

# A Large Gin & Tonic Later

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## Thought for the day

- I was wondering last night as I sat down to write some new slides, what is it that we all want to achieve.
- The answer I thought was to improve the overall state of the environment.

# The Answer's Simple

- Close down industry, do away with intensive agriculture, energy generation and large cities.

# Not Practical!

- We need these activities but what we want them to have as little impact on the environment as possible.
- But highlights that these stakeholders have large role to play in the mechanisms by which we achieve improvements in environmental quality.

# How do we achieve minimum impact?

- Compliance with the law, compliance with a licence.
- But compliance does not always mean achieving best environmental performance.
- Think of consumption of resources such as raw materials, energy, etc. These are rarely addressed in environmental permits.

## So are we measuring what matters if we only measure compliance?

- Think also of the principles we encourage when we are permitting industry.
- We ask them to design out inefficiencies within their processes, reduce waste at source, reuse, recycle etc.
- Are these compliance issues?
- Law slow to change – so environmental improvement may be slow

# So what matters?

- Environmental Performance
- This includes
  - Impact on the environment
  - Economic impacts
- Compliance is a subset
  - But compliance in the most sustainable way!

# Information Everywhere!

- But is it the right information and are we using it in the most productive way.
- We get mountains of information from companies every month/quarter/year in the EPA.
- The question was, were companies only producing this information to demonstrate compliance to us, and if so is this the best use of resources?

