Rigor of EIS Review and its Implications on Predicting and Monitoring Impacts in Turkey

MSES
Management and Solutions in Environmental Science

Sherwin Shih
M.E.M, CEPIT

Petr Komers
Ph.D, P.Biol.

April 2004
IAIA Conference '04

EIS Review

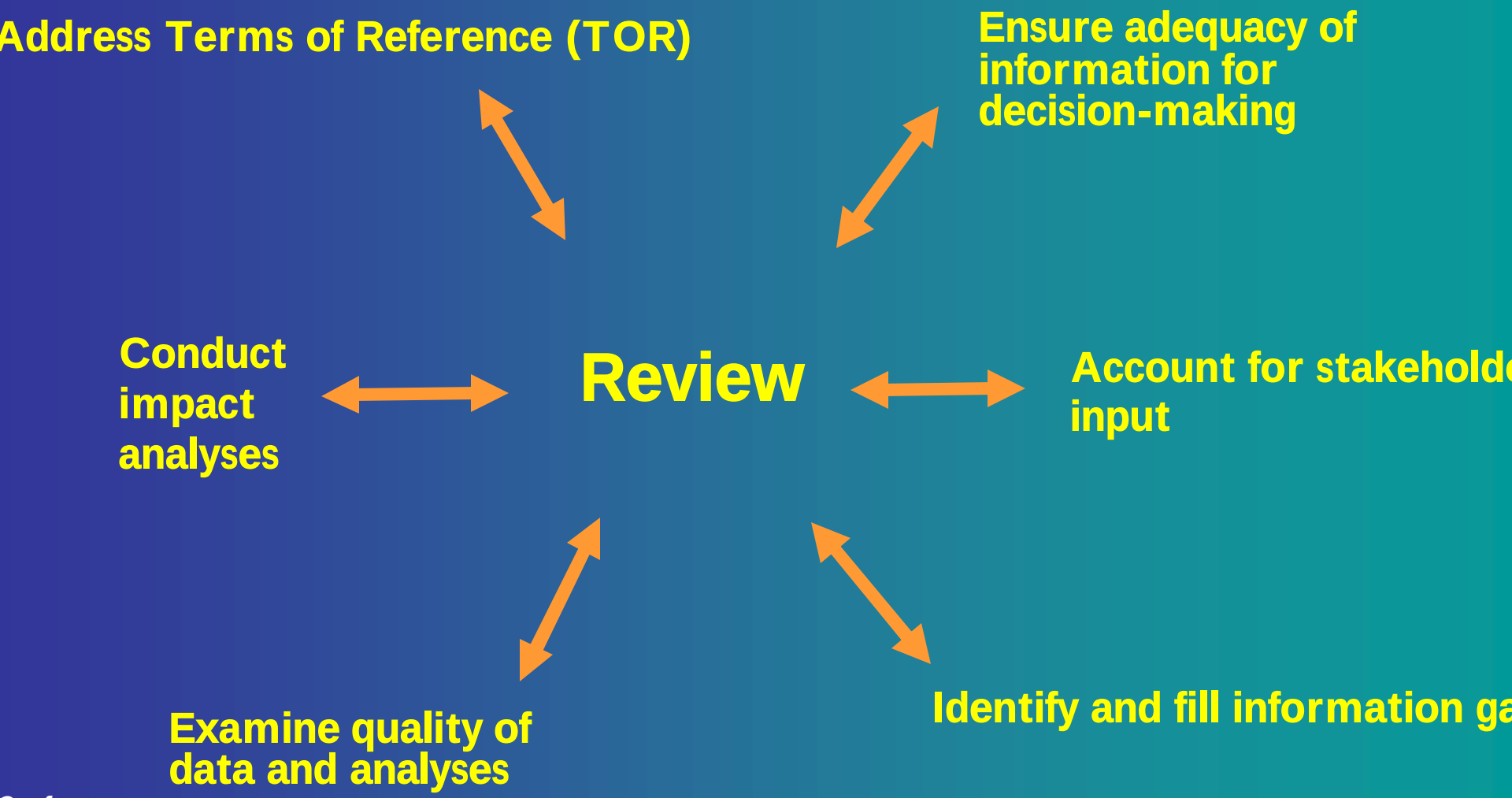
MSES

gement and Solutions in Environmental Science

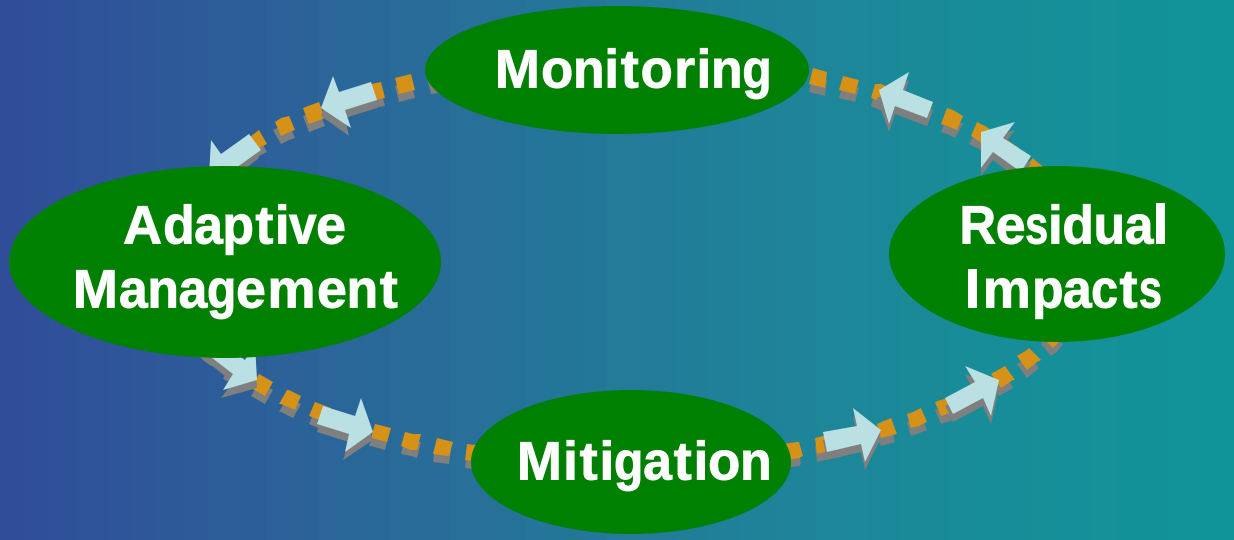
"…is essentially a quality-control process, involving a systematic appraisal of the utility and quality of the EIS as a contribution to decision-making"

(MSES, 2003)

Purposes of EIS Review



Role of EIS Review



Review and Decision-making

Impacts	Direct/Indirect	Cumulative	Residual
Analysis	Land use	Environment	Project
Baseline	TEK	Literature	Field Data

Scientific Rigor

MSES

gement and Solutions in Environmental Science

"There's two possible outcomes: if the result confirms the hypothesis, then you've made a discovery. If the result is contrary to the hypothesis, then you've made discovery"

Enrico Fermi (1901 – 1954)
US (Italian-born) Physicist

Scientific Rigor and EIS Review

Checking for Scientific Rigor

- Predictions = hypotheses subject to testing
- Quantifying predictions
- Apply statistical analyses
  - Predict trends
  - Worst case scenarios
- Account for uncertainty: confidence limits
- Uncertainty = monitoring essential
- Monitoring: predicted vs. observed impacts

