Sector Working Group on ARD – 28th March 2017

Presentation by Sub-Sector Working Group on Agro-Biodiversity

Dr. Bounthong Buahom
Director General NAFRI
Chair of SSWG Agro-Biodiversity

SSWG-Agro-Biodiversity (ABD)

Presentation on SWG structure and progress

Date Established	2013 (first meeting September 2013)	
Chair	MAF-National Agriculture and Forestry Research Institute (NAFRI)	Dr. Bouthong Buahom, Director General NAFRI
Co-Chair	FAO Lao PDR	Dr. Stephen Rudgard, FAO Representative
Secretariat	NAFRI-Division of Planning and Cooperation	Phonevilay Singvilay
Advisor to the secretariat	FAO	Chanthalath Pongmala
Objective: to support the work of the SWG-ARD in matters regarding the Lao agro-biodiversity Main Purpose: to focus on policy aspects regarding the conservation and sustainable use of agro-biodiversity and access and benefit sharing		

National AgroBiodiversity Programme – II (2016-2025)

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນາຖາວອນ

ແຜນງານຊີວະນາໆພັນ ກະສິກຳແຫ່ງຊາດ
ແລະ ແຜນປະຕິບັດງານ ຄັ້ງທີ II (2015-2025)

Approval by MAF

Pesticide Use in Lao PDR - Opportunities and Risks

Meeting of Sub-Sector Working Group on AgroBiodiversity

December 2016

1. Pesticide use and control by DOA
2. MAF-FAO Pesticide Risk Reduction activities
3. LURAS Surveys of Pesticide Use in Xieng Khouang Province
4. Pesticide Risks from Commercial Banana Farming in Oudomxay Province

Background

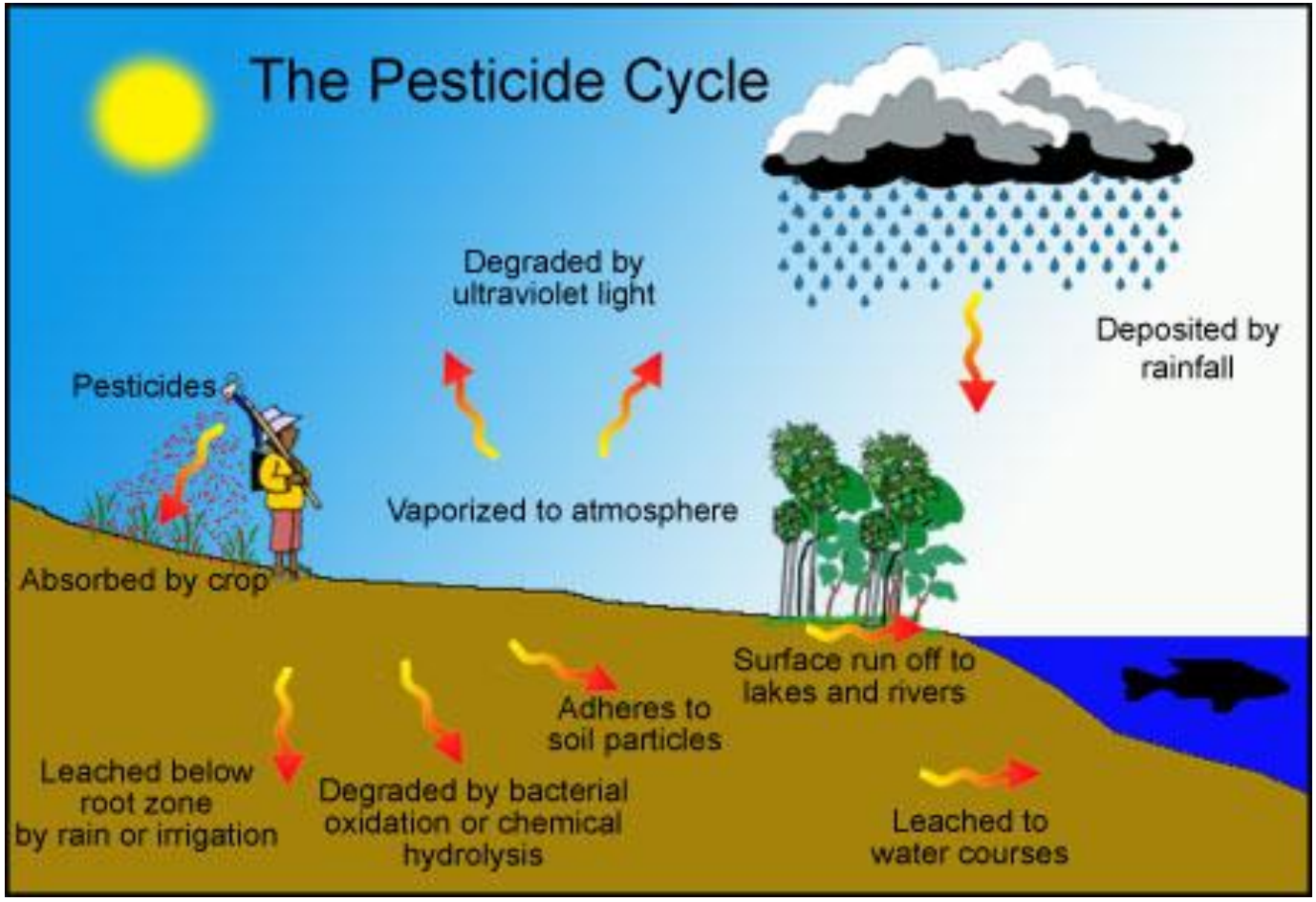
8th National Socio-economic Development Plan:

