

# Occupational & Environmental Diseases in Thailand

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# Trends in Industrial Injuries and Occupational Diseases in Thailand

Year	Number of employees	Number of injury	Rate of injury per 1,000	Number occupational disease
2001	5,544,436	189,621	34.20	13,234
2002	6,541,105	190,979	29.20	9,976
2003	7,033,907	210,673	29.95	8,460
2004	7,386,825	215,534	29.81	7,502
2005	7,720,747	214,235	27.75	

# Top 20 Occupational Diseases in Thailand

1. Musculoskeleton Disorder
2. Pesticide Poisoning
3. Contact Dermatitis
4. Noise Induced Hearing Loss
5. Lead or Lead Compounds Poisoning
6. Chlorine or Chlorine Compounds Poisoning
7. Ammonia Poisoning
8. Benzene Poisoning
9. Silicosis
10. Respiratory Diseases due to organic dust

# Top 20 Occupational Diseases in Thailand

11. Non-ionizing Radiation Sickness
12. Sulfur dioxide Poisoning
13. Nitrogen oxide Poisoning
14. Caused by Heat
15. Infectious disease
16. Arsenic or Arsenic Compounds Poisoning
17. Zinc Poisoning
18. Manganese Poisoning
19. Vibration Sickness
20. Hydrogen sulfide Poisoning

# Report of Land Zoning and Cd Risk Assessment Activities Undertaken in Mae Sot, Thailand



R.W. Simmons<sup>1</sup>, **O. Sukreeyapongse**<sup>2</sup>,  
**N. Chinabut**<sup>2</sup> and **A.D. Noble**<sup>1</sup> et al.,

<sup>1</sup>International Water Management Institute

<sup>2</sup>Land Development Department, Ministry of Agriculture

1998 - 2003

Fig 1. Location of the contamination site : Mae Sot, Tak, Thailand

Mae Sot, Tak



Fig 2. The Cd-contaminated rice-based agricultural system investigated: Phatat Pha Daeng and Mae Tao Mai sub-districts, Mae Sot, Tak Province, Thailand (2001-2005)