Better management of impacts

Informed decision-making

Environmental stewardship

MSES

gement and Solutions in Environmental Science

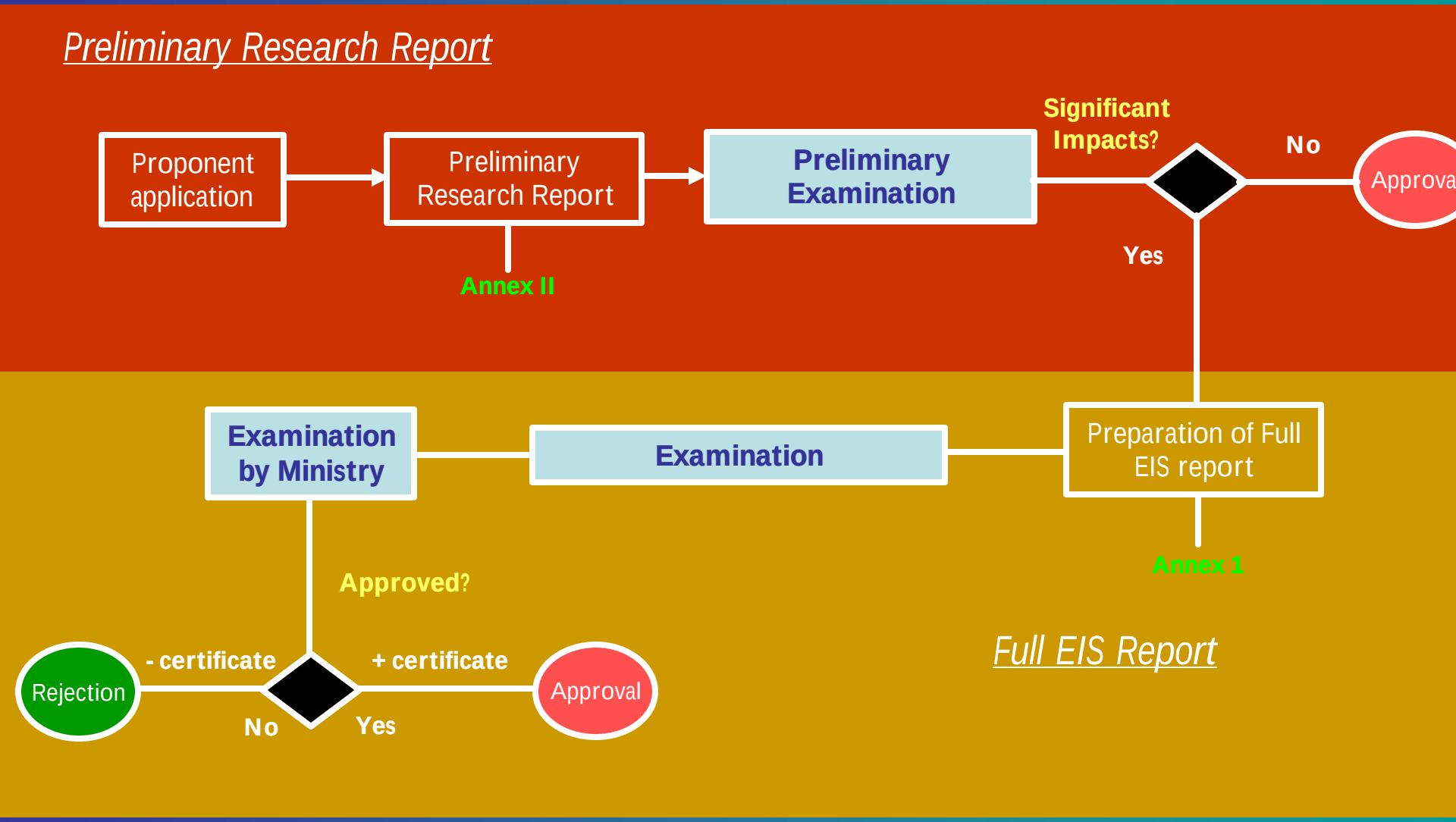
Conference

MSES

gement and Solutions in Environmental Science

Case Studies

Turkish EIA System



Based on Calgüner (1999)

Basis for EIS Review

- **EIA Regulations 1997**
  - Development of RAC
  - General review criteria
  - Requirements of the review process
- **Review and Assessment Commissions**
  - Central or local organizations
  - Proponent
  - EIS production agency
  - Ministry of Environment

MSES
gement and Solutions in Environmental Science

Deficiencies in Review

- **Lack of scientific rigor**
- **Lack of expertise**
- **Limited stakeholder participation**
- ***Ad hoc* planning and monitoring**

"…the importance and relevance of predictive results do not necessarily have a significant bearing on the decision-making process