# Environmental Benchmarking for IPC Industries

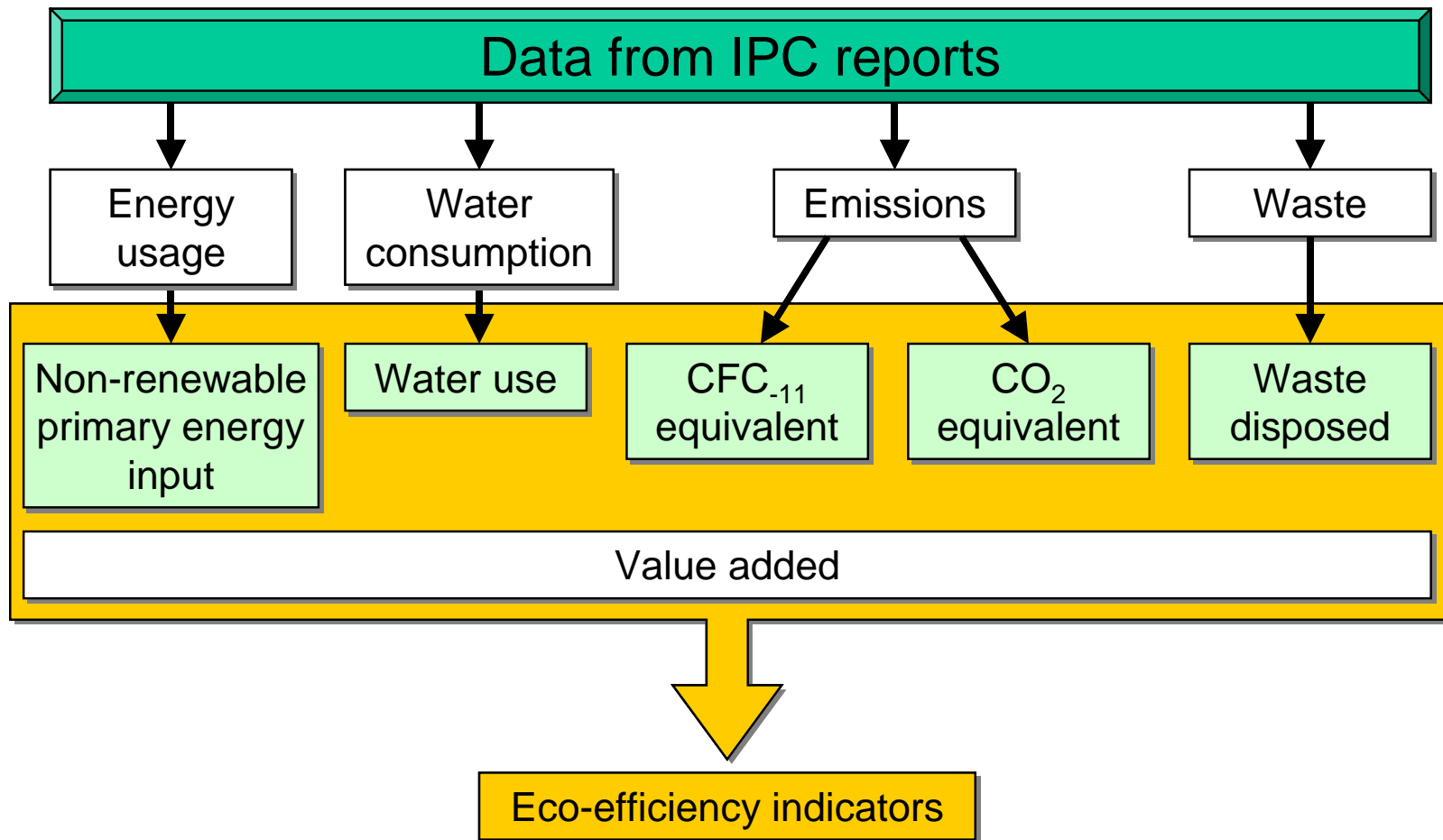
**CLEAN TECHNOLOGY CENTRE**

**Funded by EPA Research Fund**

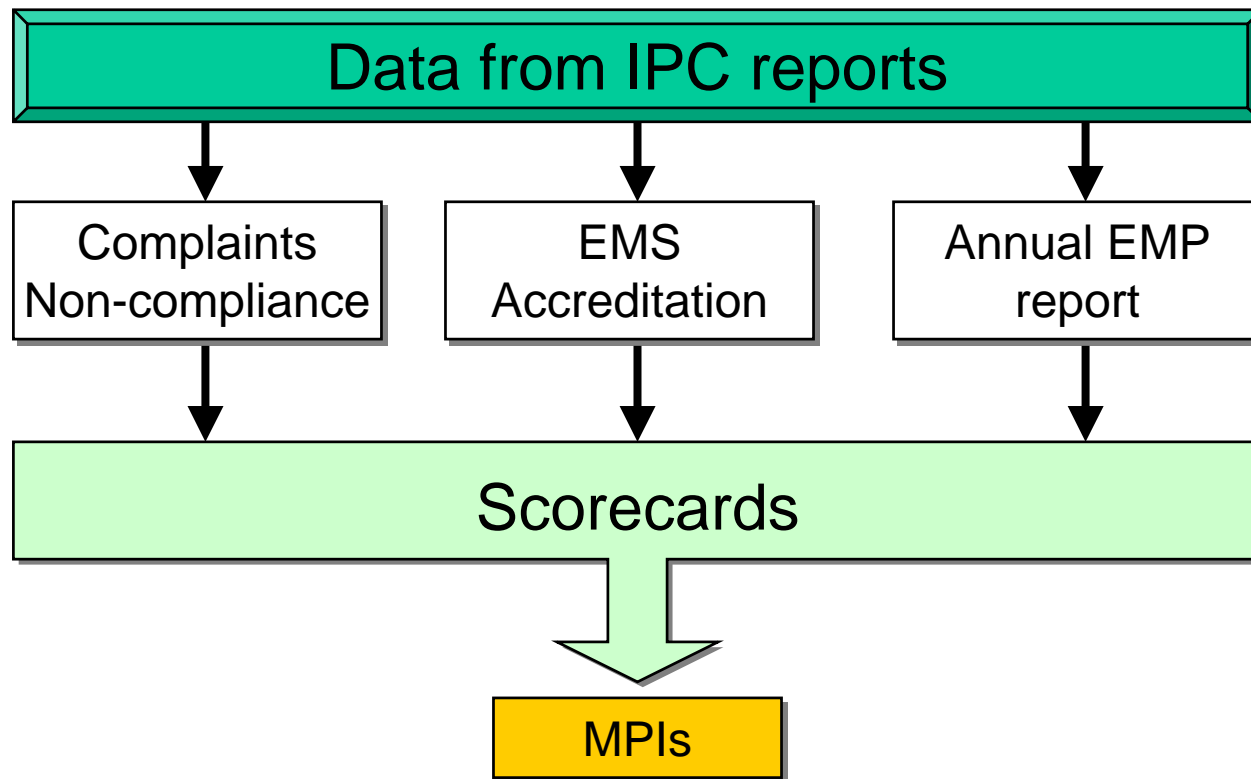
# INTERNATIONAL STANDARDISATION ORGANISATION (ISO 14031, 1998)

