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Pesticide Use in Xieng Khouang

17 November, Session 2

Andrew Bartlett, Helvetas - LURAS

- **Goal** *An effective pluralistic extension system, which involves various service providers, including farmer organisations, private sector and government*

- Funded by the Swiss Government (SDC)
- Implemented by Department of Agricultural Extension and Cooperatives (DAEC), Helvetas and SNV
- Started Jan ’15. Expected duration 10+ years
- Working at national level, with current field activities in Xieng Khouang and Oudomxay

What we found during our baseline

- The maize boom has transformed the rural environment in Xieng Khouang
- Loss of biodiversity and soil erosion is severe
- Heavy use of herbicides has become the norm
- We called it ***The Toxic Landscape***

Measuring herbicide use

- Surveys organised by Provincial Agriculture Office (PAFO) in 2015
- Shopkeepers in Nonghet District reported selling 95 tonnes of herbicide.
- Interviews with farmers show that application rates are 4 or 5 times the recommended level, and use of banned products is widespread.

- In total, farmers in Kham and Nonghet sprayed 19 million litres in the previous 12 months. This includes enough paraquat to kill one million people.
- Questions have been raised about this data, but there is a good correlation between reported sales and applications in Nonghet.

Looking at health impacts

- Acute effects of paraquat exposure are well known to farmers:
  - burning sensation on the skin, in the eyes, nose and throat
  - difficulty in breathing, muscle weakness, nausea, stomach pains
  - seizures, coma and death.
- District hospitals have recorded some pesticide-related fatalities, but there is conflation of occupational exposure and suicide cases.
- Information campaigns have limited success. Most farmers remain unaware of longer term damage caused by pesticides to lungs, kidneys and nervous system.
- Posters distributed by a number of projects have made some farmers scared of possible birth defects… although this has questionable relevance.

Looking at health impacts… again

- LURAS organised blood tests in 2016, carried out in cooperation with Min of Health and a CSO with previous experience of this procedure.
- Approx. half of all samples indicated unacceptable levels of exposure to insecticides.
- This includes high levels in school children and consumers (most of the later were Govt officials)

Sample groups in Xieng Khouang	Sample Size	Unacceptable level of pesticide in blood as %
Farmers	375	50
School Children	199	41
Consumers	193	55
All groups	767	49

Results of reactive paper finger-blood tests to assess abnormal serum cholinesterase. 'Unacceptable' = risky + unsafe levels on the 4-point scale

Rethinking pesticide exposure

- Serum cholinesterase tests can detect organophosphates and carbamates… but not herbicides such as paraquat.
- So, we need to find other explanations for the high levels in the blood tests among consumers.
- Residue tests conducted by LURAS show high level of contamination on a wide range of imported fruits and vegetables *and* those produced locally.

Fruit and vegetables in XK with high insecticide residue levels			
Apple	Lychee	Tomato	Eggplant
Long bean	Mustard green	Lettuce	Coriander

- One possible cause of local contamination is carbaryl (brand name 'Sevin'), an insecticide used on dry-season vegetables
- Further studies are needed. Among other things, we need a better understanding of exposure routes for children

The big picture

- The growing use − and misuse − of pesticides is a concern for everybody: farmers and consumers, adults and children.
- A year ago, LURAS was using the term 'the toxic landscape' to describe the situation in those parts of Xieng Khouang affected by the maize boom.
- The results of our studies in the past 12 months suggest we should now start thinking in terms of **the toxic food system.**
- Most farmers know that pesticides are dangerous, but are taking calculated risks that produce quick returns.
- The food system (policies, market structures, land tenure, labour availability etc) promotes practices that are destructive and unhealthy
- This is not a localised agricultural problem that can be solved by farmer training.

Elements of an integrated response

Conclusion

- In Xieng Khouang, LURAS has collected data on pesticide sales, application rates, residues in fruit and vegetables, and exposure levels as indicated through blood tests.
- The results are consistent with earlier studies, but also suggest that efforts to reduce the misuse of these toxic chemicals over the past decade have had limited impact.
- This is not a farm-level problem, or even a landscape problem. It is a problem affecting the entire food system.
- There is an urgent need for an integrated response. This needs to involve organisations responsible agriculture, health, education, trade and planning.

- *Further details are available in the LURAS Briefing Note 'Pesticides: A Cause of Concern' prepared by Sopavanh Rassapong*

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