- The agricultural sector is the top priority for national development that aims to improve general living standards through enhancing productivity, shifting the orientation of agriculture from subsistence farming to market-based systems.
- Promotes the development of a 'green economy' and "Clean Agruculture" so as to conserve natural resources.

Growing use of pesticides and the illegal pesticide trade

Significant environmental and health effects in Laos

The Pesticide Cycle



1. ການຄຸ້ມຄອງ ແລະ ນຳໃຊ້ ຢາປາບສັດຕູພືດ ໃນ ສ ປປ ລາວ

Pesticide use and control by DOA

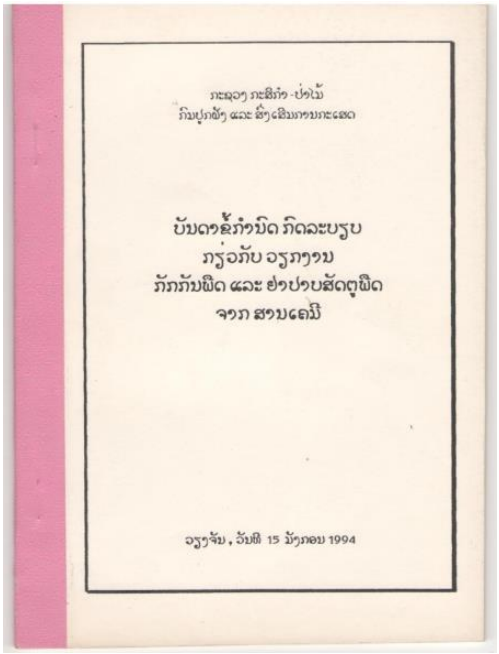
ສະເໜີໂດຍ: ພະແນກລະບຽບການ

ກົມປູກຝັງ, ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້

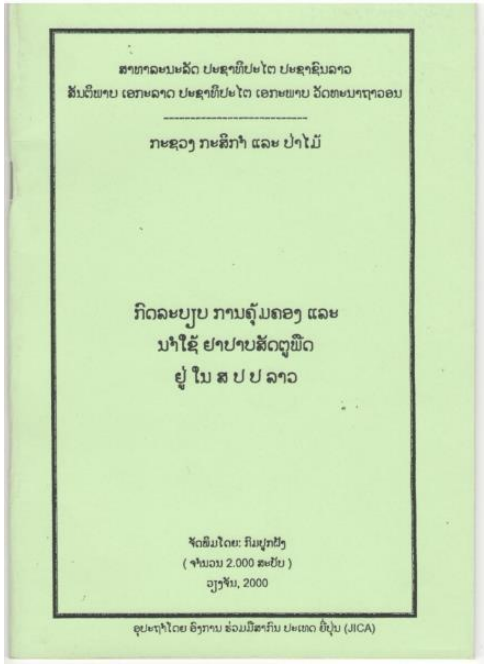
ດ້ານນິຕິກຳ

- ✓ ຂໍ້ຕົກລົງ ວ່າດ້ວຍ ການຄຸ້ມຄອງ ຢາປາບສັດຕູພືດ
- ✓ ຄຳສັ່ງ(3), ແຈ້ງການ(3), ຄູ່ມື(2)