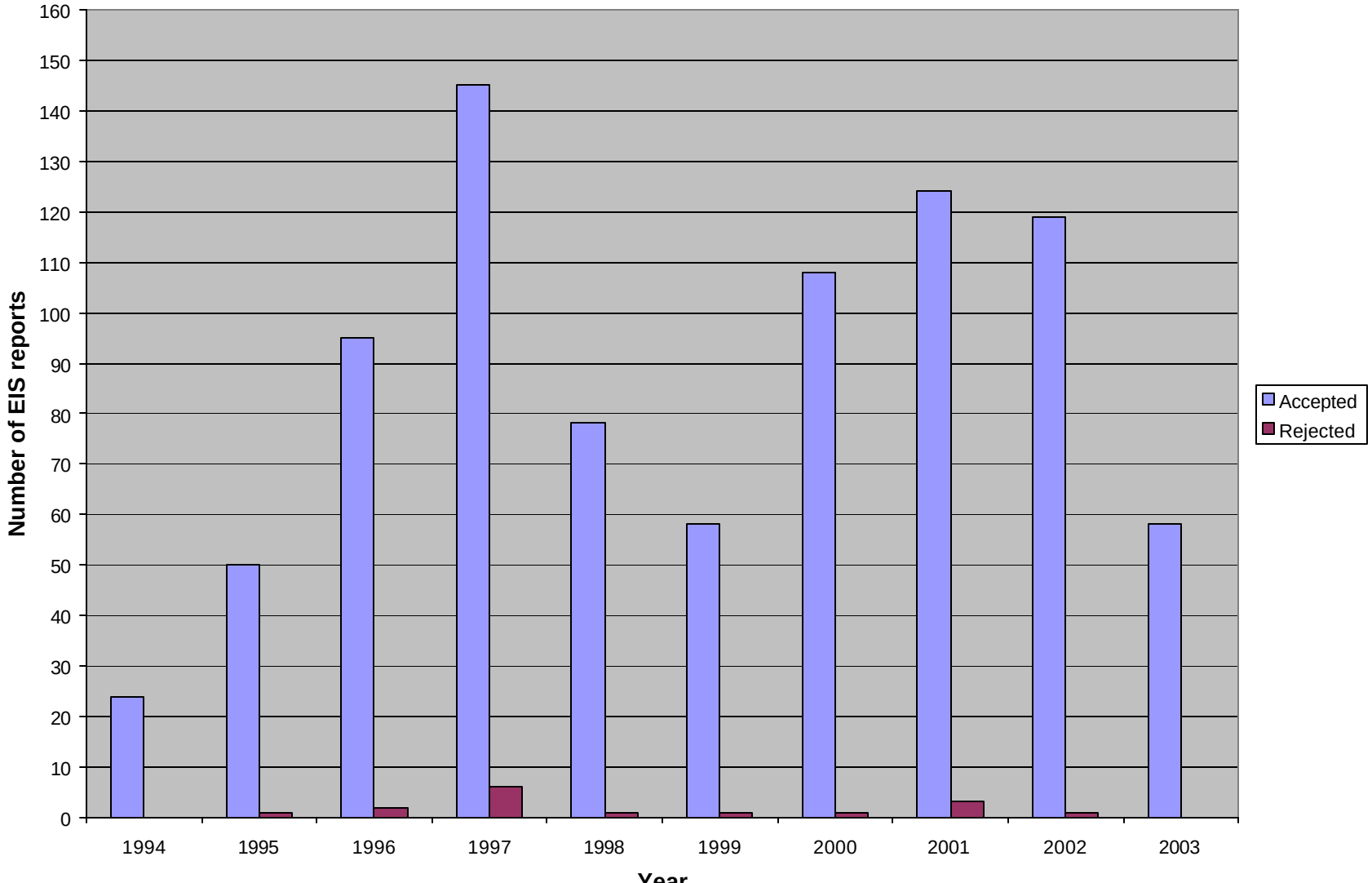
Undisclosed source in Turkish Chemical Industry