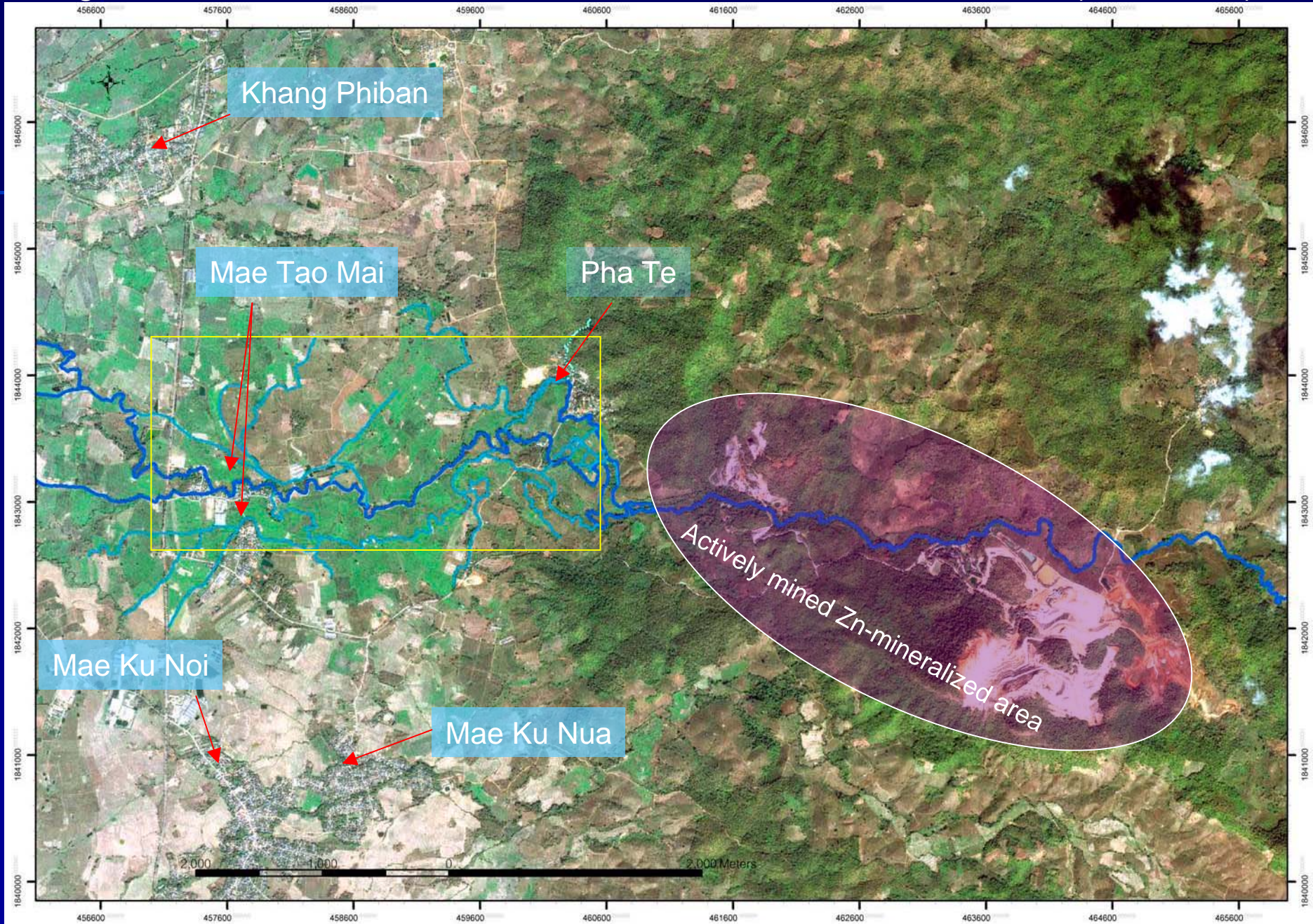


Fig 3. Total soil Cd ( $\text{mg kg}^{-1}$ ) in 1,090 fields of Phatat Pha Daeng and Mae Tao Mai sub-districts, Mae Sot, Tak Province, Thailand

