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# State of Pesticide Regulations in India



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# PML's studies

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- 1. Pesticides in bottled water, 2003**
- 2. Pesticides in carbonated beverages, 2003**
- 3. Pesticides in carbonated beverages, 2006**



## Bottled water, 2003

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- Collected 17 brands of bottled water from Delhi and 13 brands from Mumbai region
- Tested for organochlorine and organophosphate pesticides
- All brands, except one, contained pesticide residues
- Contained up to **5 different pesticide residues**
- In Delhi average of all samples were **36.4 times higher** than the **EEC standards**
- In Mumbai, relatively better, average of all samples was **7.2 times the EEC standards**



# Indian regulations before CSE study?

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- Ambiguous
- Packaged and mineral water norms: pesticides to be “below detectable limits”
- List of pesticides limited
- Tests to be conducted with less-sensitive out-dated equipment
- Essentially, if one tested the bottled water with the specified standards, one would have found nothing. The results would have been “below detectable limits”



# Indian regulations after CSE study?

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- July 2003, BIS notified new pesticide norms for bottled water – individual pesticide limit 0.1 ppb and total pesticide limit of 0.5 ppb
- New test methodology and a new list of pesticides notified

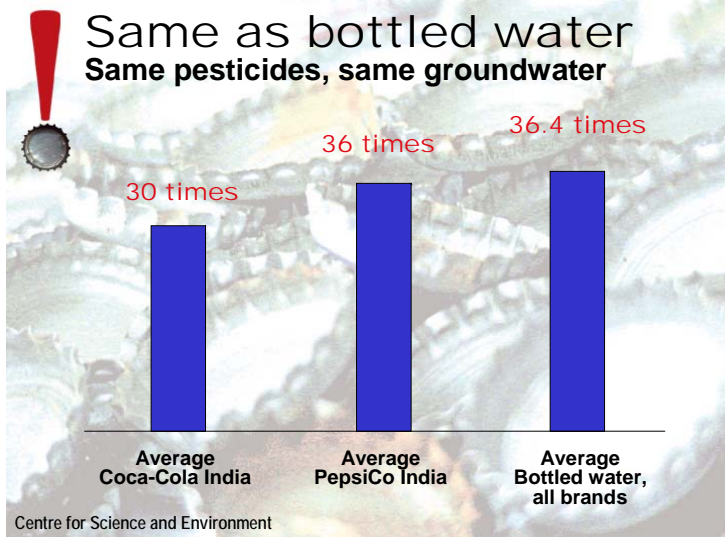


# Two studies. Too many issues.





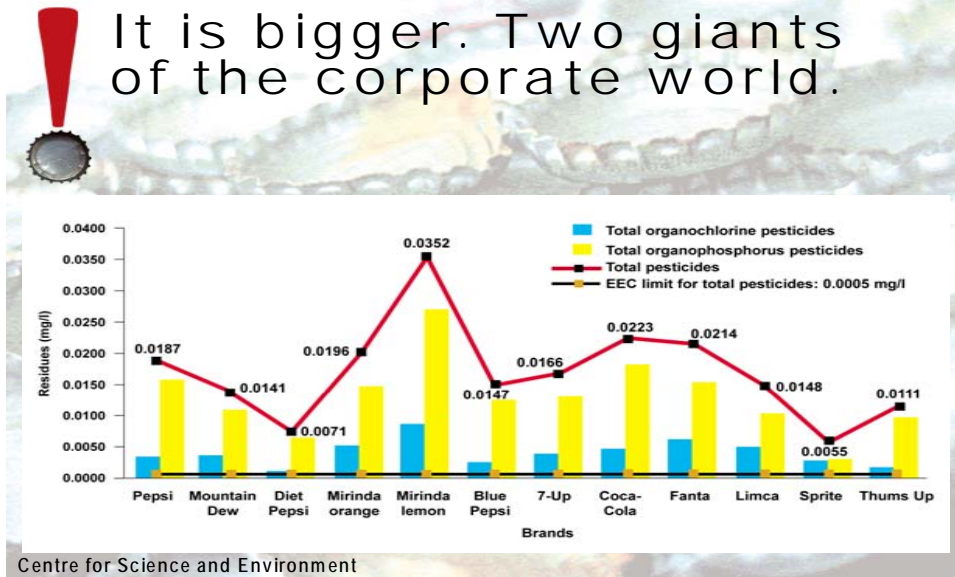
# What did we find in soft drinks, 2003



- Same pesticides as bottled water – DDT, lindane, chlorpyrifos, malathio

- Same level as bottled water

- But no regulations





# Events after the 2003 study

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- August 5 2003: CSE releases study on pesticide residues in soft drinks
- August 5 2003: PepsiCo and Coca-Cola do joint press conference. They question CSE lab; dismiss our findings say that there are no pesticides in their drinks. They test regularly. They put out adverts saying they are clean
- **August 2003: Joint Parliamentary Committee constituted to investigate the CSE findings and to examine safety standards for beverages**





