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# Ethics, or a Dialogue of Knowledge. The Case of Tuberculosis Surveillance in Elephants in Laos

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**THE PATHS  
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IN LAOS AND  
THE MEKONG COUNTRIES**

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# **The Paths of Ethics in Research in Laos and the Mekong Countries**

## **Health, Environment, Societies**

*Edited by Anne Marie MOULIN,  
Bansa OUPATHANA, Manivanh SOUPHANTHONG,  
and Bernard TAVERNE*

This volume developed out of the colloquium  
“Ethics in Research for International Development:  
Health, Environment, Societies”  
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\*\*\*

# **Ethics, or a Dialogue of Knowledge. The Case of Tuberculosis Surveillance in Elephants in Laos**

**Nicolas LAINÉ\*** in collaboration with  
**Khamphan MAHAVONGSANANH\*\***

## **Human-animal relations**

We conducted research in Laos on representations of the disease-causing agents that circulate between animals and human beings in an effort to compare different societal and cultural spheres. The information gathered through this anthropological research can help to better understand and prevent zoonotic diseases (those transferred between humans and animals), which are a significant medical threat in the world today.

We have long known that humans and animals share many diseases, and that these can be passed from one to the other during our interactions with other species. The discovery of the genetic mechanisms of cells has deepened our understanding of this relationship and of the links between population health and the diversity of species in the natural world. The "One Health" initiative, a tripartite collaboration launched in 2009 between the World Health Organization (WHO), the World Organisation for Animal Health (OIE), and the Food and Agriculture Organization of the United Nations (FAO), advocates a rapprochement between human and veterinary medicine so that we can better understand the diseases that exist in all species and how they interact in the environment. This all-encompassing perspective requires renewed appreciation of local populations' knowledge of their environments and its risks to their health and practices, which is traditionally the realm of anthropologists. An extension of the 1992 International Convention on Biological Diversity signed in Rio, the Nagoya Protocol, has governed access to genetic resources (animal, human, and microbial genomes) since taking effect in 2014. This protocol emphasizes the need to involve local populations in research so that they have access to scientific knowledge, participate in building such knowledge, and share in its benefits.

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\*\* Research Assistant to Nicolas Lainé for the duration of the survey (September to December 2015).

This is an undeniable ethical requirement for research that must be followed in all contexts, so that dialogue between scientists, decision-makers, and populations can support the development of policies on health and biodiversity conservation.

Although we have seen progress, international health agencies still often overlook local understanding of diseases, both human and animal, or even consider this perspective to be an impediment to their interventions. Yet the specific understanding that local populations have of their environment makes them “cultural nodes” that are key to communicating within global-scale networks.<sup>1</sup> How can we integrate “the science of the concrete”<sup>2</sup> with other forms of knowledge to better anticipate unknown environmental and health crises?

Our research in Laos<sup>3</sup> examined the local perception and management of risks associated with tuberculosis (TB) in elephants. TB is a human disease that affects all organs, especially the lungs, and is caused by a microbe first identified in 1883. Animals can also be afflicted with TB, particularly bovines such as cows and water buffalo. In fact, the vaccine that is still given today to combat TB—Bacillus Calmette–Guérin (BCG)—comes from an attenuated bovine microbe.

TB in humans remains a serious public health issue in Laos<sup>4</sup> that now threatens the living symbols of the country: elephants. Only some 900 elephants live in that country today, half of them in villages alongside local populations.<sup>5</sup> Most of the nation-states in Asia with pachyderm populations have faced the issue of human contamination from these animals. Laos launched a national elephant seroprevalence survey,<sup>6</sup> limited by the difficulty

1. Lowenhaupt Tsing, A. (2003). Agrarian Allegory and Global Futures. In P. Greenough & A. L. Tsing (Eds.), *Nature in the Global South: environmental projects in South and Southeast Asia* (pp. 124–170). Durham: Duke University Press.
2. Lévi-Strauss, C. (1962). *La pensée sauvage*, Paris: Plon. Claude Lévi-Strauss (1908–2009) was a French anthropologist who argued that diverse cultures share universal reasoning.
3. As part of the project entitled “Représentations sociales des pathogènes à la frontière entre les espèces” (*Social representations of pathogens at the boundary between species*), coordinated by Frédéric Keck (CNRS/Musée du Quai Branly, Paris, France).
4. World Health Organization (2016). *Global Tuberculosis Report 2016*. Retrieved from <http://apps.who.int/iris/bitstream/10665/250441/1/9789241565394-eng.pdf>
5. Khoubouline, K. (2011). Current status of Asian elephants in Lao PDR. *Gajah* (35): 62–66.
6. Tuberculosis has reappeared in pachyderms across the world in the past 20 years, resulting in several disease surveys and targeted surveillance campaigns in Asia (Maslow, J. N., & Mikota, S. K., (2015). Tuberculosis in elephants: a reemergent disease: diagnostic dilemmas, the natural history of infection, and new immunological tools. *Veterinary Pathology*, 52(3): 437–440.