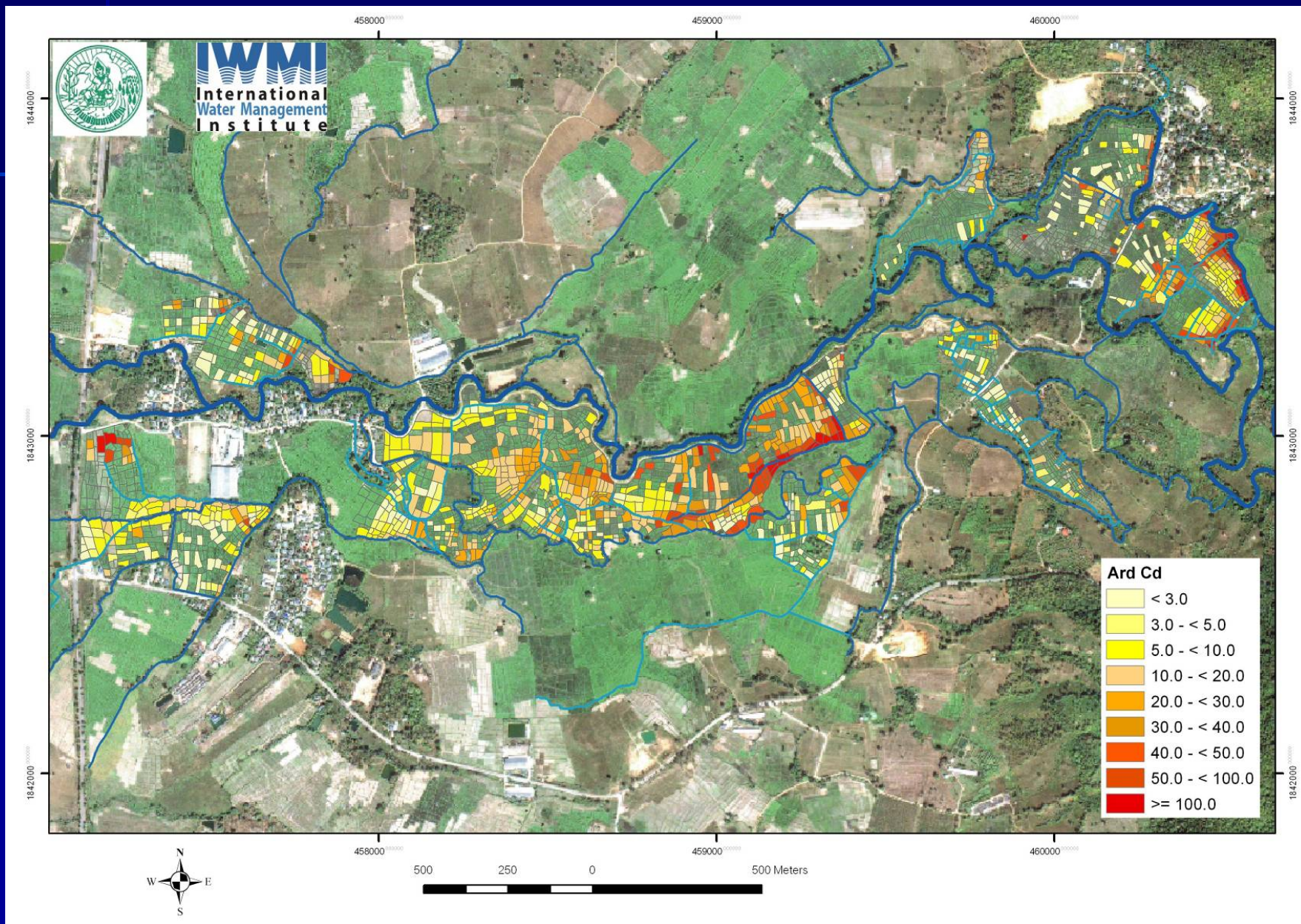
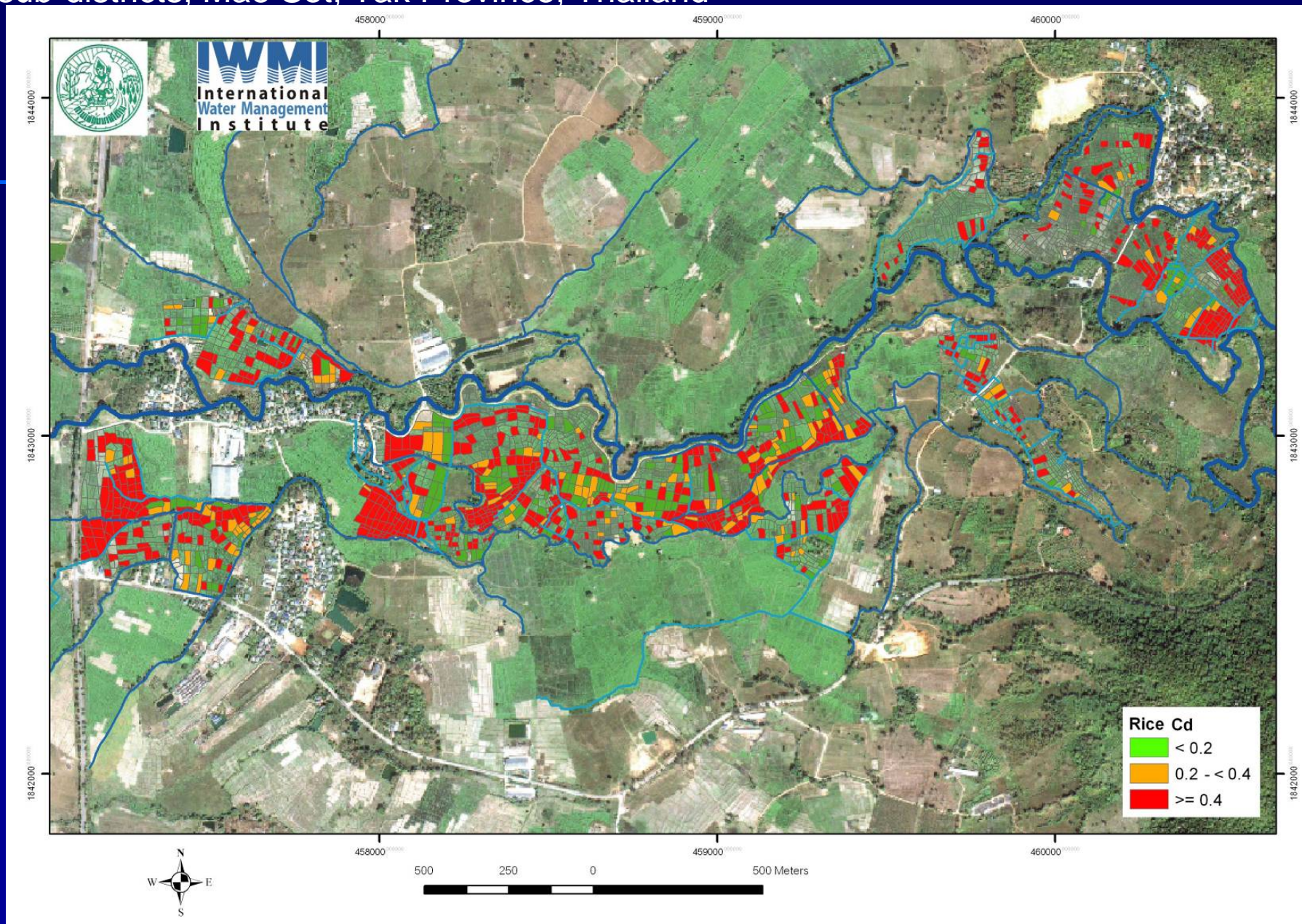