- Operational Performance Indicators (OPIs),
- Environmental Condition Indicators (ECIs),
- Management Performance Indicators (MPIs)

# Operational Performance Indicators



# Management Performance Indicators



## Eco – Efficiency Indicators

$$\text{Eco – efficiency} = \frac{\text{environmental performance}}{\text{financial performance}}$$

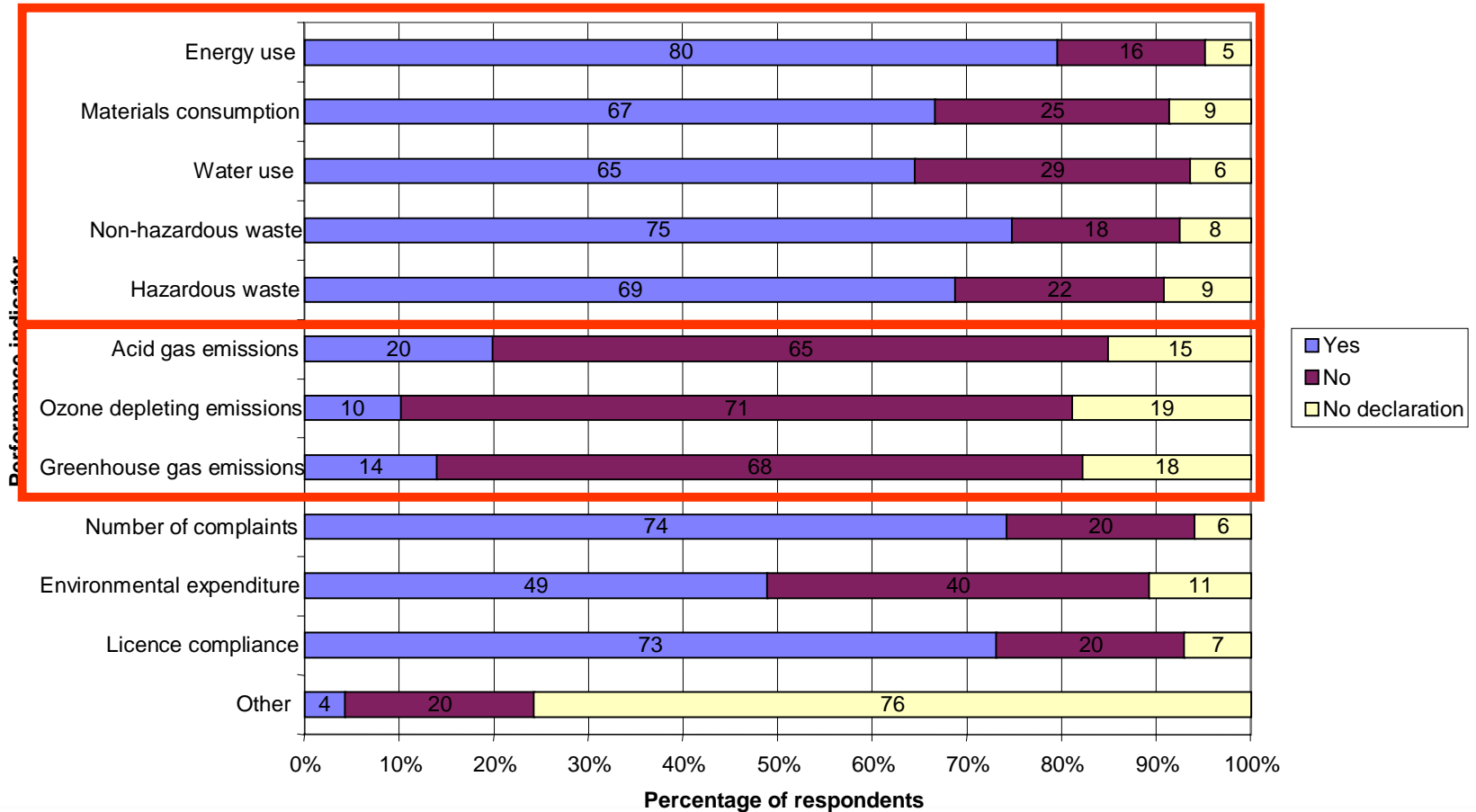
### **Environmental performance:**

- Energy purchased
- Water use
- Global warming emissions
- Ozone depleting substances
- Solid and liquid waste