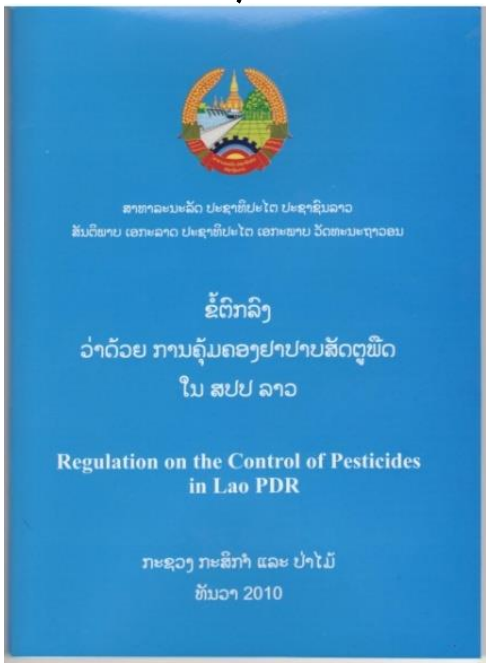
ເລກທີ 0894/ກປ, 21 ພະຈິກ 1992



ເລກທີ 0886/ກປ, 10 ມີນາ 2000



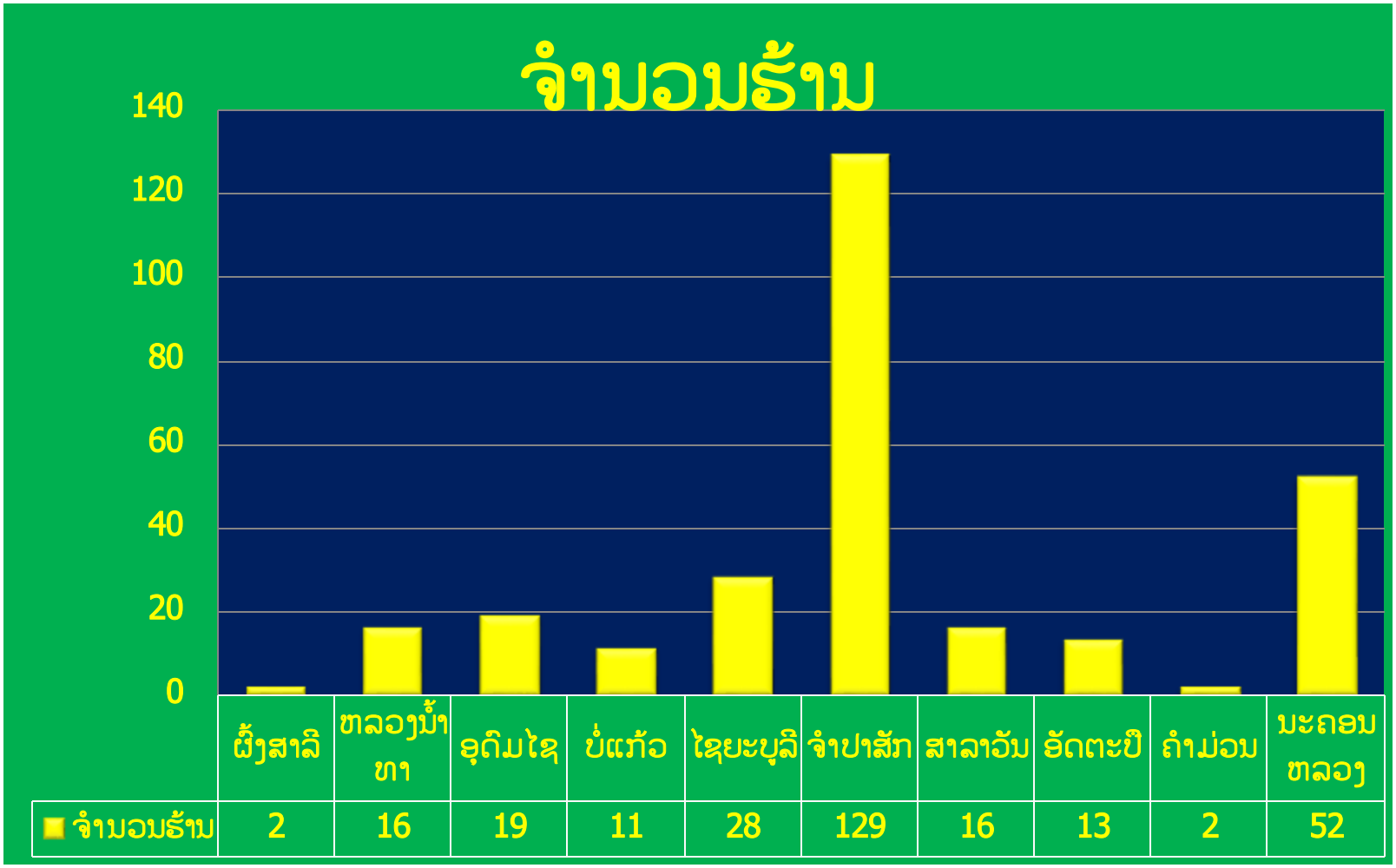
ເລກທີ 2860/ກປ, 11 ມິຖຸນາ 2011



2017

ຮ່າງດຳລັດຢາປາບສັດຕູພືດຖືກຮັບຮອງດ້ານຫລັກການຈາກກອງປະຊຸມ ລັດຖະບານ, ປະຈຸບັນກຳລັງປັບປຸງບາງເນື້ອໃນເພື່ອນຳສະເຫນີທ່ານນາຍົກ ເພື່ອລົງລາຍເຊັນອະນຸມັດນຳໃຊ້:

ຈຳນວນຮ້ານຈຳໜ່າຍຢາປາບສັດຕູພືດ ທົ່ວປະເທດ



ບັນຫາ ແລະ ຂໍ້ຄົງຄ້າງ

ບໍ່ຕົດສະຫລາກ

ຄວາມສ່ຽງຈາກການໄດ້ຮັບສານພິດ ຈາກຢາປາບສັດຕູພືດ