Fig 4. Rice grain Cd ( $\text{mg kg}^{-1}$ ) in 1,067 fields of Phatat Pha Daeng and Mae Tao Mai sub-districts, Mae Sot, Tak Province, Thailand



# Cadmium concentrations in Environment (NWMI & MOA)

Concentration	% exceeding	Cadmium range (mg/kg)
Maximum	91	0.3 - 326

## Permissible levels

Sediment	91	0.3 - 326
Paddy soil	1,090	<0.1 - 284
Rice grain	1,067	<0.1 - 7.7

\* >3.0 mg/kg, recommended by the European Union

\*\* >0.2 mg/kg, recommended by the Codex Committee on Food Additives and Contaminants

## *Conclusion : Environmental Assessment*

- It was evident that mining activity significantly increased environmental contamination.
- Cadmium was absorbed by rice grown on soil irrigated with natural creek water containing contaminated sediment.

- ***Health risk management : 2005 - 2006***
- Challenges encountered
  - The unclear source of contamination, between natural and man-made origins, rendered it difficult to claim accountability from zinc mines in the area
  - Villagers have strong cultural beliefs and values around rice and rice growing processes that they have been reluctant to change their agricultural practices.
  - Human rights issues for Karen population in the affected area have been raised and this movement could possibly prohibit relocation, even if it is needed.
- All these issues prompt public health staffs to search for alternative ways to manage health risks more participatory, economically, socially and culturally acceptable.