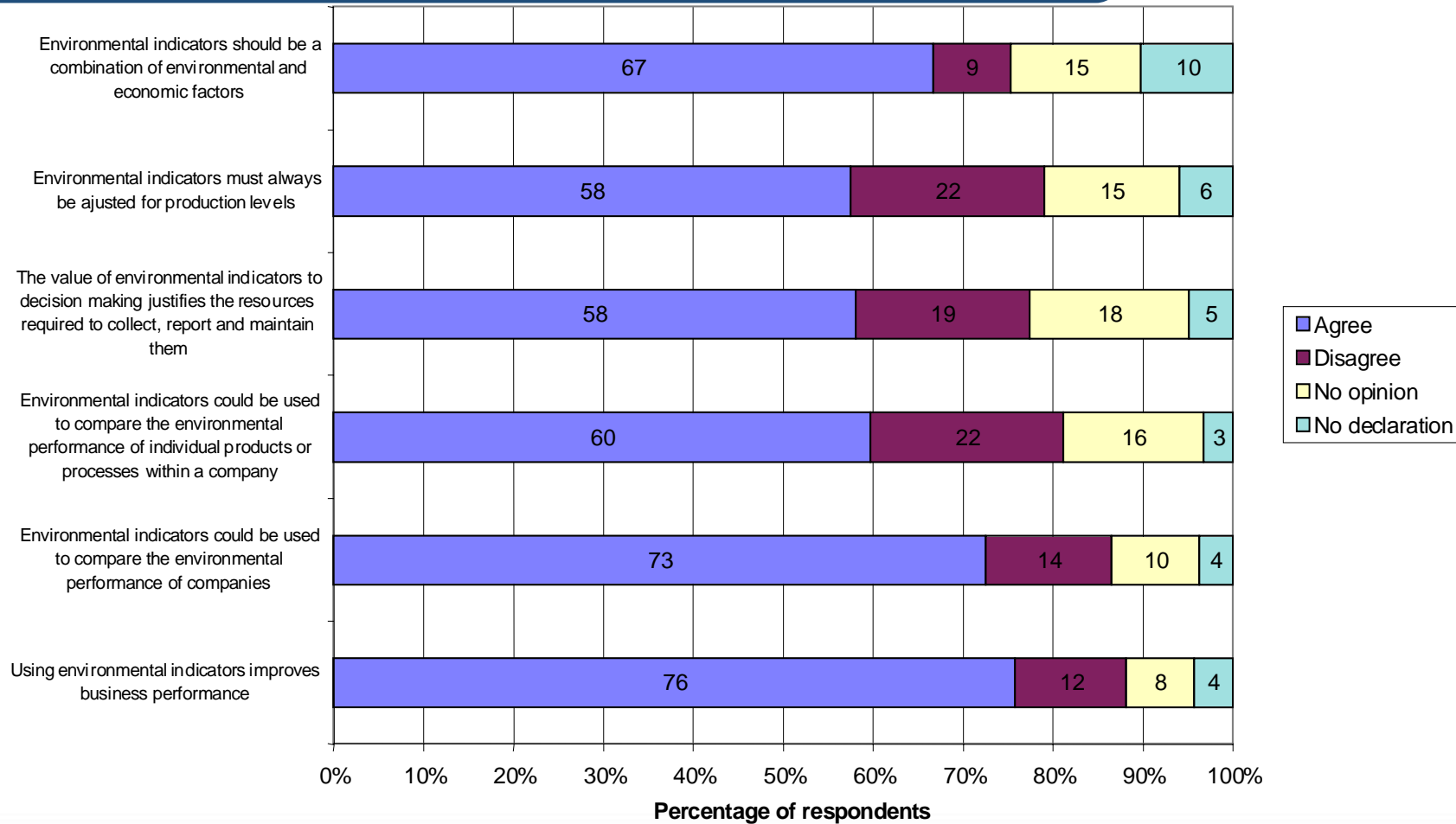
### **Financial performance:**

- Sales
- Value added

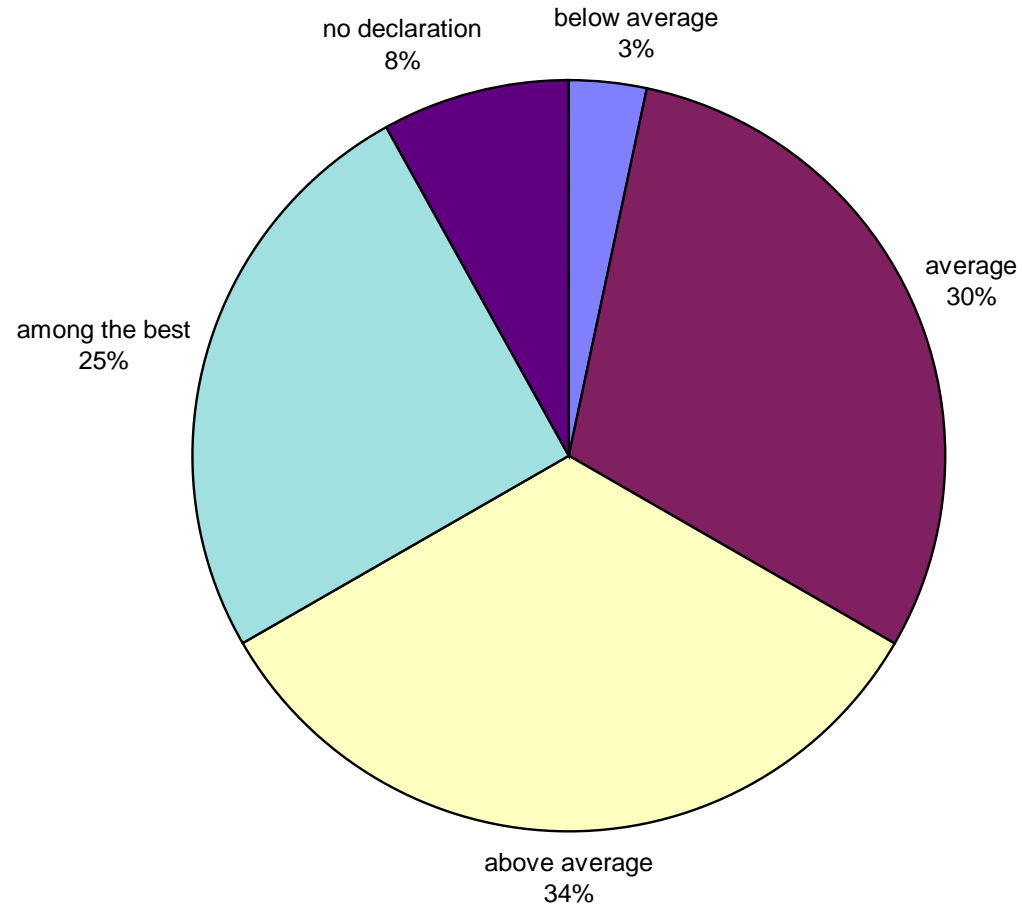
# EPIs used across all sectors



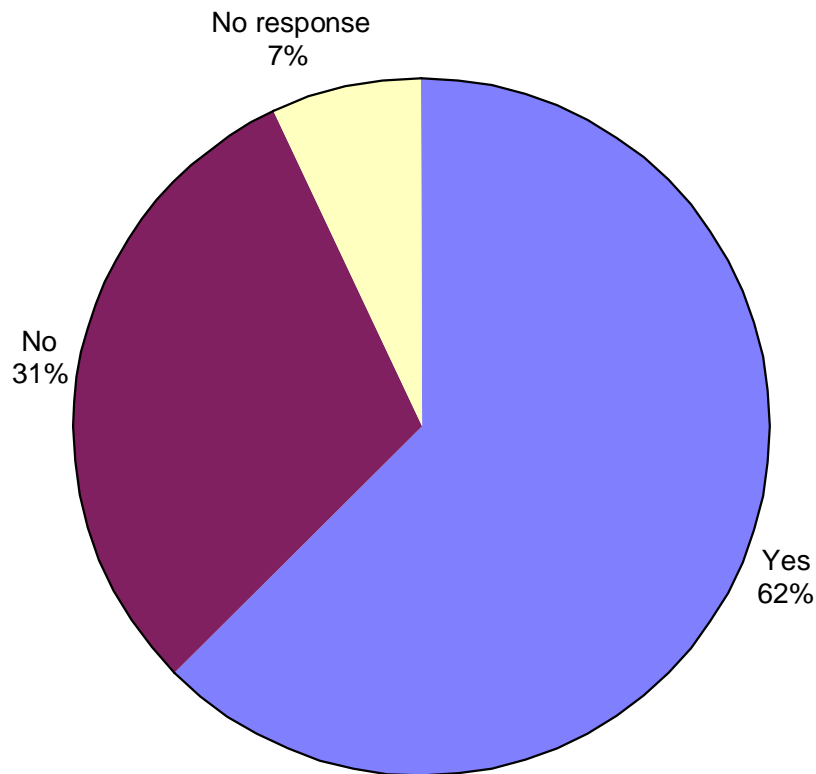
# Opinions on Use of Indicators



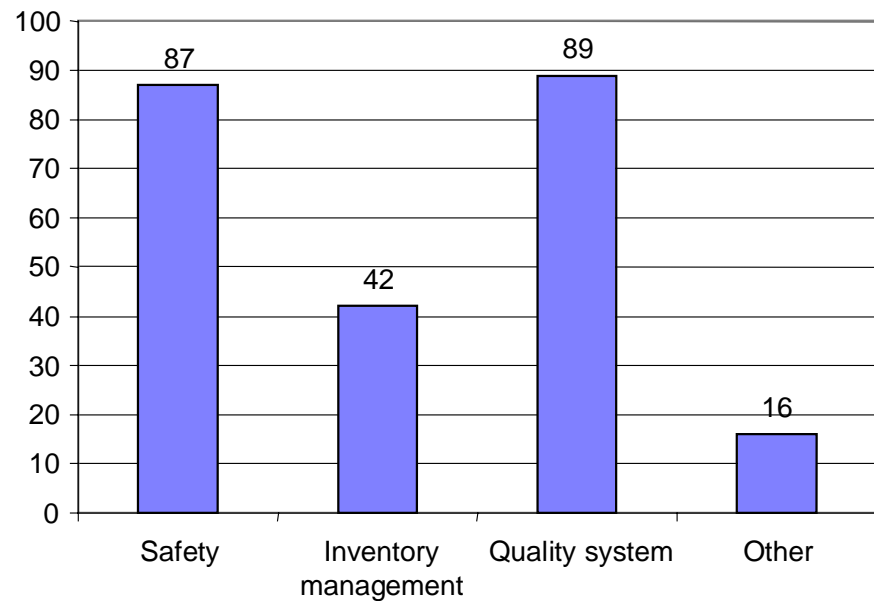
# Benchmarking



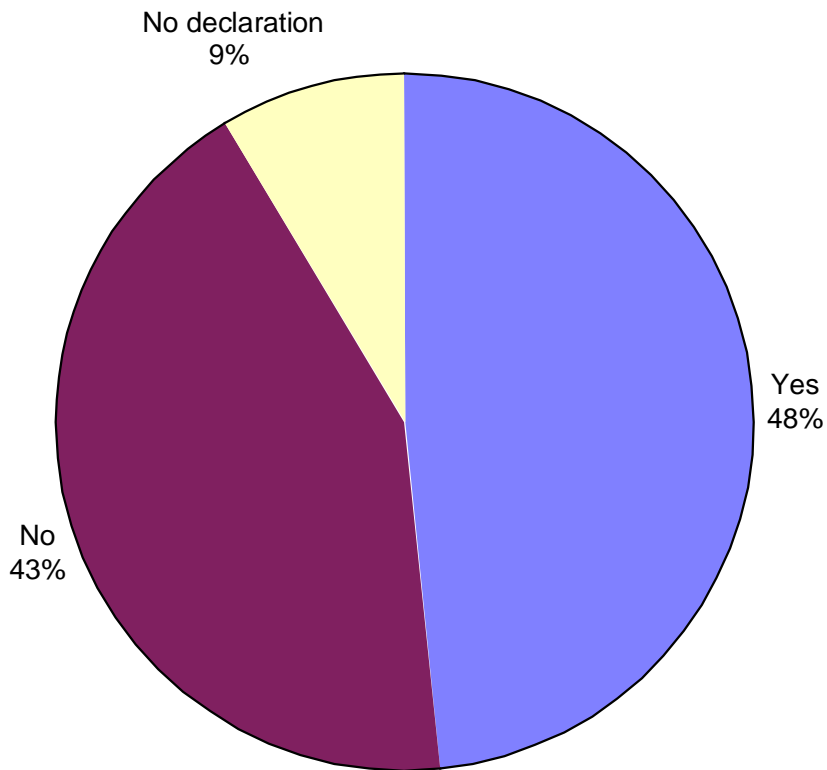
# Non-environmental BM



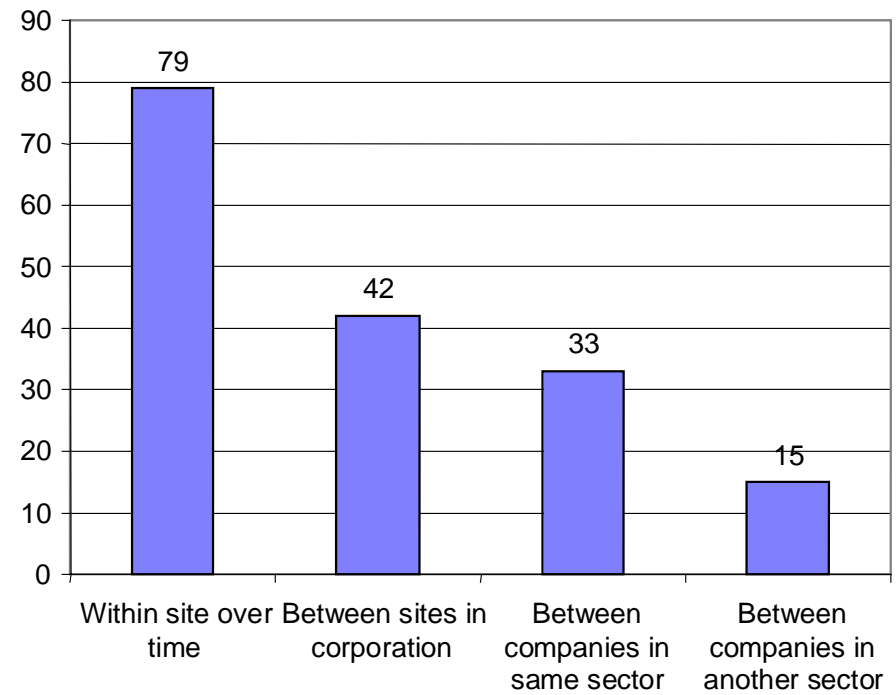
Benchmarked aspects of business operation



# Environmental BM



Level of comparison



# Conclusions of the Study

- Vast majority of licensees use indicators.