MSES
gement and Solutions in Environmental Science

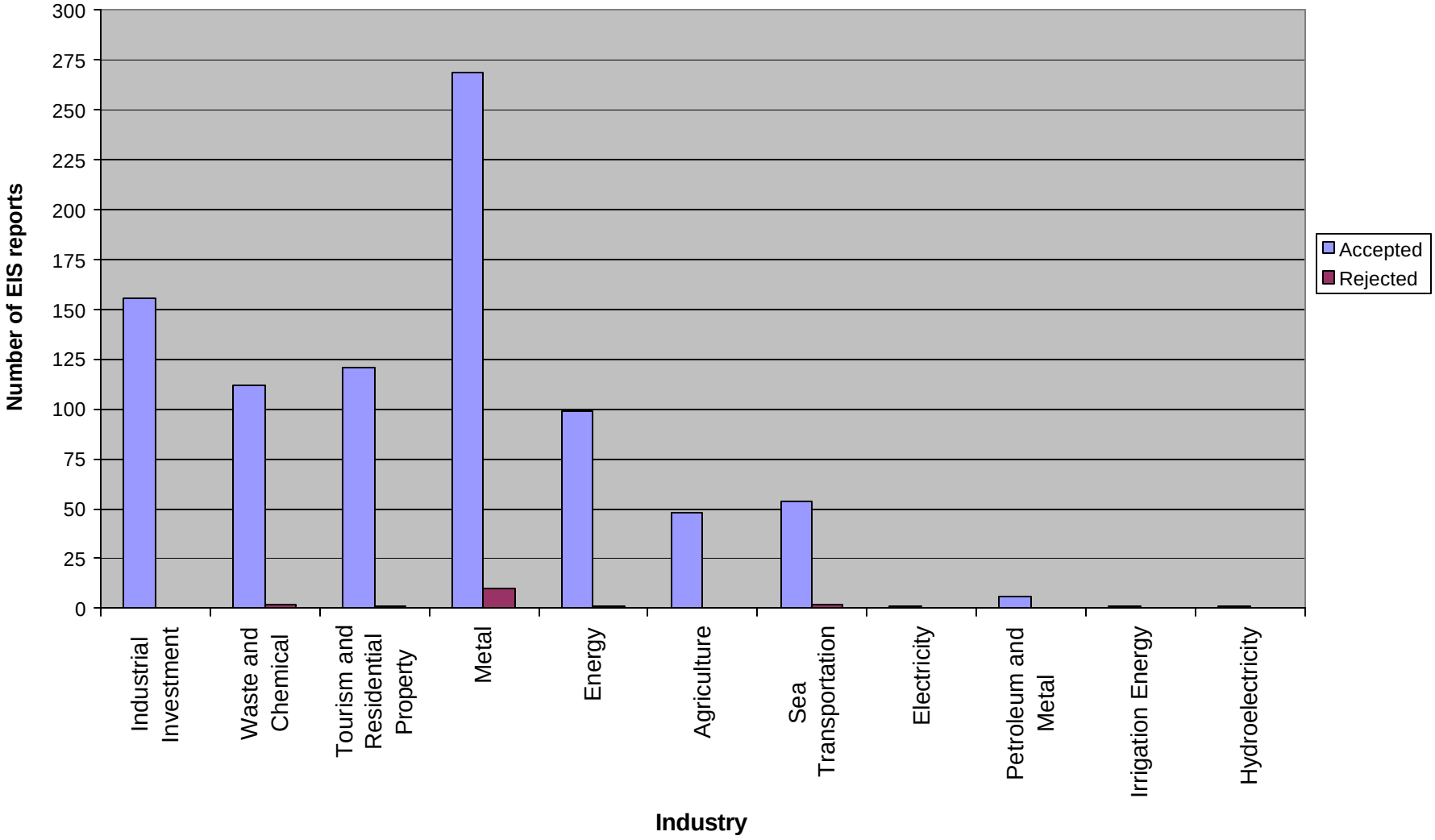
Deficiencies in Review

Deficiency	Causes
***Ad hoc* planning and monitoring**	Centralized authority; limited capacity to enforce "Under the table" agreements EIA process detached from land-use planning Poor authority co-ordination

Reviewed EIS Reports (1994-2003)