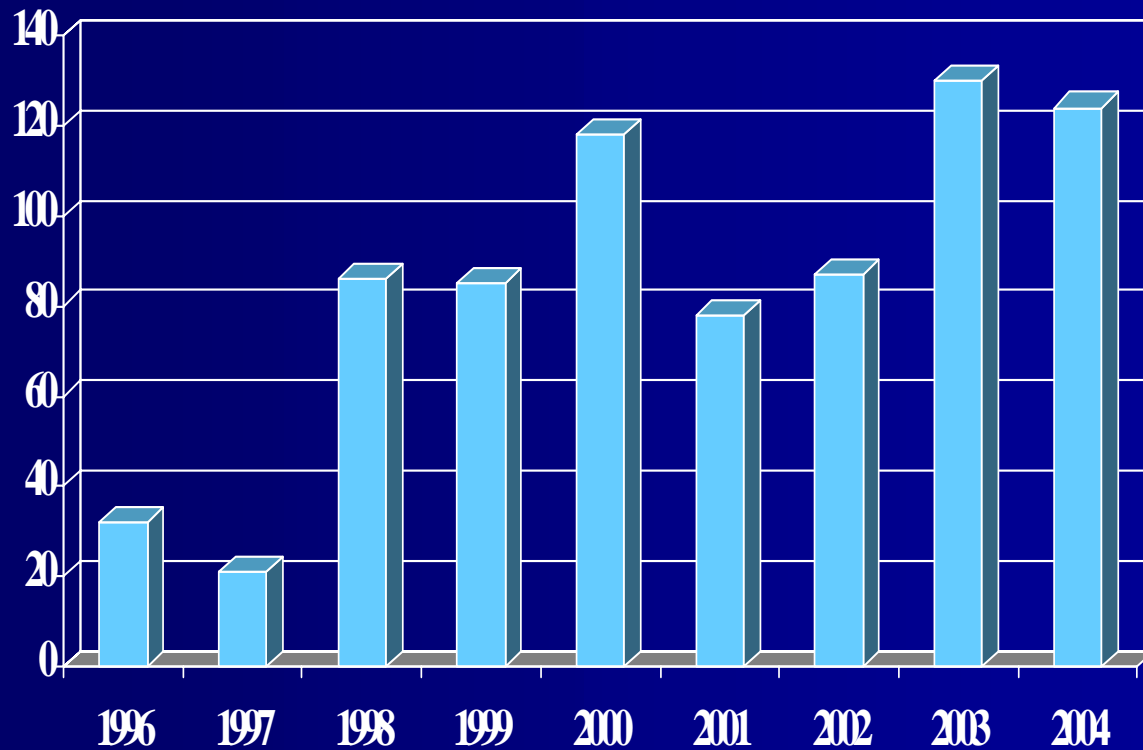
- ***Health risk management : 2006 +***
- A 3-year Mae Tao Creek area Development Plan was proposed to the cabinet, by Ministry of Interior, early in September 2006.
- It is approved early in October 2006. A 195 millions Bahts (4.8 millions US\$) budget will be allocated for 14 projects classified under 4 strategies.
- ***Strategy 1 : Soil rehabilitation***
  - cadmium absorption by cadmium accumulating plant
- ***Strategy 2 : Pollution prevention and control***
  - environmental monitoring

- **Health risk management : 2006 +**
  - **Strategy 3 : Economic development, health and quality of life**
    - Alternative occupation promotion (mushroom plantation)
    - Fund for occupation changes
    - Fund for chronic renal failure patients
    - Hospital laboratory capacity building  
Hospital
    - Long term health surveillance
    - Alternative crops cultivation for ethanol production
    - Animal health risk assessment
    - Detection of cadmium concentration in animal feedings
    - Decorative palm plantation promotion
  - **Strategy 4 : Capacity building for risk management**
    - Funding for Mae Sot Civil Society activities
    - Mae Tao Creek Development Center
- Mae Sot