- Six indicators used on average.
- Used on a site-wide level.
- Little external benchmarking

# Recommendations

- OPIs to have priority over MPIs.
- A few generic indicators should be used for initiating benchmarking across IPC industries.

## Recommendations - OPI's

- Global warming contribution
- Contribution to ozone depletion
- Contribution to acidification
- Non-renewable primary energy input
- Total water use
- Total waste disposed of (including effluent)

## Recommendations - MPI's

- Number of complaints on a particular aspect
- Percentage compliance with licence.
- Percentage of preventive projects to overall completion
- Number of projects in the EMP.
- Number of EMP targets reached.

# Objectives of Indicator Use

- Resource efficiency
- Pollution prevention
- Product stewardship
- Site-wide basis
- Derive eco-indicators

## Becket Model (Compliance/Deterrence)

$$C \leq pD$$

C = Cost of compliance

p = Probability of detection

D = Deterrent

So cost is an element of compliance, and enforcement is a subset of compliance

# Implications for Our Work

- Avoid duplication
- Develop compatible indicators

What Stakeholders in your country are most interested in developing ECE indicators?

# Government

- Protection of the Environment
- Compliance with international obligation
- Value for money
- Openness and Transparency

# Industry

- Value for money
- Equitable system of enforcement
- Benchmarking
- Demonstrate corporate responsibility
- Accountability of enforcer

# Public

- Openness and transparency
- Accountability of industry and enforcer
- Benchmarking