Reviewed EIS Reports by Industry



General Implications

Lack of scientific rigor

Lack of expertise

Limited stakeholder participation

***Ad hoc* planning and monitoring**

Poor impact characterization and analysis

Little stakeholder intervention and influence

Reactive (vs. proactive) response to impacts

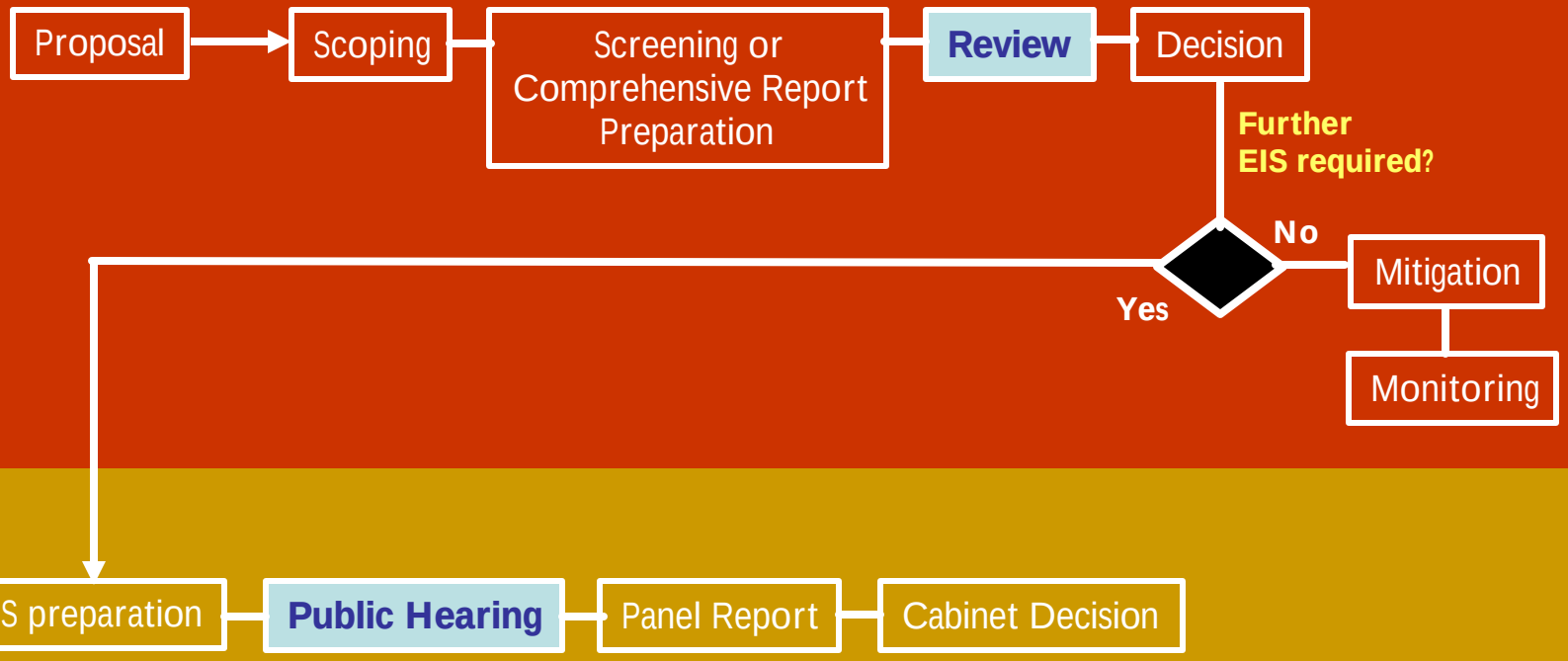
Weak monitoring of impacts

Hazards to human health

Degradation of environmentally sensitive areas

Canadian (Federal) EIA System

Self-directed Environmental Assessment



Independent Environmental Assessment

Based on Wood (2003) and CEAA (2003)

Deficiencies in Review

Deficiency	Causes
***Ad hoc* planning and monitoring**	Centralized authority Too much discretionary power Limited enforcement possible

Summary of Assessments (1995-2000)