of diagnosing the disease,<sup>7</sup> which found a 34% infection rate in the animals tested.<sup>8</sup> Concern about TB transmission to both human and domestic animal populations, as well as to other species, led to the establishment of a surveillance campaign in that country in 2013.

We explored local knowledge and its role in the surveillance of this zoonotic disease, which is considered a “reverse” zoonosis<sup>9</sup> because humans can be the source of the contamination. We surveyed villages in the communities of Tai Lao Tai Lue, and in an elephant camp in the Sayabouli province (northwest Laos) in the Hongsa and Meung Ngeun districts. The Sayabouli province is currently home to three-quarters of the country’s domestic elephants.

### Procedure and outcomes

We surveyed mahouts and elephant owners about how they perceive and treat diseases that affect these animals as well as about TB-related risks. They described elephant TB as a recent phenomenon associated with the “modern medicine” that was brought in with elephant conservation efforts in the country in the early 2000s.<sup>10</sup> They expressed a lack of trust in modern veterinary science and the changes made to elephant management, such as the creation of camps or conservation centers where their animals become “patients” treated by the veterinarians and they themselves are demoted to mere animal drivers.

Epidemiologists, however, consider mahouts and elephant owners to be “sentinels” who provide information on the animals’ health. Elephants are screened on a regular basis, and infections in that population can be used to alert authorities to risks for human populations. Yet the people living in these areas find it hard to fathom that diseases can be transmitted between people and animals.<sup>11</sup> How can surveillance work when it is meaningless to those involved? We decided to explore the human-animal boundary with them. We observed several daily rituals that involved ceremonial specialists

- 
7. The blood test marketed immediately following the disease alert, Stat-Pak, was found to be defective by many epidemiologists, who faulted it for being overly sensitive. Often elephants tested positive when in fact they did not have the disease.
  8. Lassaussaie J., Bret A., Bouapao X., Chanthavong V., Castonguay-Vanier J., Quet F., Mikota S. K., Théorêt C., Buisson Y., Bouchard B. (2014). Tuberculosis in Laos, who is at risk: the mahouts or their elephants? *Epidemiol Infect*, 143(5), 922–31.
  9. Suterhimshony, A. (2008). Tuberculosis in elephants: a reverse zoonosis. *Infectious Disease News*, December 2008, DVM Retrieved from <http://www.healio.com/infectious-disease/zoonotic-infections/news/print/infectious-disease-news/%7B193d8ef8-75be-4476-a39c-92b22d0b10d8%7D/tuberculosis-in-elephants-a-reverse-zoonosis>
  10. Suter, I. (2000). ElephantAsia in the Lao PDR – An Overview. *Gajah* (33), 53–57.
  11. Known as “crossing the species barrier” in biology.

and evoked invisible entities known as spirits, or *phi*, which can be both benevolent or malevolent. These entities are important in the relationships owners and mahouts have with their elephants and can be compared to the importance biologists place on microbes to biologists, which of course are also invisible entities to most mortals.

Our survey was based on dialogue and exchanges, and provided pertinent information on pachyderm health and any treatments they were given. The data showed that mahouts are highly attuned to the signs and symptoms exhibited by their animals. They describe causality systems for elephant diseases<sup>12</sup> that combine both visible and invisible signs that are not considered by experts in disease surveillance. Veterinarians rely solely on so-called clinical signs, an analogy with human medicine: only visible, external signs are considered in detecting the presence of pathogens in animals.

For example, when veterinarians visit villages they ask the mahouts if they have noticed any significant nasal discharge from the trunks of their animals, or if the elephants have lost weight (signs comparable to those seen in human TB infection). The mahouts reply that it is not unusual for their elephants to lose weight, especially after several days of work in the forest, so they do not view it as a potential sign of disease. After returning from logging work in the forest, the elephants need only be allowed to roam freely around the outskirts of the village for several days to return to a healthy weight. Both mahouts and herbal medicine specialists (*mo ya*) in the village use a variety of plant-based therapies/compositions to treat the animals, but they also trust another important factor: the elephants' own knowledge of how to maintain their health and well-being. If mahouts provide the necessary elements for a healthy diet, the elephants know to select the plants they need, thanks to the abundance and diversity of biological species they encounter in their environment.<sup>13</sup>

In an effort to conserve the species and out of a concern that owners may sell their animals if they receive alarming health news, veterinarians have not wanted to share all of the findings of the national prevalence survey with the owners. We were often asked about this during our survey by owners and mahouts who had not been informed of the results of tests performed on their animals.