# Joint parliamentary committee

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- **ToR of the JPC:**
  - Check whether the recent findings of the Centre for Science and Environment regarding pesticide residues in soft drinks are correct or not
  - Suggest criteria for evolving suitable safety standards for soft drinks, fruit juice and other beverages where water is the main constituent
- **We, however, used this opportunity to bring to the notice of the committee the problems in pesticide regulation, food safety standards and groundwater misuse by companies**



# Research on pesticides for the JPC

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- Indian regulations did not regulate pesticides on the basis of the **acceptable daily intake (ADI)** – *the maximum amount of a pesticide that can be ingested daily without health hazards*
- The setting of safety standards on food commodities (MRL) were not being done at the time of registration of pesticides
- We showed how out of the 180-odd pesticides registered, MRLs had been set for only 71
- We also showed to the committee how pesticide regulations were not working on the ground



## What did JPC find

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- That the results of the CSE study were correct; companies were indicted for false advertisement
- That the pesticide regulations in India were in disarray
- That eight different ministries were looking after the issues related to pesticides
- That pesticides were being registered without setting the safety limits (MRLs)
- That there was no proper mechanism to monitor pesticide residues in country



# What did JPC recommend

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## **Complete overhaul of food safety and pesticides regulations in the country**

- Setting of an independent food safety authority (FSSAI) to look after the issues related to food safety including pesticide regulations
- Setting of pesticides standards for soft drinks
- Discontinuing the practice of registering the pesticides without setting their MRLs
- Setting the MRLs for all pesticides for all crops for which they were registered



# What did JPC recommend

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- Reviewing MRLs on a regular basis to accommodate the changes in dietary patterns and agricultural practices so that the total intake of pesticides from all sources remain below the allowable intake (ADI)
- Recommending the waiting periods for all the pesticide
- Creating awareness among farmers about the use of pesticides
- Monitoring of pesticides in various products on an yearly basis and making the results public



# What did the Government do?

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## 1. Overhaul of food safety regulations

- Food Safety and Standards Act, 2006 passed which consolidates various acts & orders that have hitherto handled food related issues in various Ministries and Departments.
- The Food Safety and Standards Authority of India (FSSAI) setup



# What did the Government do?

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## 2. Overhaul of pesticide regulations

- Pesticides Management Bill, 2008 placed in the parliament
- The Standing Committee on Agriculture reviewed the bill and submitted its report in 2009
- Bill still in parliament



# What did the Government do?

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## 3. Setting MRLs before registration of pesticide

- June 2, 2003: Inter-ministerial committee under the chairmanship of Secretary, Ministry of Agriculture (MoA), recommends setting MRLs before registering pesticides
- September 12, 2003: Registration committee (RC) rejects this recommendations in its 238<sup>th</sup> meeting
- March 31, 2004: MoA reiterates setting MRLs before registration in a meeting under chairmanship of Joint Secretary
- RC repeatedly rejects the proposals on grounds that it will **“unnecessarily”** delay registration process; went on to register pesticides without MRLs; **the practice continues**





# What did the Government do?

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## 4. Setting pesticides standards for soft drinks

- Committees setup in Ministry of Health (under Central Committee on Food Standards), Bureau of Indian standards and Department of Consumer Affairs
- Many more tests done – on soft drinks, on sugar, on groundwater etc. – but no standards notified
- CSE then tested the soft drinks again in 2006 and publicly released the results showing high levels of pesticides
- **August, 2008** Ministry of Health notifies standards for soft drinks – 1 ppb for individual pesticides and 5 ppb total pesticide – 10 times higher than bottled water



# What is the current status of pesticide regulations

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- More than eight years after the JPC recommendations were made, we sat down to see where we stand
- What we found was shocking!



# Status of MRLs

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- Out of **234 pesticides** registered in India, still no MRLs for **59 pesticides**
- An analysis of 20 most widely used pesticides showed:
  - Only two of these pesticides have MRLs set for all the crops they are registered for
  - Quinalphos, registered for 32 crops, has MRLs set for just four of these crops
  - Methyl parathion, registered for seven crops, **have MRLs set for two – fruits and vegetables – for which it is not registered**



# MRLs set without considering ADI

Determine ADI  
(acceptable daily intake)

- Tests on rats for toxicity (NOAEL/LOAEL)
- Safety factor: 100 times more for humans

Set MRL (maximum residues limit)

- Based on field tests on crops
- Best-possible residue
- Compare with other countries' MRL

Multiplied by diet  
(exposure)

DIETARY INTAKE (TMDI-Theoretical Maximum Daily Intake) The sum of what we eat: diet by section of population