# The situation of asbestos in Thailand

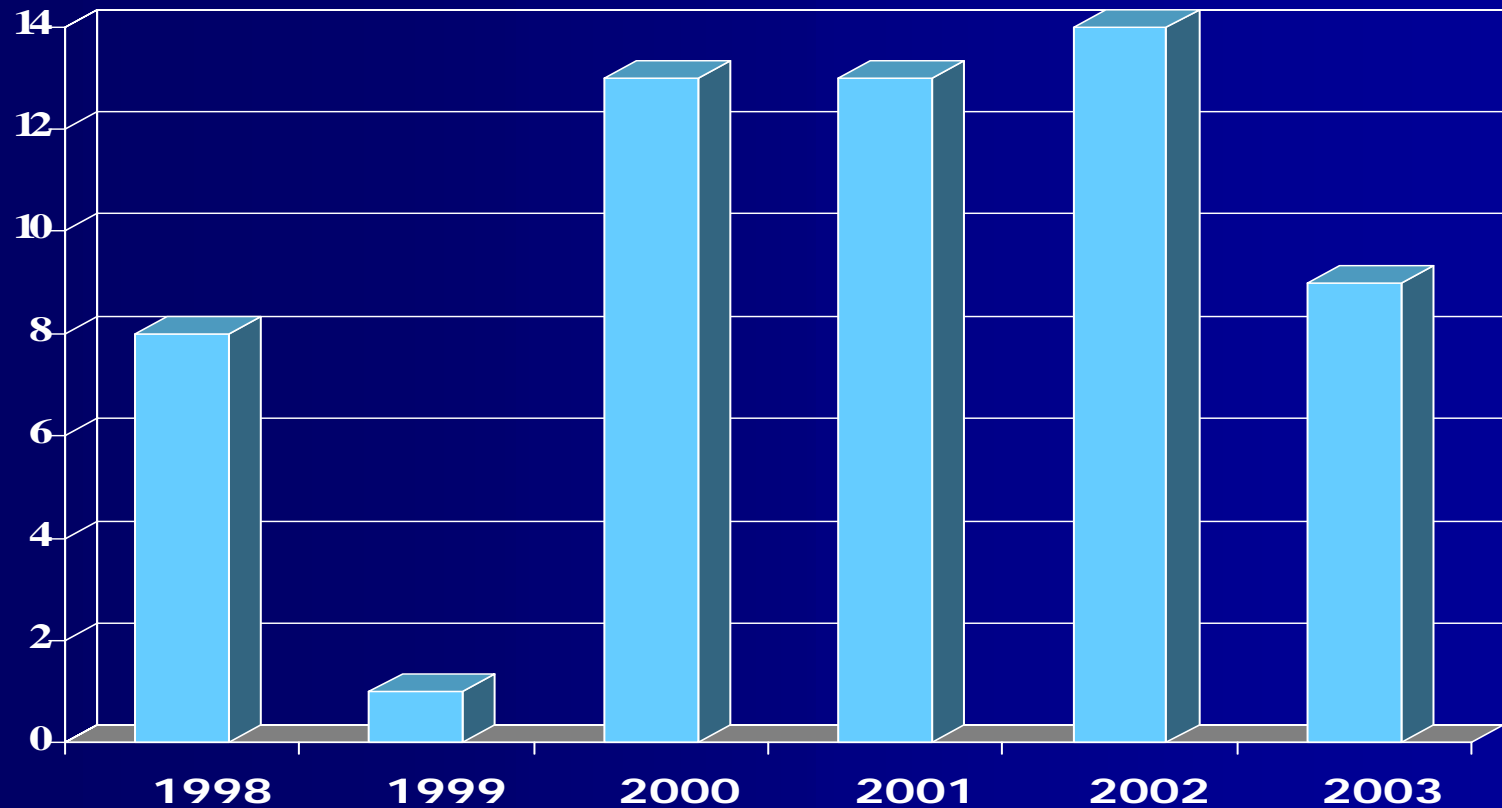
- Asbestos has been imported > 30 years
- Only chrysotile is used
- Number of asbestos use is approx. 150,000 ton/year (2.4 Kg/person) and the trend is increasing
- The dust levels in most working environments are still higher than normal standard

# Number of pneumoconiosis in Thailand (From Bureau of Epidemiology)





# Number of Occupational lung diseases reported from Bureau of Workmen's Compensation



# Results of health surveillance in asbestos use factories

Year	No. of Factories	No. of workers	No. of abnormal CXR	No. of pleural thickening	No. of suspected asbestosis
1987	24	701	13	13	-
2000	6	669	?	-	-
2003	6	140	41	5	-
2004	8	106	31	9	1

Asbestosis and other asbestos related diseases have never been reported!

# Why?

1. This maybe the real situation, or
2. Under-report of cases:
  - Long latency period of the disease
  - High turn-over rate among workers
  - Lack of awareness and knowledge in diagnosing the disease among physicians
  - No follow-up or registration system

# Roadmap for control and prevention of asbestos-related diseases

1. Empowerment and capacity building of employers, employees, health professionals, and the public
2. Improvement of legislation and law enforcement
3. Development of effective surveillance and follow-up system for high risk workers
4. Implementation of effective dust control measures and using alternative safer materials for asbestos substitution



Sarwasdee