ການຖິ້ມທຳລາຍພາຊະນະບັນຈຸຢາປາບສັດຕູພືດຢ່າງຊະຊາຍ ທີ່ເປັນຜົນກະທົບໂດຍກົງ ຕໍ່ສິ່ງທີ່ມີຊີວິດ ແລະ ສິ່ງແວດລ້ອມ

III. ການຈັດຕັ້ງປະຕິບັດຂໍ້ຕົກລົງ ຢາປາບສັດຕູພືດ (ຕໍ່)

ສ້າງບຸກຄະລະກອນ (ຝຶກອົບຮົມ)

- ນັກກວດກາຢາປາບສັດຕູພືດ ແຂວງພາກເໜືອ, ກາງ ແລະ ພາກໃຕ້ ຈຳນວນ 78 ຄົນ
- ສະເພາະແຂວງຊຽງຂວາງ ແລະ ແຂວງ ຫົວພັນ ຈຳນວນ 30 ຄົນ
- ວົງເຜີຍແຜ່ໃຫ້ຊາວກະສິກອນ ຮັບຮູ້ ກ່ຽວກັບຄວາມສ່ຽງ ແລະ ເຕັກນິກ ການນຳໃຊ້ຢາປາບສັດຕູພືດ ໃນເຂດພາກເໜືອ ລວມ 30 ບ້ານ, ມີຜູ້ເຂົ້າຮ່ວມ 900 ຄົນ.