Cross check

— Ensure exposure is lower than ADI



# MRLs set without considering ADI

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- TMDIs for top 20 pesticides were calculated using a model diet based on National Institute of Nutrition's dietary guidelines
- TMDIs for nine and seven of the pesticides exceeded corresponding ADIs (set by Joint FAO/WHO Meetings on Pesticide Residues) for children and adults, respectively
  - TMDIs for Dimethoate were 19 and 10 times its ADIs for children and adults
  - TMDIs for Monocrotophos were 16 and 5 times its ADIs for children and adults respectively



# No impact on ground

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- There is a complete disconnect between what CIBRC registers pesticides for and what state agricultural universities recommend
- An analysis of 11 important crops showed that all agricultural universities recommend pesticides for crops that they are not registered for



# Recommendations of pesticides for wheat in different states

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## Number of Pesticides registered and recommended for wheat

State	Registered by CIBRC	Recommended in state	Registered but not recommended	Recommended but not registered
Punjab	38	40	9	11
Haryana	38	31	12	5
Uttar Pradesh	38	23	17	2
Madhya Pradesh	38	29	18	9



# Waiting period still not notified

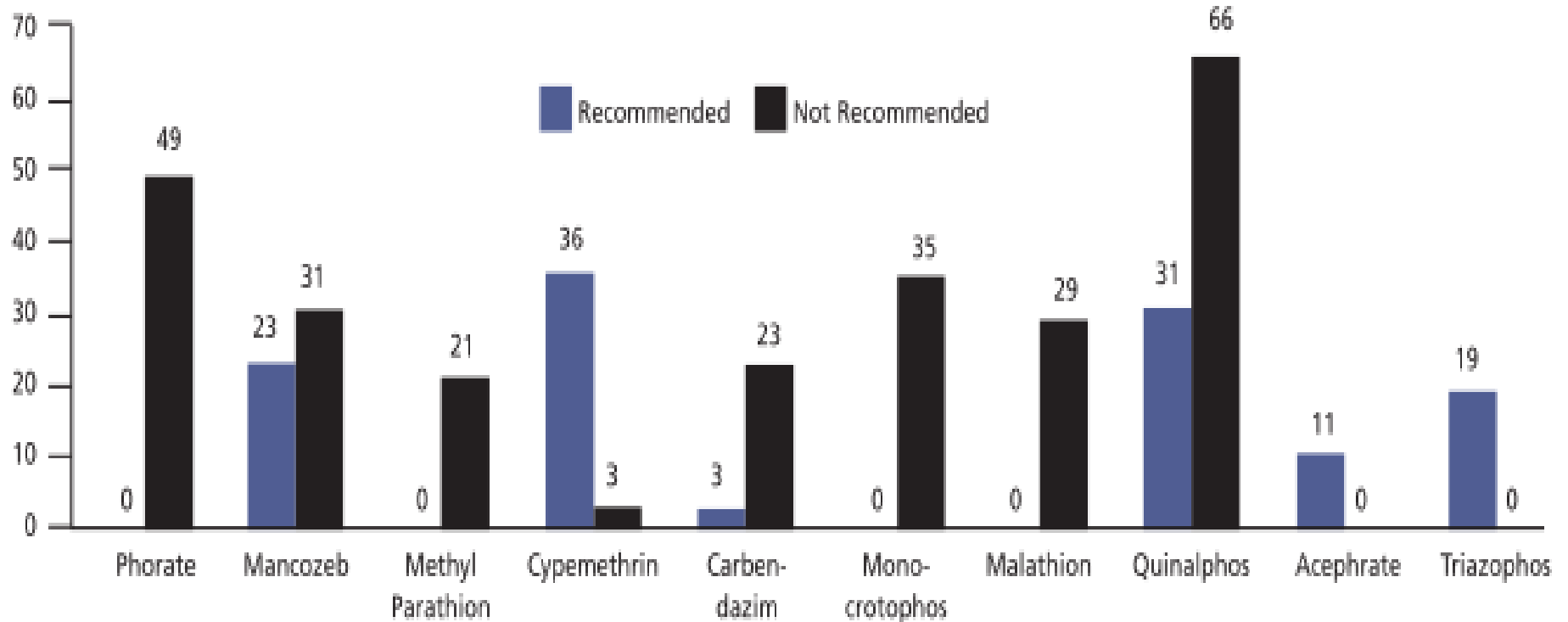
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- The waiting period should be unique for a combination of pesticide, the active ingredient concentration in its formulation, crop and the target which may be an insect, a disease or a weed
- An analysis of 10 pesticides showed that just two of these pesticides had complete set of recommended waiting periods
- Four of the pesticides - Phorate, methyl parathion, monocrotophos and malathion - had no recommended waiting periods





# Waiting period still not notified





# What needs to be done

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- Implement JPC recommendations