fine line Hickler walks between the two languages. The terms ‘biological reservoirs for intolerable diseases’; ‘transnational networks of experts’; ‘risk factors’; ‘local dilemmas’; ‘instrumentalize and rework human relations’; and ‘minor conflicts and major disconnects’, are resonant with meaning to other social scientists, but most likely denote little to those from the hard sciences. Yet
the extract is also readable as a description of a project researching social and cultural issues in relation to animal disease in the Lower Mekong.

The blog entry generated some interesting discussion, with participants picking up many of the issues I outlined in the series of dot points above. One contributor notes that “Biosecurity projects are citizenship projects; they impose rights and responsibilities in order to regulate behavior” producing an uneven burden. There is discussion of ‘claimsmaking’, and “how global regimes of ‘biosecurity’ interface with national regimes of health government”. Beck’s theory of ‘reflexive modernization’ and risk is recruited to reflect on how “the same animals that are meant to reduce poverty are now a new-found problem”. Hickler himself notes in the blog the need for “developing an analytical vocabulary sensitive to events of emergence [yet] to avoid epochal implications” proceeding to use theorists such as Braudel, Deleuze, and De Landa, and Foucault. His argument that “Emergent entities, techniques, institutions, or figures do not instantiate the dawning of a new epoch so much as they join a dynamic ecology of previously sedimented entities, institutions, and figures, creating opportunities for novel interactions and articulations that may be self-catalyzing” would be pure gobbledygook to the hard scientists (and perhaps to many social scientists!).

Yet this same individual can as easily communicate meaningful, and valuable, information to the hard scientist, without the use of insider jargon. In a piece of related ethnographic research conducted in Cambodia for the FAO, Hickler (2007b) produces evidence that the problem of biosecurity is not so much that people do not know about
'safe animal practices’, but that the risk of an outbreak has little reality to the people, and that traditional practices have more meaning than the measures the FAO is trying to introduce. Hickler lists a set of recommendations which are both sociologically informed and practically relevant for the animal health authorities to consider. These include:

- Monitor and manage the indigenous taxonomy of poultry disease, especially *dan kor kach* and *pdash sai back sey*. Unfortunately, these categories do not map neatly onto the technical categories upon which communication strategies must also be based. *Dan kor kach* is a generic term for seasonal illness and death in chickens. It is considered natural, impossible to prevent, and difficult to treat. …Confusion about this new term and its relationship to *dan kor kach* is a primary obstacle to behaviour change in Cambodia. Though communication strategies must be based on sound technical recommendations, they must also learn to think in terms of a local disease taxonomy which may not be concordant with bioscientific categories…

- Work with existing explanatory models, encouraging a shift from a “naturalistic” model of poultry death to a “contagion” model.

- Focus on risk-perception, not fear. …changes in community behaviour are not correlated with higher levels of awareness or fear, but …positively proportional to the degree to which people saw their poultry and families at risk.

- Work with pre-existing practices, especially indigenous practices of “separation.”

- Connect messages to local (as opposed to technical) rationales.

- Connect messages to local values and priorities, especially family well-being and prosperity.
• … Communication strategies in Cambodia need to promote an … awareness of why a practice or investment makes sense from the point of view of the audience. … For the smallholder farmer in rural Cambodia, values like “the sake of humanity” or “civic responsibility” are not going to get much local traction. Instead … “family prosperity and well-being” is by far the best candidate for linking priority messages to a value for which people would indeed go to great lengths.

Such an approach accepts the objective of the veterinary scientists and endeavours to assist in achieving it, without compromising integrity. However, it is not all that the social scientist does, as can be seen from the earlier extracts.

**By way of a conclusion**

This paper has considered the issue of applying sociological insights to the field of agriculture, using illustrations from two similar projects focusing on livestock disease in South East Asia. While acknowledging the challenges of working in the applied field, and with researchers from very different disciplinary backgrounds, I hope to have demonstrated that it is possible to both produce interesting and important insights relevant to ‘Mode 1’ type research, while simultaneously coming up with the ‘Mode 2’ goods – knowledge meaningful to and applicable by ‘hard’ scientists. While the accusation has been made that this produces academic researchers as ‘split’ subjects (Morley 2003:100; Cooley 1981), schizophrenic in their knowledges, motivations and methods, I would suggest that within a postmodern environment where switching codes
and identities is par for the course, this is a better option than not being involved at all when scientists ask for our help. And in an ideal world, a gradual process of education of our ‘hard science’ colleagues, and ourselves, in relation to the value of Mode 2 research, may be an unexpected consequence.

References


Hickler, B. (2007b) Bridging the Gap between HPAI ‘awareness’ and practice in Cambodia

[http://www.fao.org/docs/eims/upload//241483/ai301e00.pdf](http://www.fao.org/docs/eims/upload//241483/ai301e00.pdf)