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12. Lainé, N. (2017a). Surveiller les animaux, conserver l'espèce. Enjeux et défis de la surveillance de la tuberculose des éléphants au Laos. *Revue d'anthropologie des connaissances*, 11(1), 23–44.

13. Lainé, N. (2017b). Travail interespèces et conservation. Le cas de l'éléphant d'Asie. *Écologie et Politique*, (54), 45–65.

### **Conclusion: Better global health**

This research raised a variety of questions, both scientific and ethical.

The ethnographic survey of mahouts and elephant owners illustrated a system of knowledge and understanding that they develop over time and apply daily in their interactions with pachyderms.<sup>14</sup> Those who live and work with elephants are key to assessing the risks of TB emergence in elephants and its spread to surrounding populations, and are well positioned to monitor the disease effectively. Their knowledge is a partial yet essential component to addressing the issues of global public health, species conservation, and biodiversity being discussed in international arenas. Unfortunately our survey shows that in the current system there are several layers of misunderstanding and a lack of dialogue between those with different backgrounds and experience with elephants. Rather than facilitating exchanges, disease surveillance appears to be exacerbating existing tensions between the various field actors.

The scientific issues include the scope of TB infection in elephant populations, how contagious the disease is for humans who are in contact with them and vice versa, and the possibility of transmission between wild and domestic animals (e.g., when domestic elephants encounter their wild cousins while working in the forest).

The ethical issue relates to the need to provide information to individuals who work with elephants, and to the validity and relevance of incorporating their experience in diagnosing and caring for these animals, regardless of the theoretical and socio-cultural context of this experience.

In Laos, knowledge created jointly with local specialists would improve the effectiveness of both the TB detection and elephant conservation efforts sought by government agencies. Mahouts would also benefit from a more in-depth understanding of the diseases that affect their animals and from being integrated into modern thinking about biodiversity conservation, which for them is an awareness of their precious natural resources. Research ethics is thus enriched by local know-how, folklore on the verge of disappearing.

In today's "globalized disease environment,"<sup>15</sup> characterized by the emergence and re-emergence of diseases circulating between humans and animals and by the rapid disappearance of many species, there is no single "one size fits all" solution to the health and environmental risks that threaten our entire planet. Case-based contextual studies must be conducted in

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14. This system draws from two types of medicine: remedies and rituals (cf. Pottier, R. (2007). *Yù dĩ mĩ hèn* "Être bien, avoir de la force" : *essai sur les pratiques thérapeutiques lao*. Paris: EFEO Monograph, 192).

15 Morand, S. (2016). *La prochaine peste : une histoire globale des maladies infectieuses*. Paris: Fayard.

Nicolas LAINÉ\* in collaboration with Khamphan MAHAVONGSANANH

collaboration with local partners to incorporate their understanding of the environments they know so well.

Anthropology research in Laos, conducted in immersion with local populations, has revealed and taught us much about the various perspectives on biological phenomena like the transmission of diseases from humans to animals and from domestic to wild animals. One of the roles of a social science researcher, in this case an anthropologist, is to apply knowledge gained in the field to mediate between scientists, decision-makers, and local populations. In this case the research can be applied with the two-fold aim of improving public health and conserving biodiversity while contributing to local development.

**\*\*\***

# The Paths of Ethics in Research in Laos and the Mekong Countries

In an historic first, two ethics committees — one from Laos, the other from France — met in Vientiane in October 2015. Researchers examined a multitude of ethical issues related to health, the environment, and societies in countries in the Mekong region. Urgent, universal questions were discussed in local contexts; productive debates illustrated a complex array of possible solutions. This book, born out of that meeting, serves as a guide for those working across the spectrum of scientific fields on paths to promote justice and reduce suffering. Like the Mekong River, the field of research ethics does not run in a straight line; and like that river, everyone it touches discovers that what may initially appear to separate us ultimately serves to bring us together.

Work directed by:

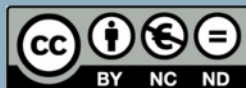
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*Bernard TAVERNE* anthropologist and physician, has been a member of the CCDE for the IRD since 2009.

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