ການຕິດຕາມ ແລະ ຊຸກຍູ້ວິຊາການໃນການກວດກາຮ້ານຢາ ປາບສັດຕູພືດ






2. MAF-FAO
Pesticide Risk Reduction activities in support of Sustainable Intensification of Crop Production in Lao PDR

Food and Agriculture Organization of the United Nations

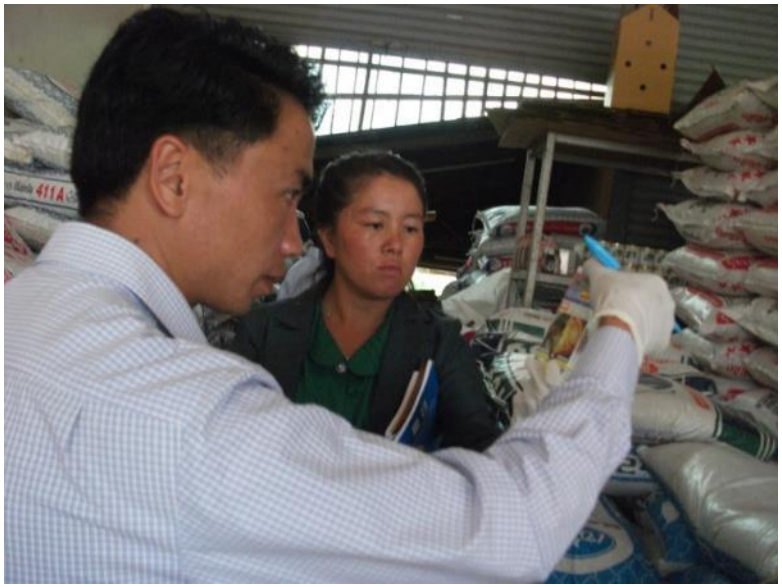
I.P.M
LAO PDR
INTEGRATED PEST MANAGEMENT

SAVE AND GROW

Food and Agriculture Organization of the United Nations

Pesticide Risk Reduction

FAO's integrated approach



Regulatory control:

Strengthen regulatory control of the importation, distribution and use of pesticides

Farmer education:

Promotion of Integrated Pest Management (IPM) to:

- eliminate pesticide overuse,
- reduce reliance on pesticides,
- end use of WHO Class I pesticides

DOA-FAO Pesticide Risk Reduction Farmer Training

2010-2016:

- **Active in 16 Provinces including Vientiane Capital**
- **PRR FTs implemented in 45 districts, 163 villages in 16 provinces**
- **More than 5,300 farmers (1,736 women) trained**

Farmers learn in 3-day curriculum about:

- **Negative effects of pesticides on human health & environment;**
- **How to assess & reduce risks associated with pesticide use;**
- **Develop Community Action Plans for Pesticide Risk Reduction.**

Results of Community Action Plans

- **Awareness of farmers raised on negative effects of pesticides and pesticides banned in Lao PDR**
- **30-40% of trained farmers reduced use by 30-40%, with improved handling and less use of toxic pesticides;**
- **Trained farmers in communities stop the use of banned pesticides (e.g. Paraquat);**
- **Farmers adopted IPM after having participated in full-season Farmers Field Schools;**
- **Activities were well received and supported by local authorities, with strong support for upscaling PRR and IPM farmer training.**

IPM Farmers Field School (FFS) Implementation

1996 - 2016:

865 IPM FFSs for 32,000 farmers

- **2011-2013: Fruit Fly Management (2 provinces)**
- **2012-2013: Cassava pink mealybug management (5 provinces)**
- **2015-2017: Save & Grow - Sustainable Intensification of Rice Production (4 provinces)**

3. Surveys of Pesticide Use in Xieng Khouang Province

LURAS Project Team

Main Pesticides used in Xieng Khouang

Insecticides	Herbicides
• Cypermethrine • Carbaryl	• Paraquat (Illegal) • Glyphosate • 2,4-D • Atrazine 80

- Total area of maize ***about 25,000 ha***
- Kham and Nonghad Districts - ***90% of maize farms*** surveyed apply pesticides, mainly herbicides
- Annual quantities of pesticide reported sold:
  - Kham ***12.9 t/year***
  - Nonghad Districts - ***95.3t/year***

Comparison of actual herbicide rates used by farmers and recommended rate in labels/instructions

Popular Pesticides	Unit	Actual rate used by famers per hectare	Recommended application rate per hectare
Paraquat	L	5.8-6.5	2
Glyphosate		8.3-9.5	4
2,4-D		0.3-0.8	2
Cypermethrine		0.5	0.3
Atrazine	Kg	6.2-6.4	2

Health Effects of Pesticides

Acute Effects Observed in Sample Areas

- **Mild**: *majority of farmers* dizzy, headache, tired, burning/stinging/itching eyes, short breath and sore throat
- **Moderate** : *some* farmers with nausea, stomach cramp, vomiting, tremors, etc
- **Severe**: two cases of coma/seizure

Possible Chronic Effects - not observed

- Breast cancers
- Nervous system problem
- Lung disease
- Skin disease
- Cognitive development in childhood

Health Effects of Pesticides

Blood tests for pesticide detection

Note: tests detect insecticides (carbamates & organophosphates) but **not** herbicides.