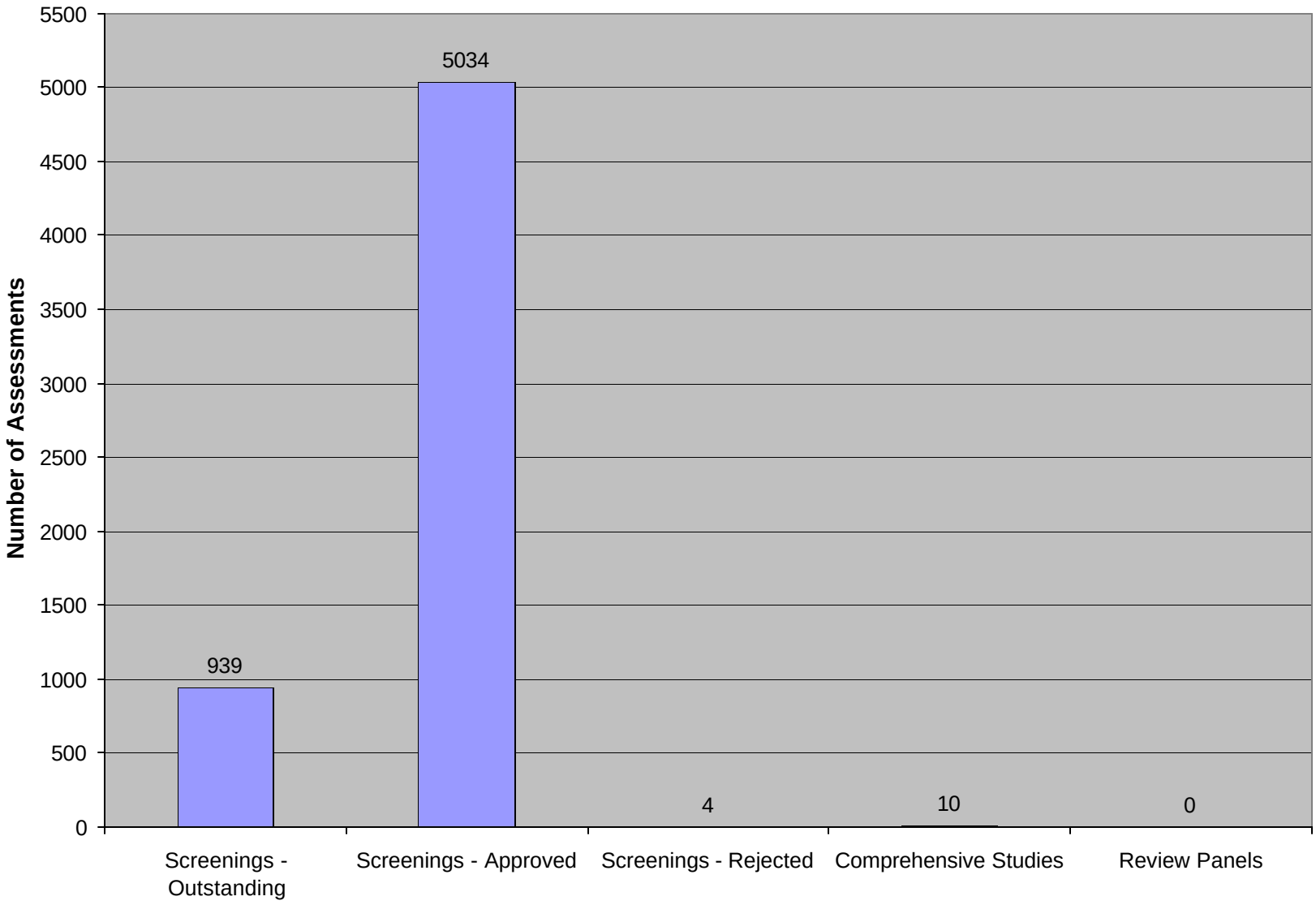
Number of assessments	**5,500–6,000/year**
% of total assessments = screenings	**>99**
Number of comprehensive studies	**Completed 27** **Active 19**
Number of panel reviews	**Completed 5** **Active 5**

MSES
gement and Solutions in Environmental Science

Conference

From CEAA (2001)

Summary of Assessments (2002-2003)



General Implications

Lack of scientific rigor

Limited stakeholder participation

***Ad hoc* planning and monitoring**

Poor impact characterization and analysis

"Cookie cutter" effect will continue

Successful reclamation poorer than predicted

Weak monitoring of impacts

Effectiveness of Critical Review

	Recommendations to the Minister of Environment								
Development	Terrestrial	Wetland	Fish	Air	Water Attributes	Monitoring	Stakeholder Cooperation	Total	Agencies Addressed
Shell Ltd. Muskeg River Mine (2000)		1		5	2	3	4	15	(2) AENV CEMA
True North Oil Sands Mine (2002)	1	2		2	4	2	1	12	(2) AENV CEMA
CNRL Horizon Project (2003)	1	1	1	1	10	8	6	28	(8) AENV, DFO, CEMA,EC, HC, AHW, ASRD, RSDS

Way Forward

Impact Prediction	Monitoring
More training	Better impact prediction
Reduce “Cookie Cutter” effect	Stringent guidelines
Apply current scientific processes	Greater enforcement
Decentralization of Authority	Industry commitment
Greater public transparency	More active public Participation (“watchdog”)

MSES
gement and Solutions in Environmental Science

MSES

gement and Solutions in Environmental Science

Thank you