



Community-Led Mapping Breaks Cycle of Sickness in Thailand

Villagers in northern Thailand connect environmental causes with sickness using an innovative mapping technique and then take action to protect and promote their own health.

Smoky haze clings to villages in northern Thailand during the dry season between January and April, when the monsoon rain stops and garbage burning begins. People here burn everything that needs disposing, from plastic bags to rice straw left over from harvest. Burning is the cheapest and fastest way to remove trash in the largely rural region without infrastructure and to prepare fields for planting when the rains return. Most people in the region are subsistence rice farmers who have been burning their trash and fields for at least 100 years.

A short drive from the burn zone Phongtape Wiwatanadate, M.D., Ph.D., director of Community Medicine at Chiang Mai University, studies the health effects of burning, namely asthma and lung cancer. Thailand's northern province, where burning is rampant, has one of the highest rates of lung cancer in the developing world, with 500 to 600 new cases appearing every year in a population of 1.7 million people, comparable to the incidence of lung cancer in other rapidly developing countries in Southeast Asia, according to the most recent 2008 data from the World Health Organization.¹ Lung disease in northern Thailand has been linked to airborne carcinogens, including the smog-inducing byproducts of burning plastic. Small airborne particulates—such as dust, ash and diesel fuel particles—are inhalable, and therefore, the most dangerous.

Going beyond the data

Early in his air quality research, Phongtape called public meetings in the area where he had worked as physician for many years. Local people—including a few Buddhist monks clad in saffron-colored robes and young people wearing jeans and sandals—gathered in community centers to hear Phongtape's message: Smoke from burning is causing health problems, and your health will improve if you stop burning fields and trash. Everyone listened politely, but after the meetings they went back to burning.

“I felt ignored and discouraged, and so I went back to my office and collected more data thinking that would convince people of the connection between burning, smog and health problems,” explains Phongtape. He collected satellite photos showing the burning and smoke, devised a calendar showing the smog levels over time, and then matched those data to hospital records. He called more public meetings and talked through his findings linking smog to lung disease. Nothing changed.

¹ 1. GLOBOCAN 2008 (IARC) , *Cancer Fact Sheet*, 2012. Accessed Nov 27, 2012. Available at: <http://bit.ly/Sc4C1N>.



Frustrated, Phongtape thought more deeply about his approach, maybe he was missing something. He began listening more; and local residents responded, eager to describe the illnesses in their villages, often pointing out houses where illness or death had occurred. Villagers also pointed to potential hazards in the area: which fields had been burned, where a garbage dump was located, or if a business handled flammable liquids. This gave Phongtape an idea: Why not ask the villagers to map illnesses and hazards so they could make the connection for themselves?

Patterns emerge

Working with a community was not new to Phongtape. He served for seven years as the only doctor for a district hospital in northern Thailand, treating 100-plus people a day. He did everything from fix broken legs and deliver babies to drive the ambulance. He knew how to talk to people and find out what was bothering them. Hospital work was rewarding because he saw his efforts immediately improve lives.

Then he began noticing a connection between environmental problems and the hospital caseload: every time rice farmers burned their fields, people turned up sick at the hospital. The smog was inescapable; it burned everyone's eyes and made it hard to breathe. Some people developed serious health problems, including chronic lung infections, asthma or lung cancer.

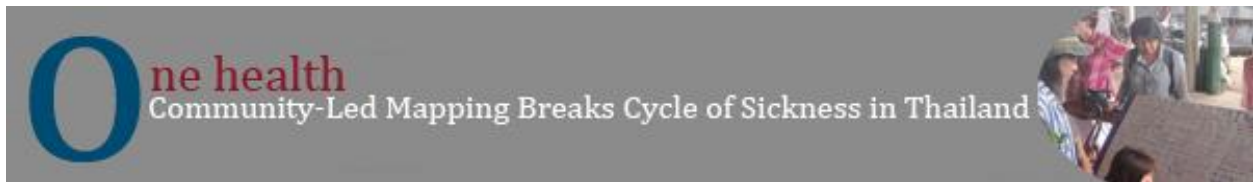
“I felt powerless to stop the burning from making people sick all over again,” says Phongtape. That was when he decided to try to break the cycle of sickness. He left the hospital for a research post focusing on environmental health and air pollution at Chiang Mai University.

Facilitating discovery

A waterproof map the size of a poster is the centerpiece of Phongtape's new approach to solving environmental health issues. He first applied community-generated maps to stop an epidemic of kidney stones in the northern rural district of San Sai. The government had warned local people repeatedly that water from a particular well was unsafe, but people drew from it anyway. Phongtape thought that if people could see the connection between the well and kidney stones, they would avoid it. He was right.

Together with a corps of health volunteers, Phongtape helped people in the San Sai district create maps of their villages. He showed them how to mark their activity at wells, and he encouraged the village leaders and health volunteers to mark cases of sickness on their map. What became clear to the villagers during the three-month experiment was that people with kidney stones were clustered around a single well—the same well the government had identified as contaminated. Locals abandoned the well.

Smog poses a more complex problem than contaminated well water. People cannot escape smog by simply walking a little farther to the next field, as they might escape contaminated water by using a different well. Further, a dangerous combination of poverty, poor health and isolation deepen reliance on burning among rural communities, which are least equipped to deal with its



consequences. The scope and severity of the problem infused Phongtape with a sense of urgency to apply his community-led mapping technique to smog.

Phongtape did not show data or organize lectures. Instead, he helped each village draw a map of their region and asked the local people to mark major landmarks and fields that were burned. He asked them to also record illnesses on the map. After a few weeks the maps were painted with colorful symbols.

The leader of Nong Pla Mun village in Mae Rim district telephoned Phongtape and asked him to come and see what the community had discovered with their map: sick people clustered around fields that were burned. Villagers began talking about how they might reduce burning. Phongtape responded to the community's interest by bringing together a team of specialists who could develop alternatives. Village leaders started asking more questions about hazards, and Phongtape explained that burning plastic releases carcinogens. Now village leaders want to find ways to reduce exposure.

“We are drafting a proposal to get funding from the government to train and educate people how to reduce and properly manage plastic, [especially] plastic [that the] recycling factory does not accept, like plastic bags [which get burned]. In the long run, we will convince [the local government] to systematically manage the garbage in the area,” explains village health leader Bualoy Tonnak through a translator.

The next phase of Phongtape's map experiment will occur in the coming dry season, from January to April 2013, when he works with villages like Nong Pla Mun to map burning-related activities specifically to lung problems, not sickness in general. Village leaders will conduct the survey. The project has already captured the attention of the Thai Ministry of Public Health, which will provide volunteers and support.

Even with extra help and signs of progress, Phongtape remains aware of the lessons he learned while working at the hospital: there is no silver bullet to solve complex, community-wide problems. Further, villagers have been slow to connect burning with long-onset diseases such as lung cancer.

Phongtape remains convinced that community-led mapping is key to improving public health by enabling villagers to link environmental causes with illness. He learned the hard way that adults tend to tune out when external ‘experts’ imply their ways and traditions are wrong, even with helpful intentions. But with community-led mapping, people become engaged when they make discoveries and then take action to lead their own health promotion.

Compiled with support from the Rockefeller foundation and the University of Minnesota (UMN) using source material from individuals and organizations noted in the story; writing by UMN staff members; and, the professional reporting and writing services of Genevive Bjorn.

Completed December 2012.

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