Target groups	Sample size	% of people have unacceptable pesticide residue in blood
Farmers	375	50
School Children	199	41
Consumers	193	55
All groups	767	49

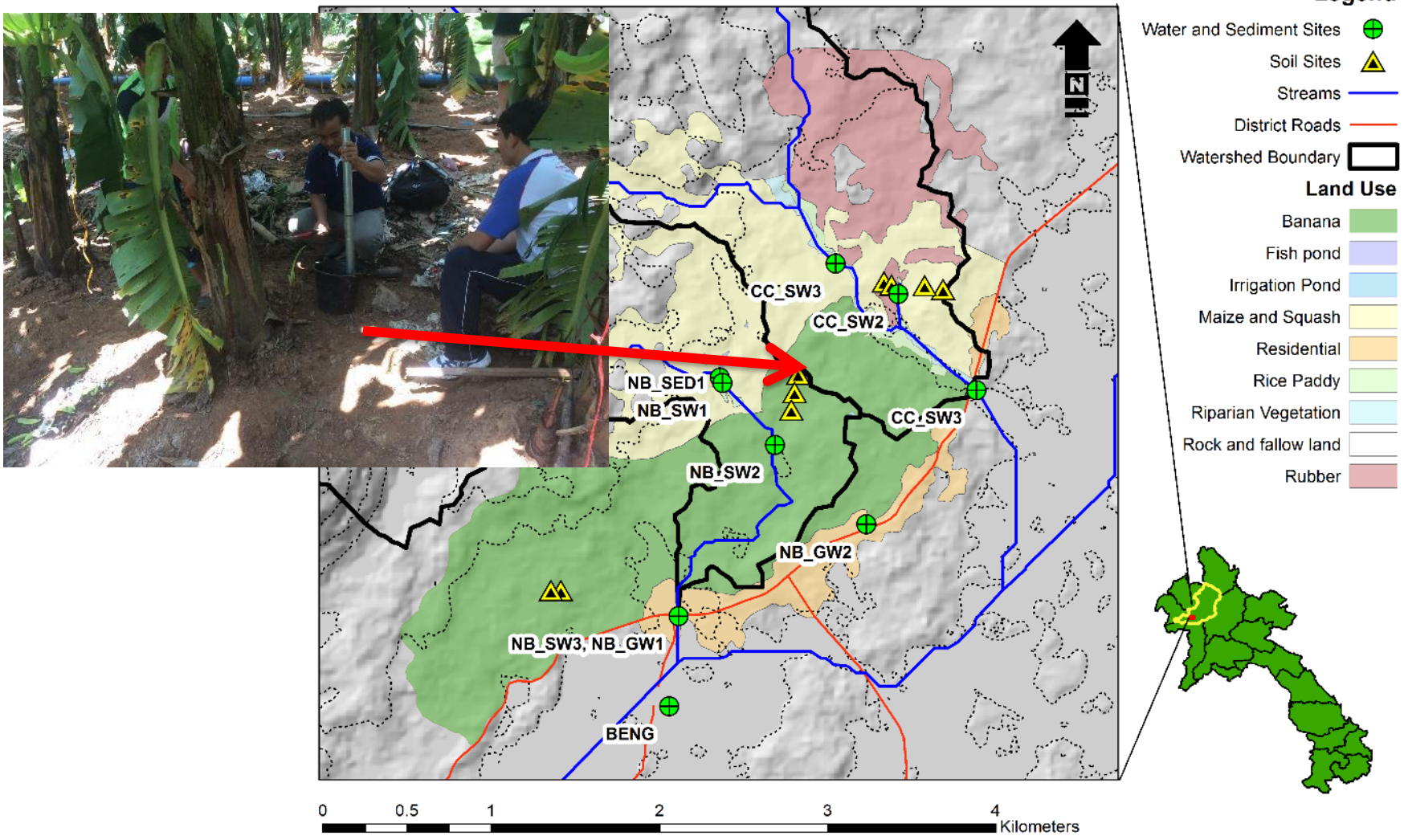
Key Observations

- Banned pesticide (e.g. paraquat) available in local markets and used by farmers - pesticide regulation not enforced
- Farmers extensively and intensively use pesticides in commercial agriculture, e.g. maize, fruit, vegetable
- Farmers usually use pesticides in higher rates than label recommendations
- Farmers lack appropriate protection when operating equipment
- Pesticide contaminated vegetables and fruits sold in markets from local farms and imported sources
- Unacceptable pesticide levels in blood are present in all sections of society, including producers and consumers
- Exposure of women and children to pesticides is especially worrying

4. Pesticide Risks from Commercial Banana Farming in Oudomxay Province

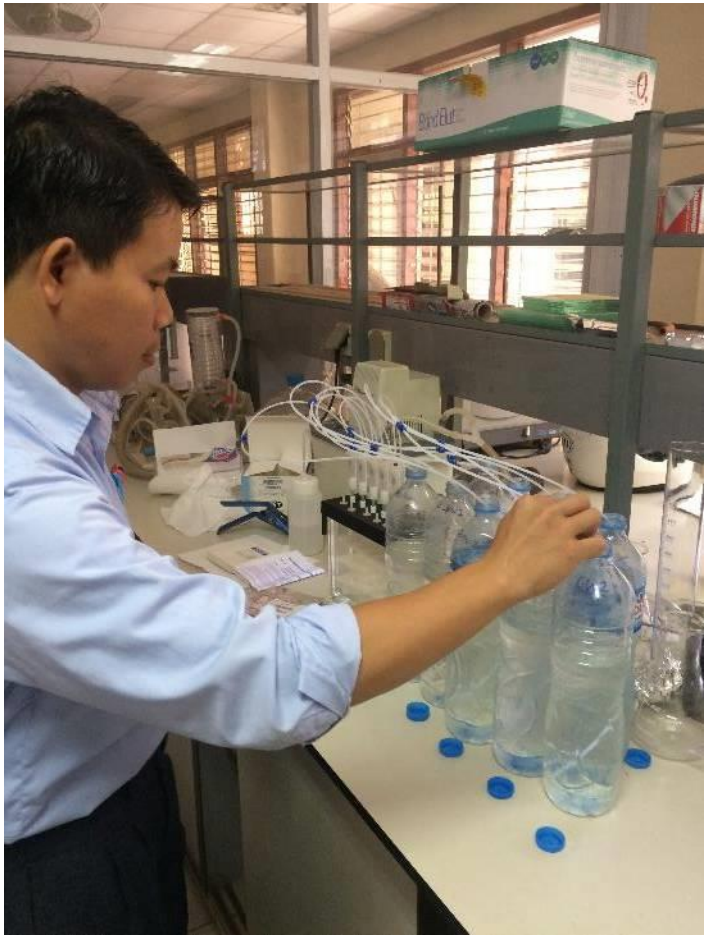
Research by
Andrew Wentworth
Touleelor Sotoukee
Dr. Santi Kongmany
Dr. Paul Pavelic
Khamla Sengphaxaiyalath

Assessment of environmental risks from banana farming and other common commercial crops



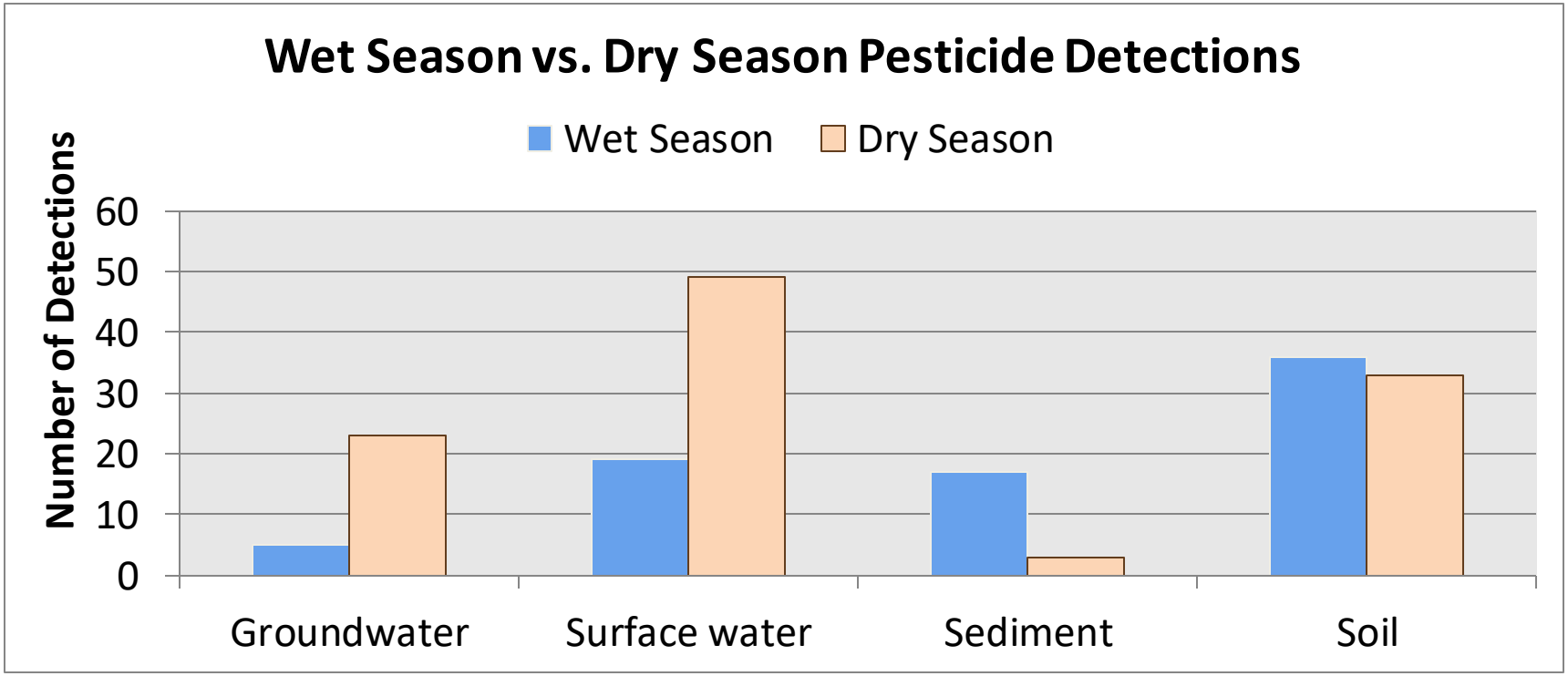
Laboratory Analysis

- 40 compounds analyzed
  - 20 organochlorine insecticides (NUOL, Vientiane)
  - 20 fungicides, insecticides, and herbicides (SGS Vietnam, Ltd.)
- Pesticide residues detected in 96% of samples
  - 29 compounds detected
  - Most samples had 1-6 compounds



Pesticide Residues in Banana Farms

Result: Substantially higher number of detections in dry season water samples



sSWG Recommendations

Short-term:

-Awareness raising with local agricultural authorities and close collaboration with Government authorities to carefully develop and publish media for communities or farmers on the negative impacts of improper use and handling of pesticides including the report on the unauthorized pesticide and incident of adverse effects.

-Enforcement of Government regulations related the importation of pesticides, including banned products.

Medium to long term:

-Establish national pesticide analysis facility that meets ISO standards

-Promotion of low use and pesticide-free farming systems including organic farming, GAP or use alternative low hazardous pesticide.

-Development of the capacity of local extension services to provide better advice on pesticides and pest management.

-Research/study of adverse effect of pesticide in the farm specific use condition to provide information supporting for the ban of severe restrict control of pesticide.

Detailed recommendations for action by Government Agencies and support by Development Partners

I. Policies and regulations

- Disseminate information on pesticide regulations
- Improve inspection capacity at all levels
- Identify incentives for strict enforcement including punishments
- Include social enterprises and NPAs as monitoring and inspection partners
- Support organic agriculture, mixed cropping, and IPM
- Introduce obligatory reporting of pesticides use in large commercial farms
- Apply methods to control soil erosion and introduce no-spraying zones close to waterways
- Pursue sub-regional approaches to control of banned pesticides, etc.

II. Extension and training

- Increase capacity of local agencies to advise on control of pests/diseases
- Communicate negative effects on pesticides on health risks to users and environment
- Conduct ToT on correct use of pesticides and IPM
- Provide extension with specialized information on pesticide toxicity etc.
- Use of mass media to promote reduced pesticide use and IPM technologies

III. Topics for Further Research

- Levels of pesticide residues in farm produce/products from various cropping systems, and in water resources
- Effects of pesticides on soil organisms
- Modified pesticide use, including more accurate application techniques, reduced applications, and scheduling/timing
- Mapping of trade and use in pesticides
- Viability of various bio-pesticides compared with chemical pesticides in different farming systems
- Alternative cropping and cultural control techniques for pest management