Jean Cross

School of Safety Science
UNSW
Australia

Risk Management

- **The culture, processes and structures that are directed to the effective management of potential opportunities and adverse effects.**

AS/NZS 4360 1999

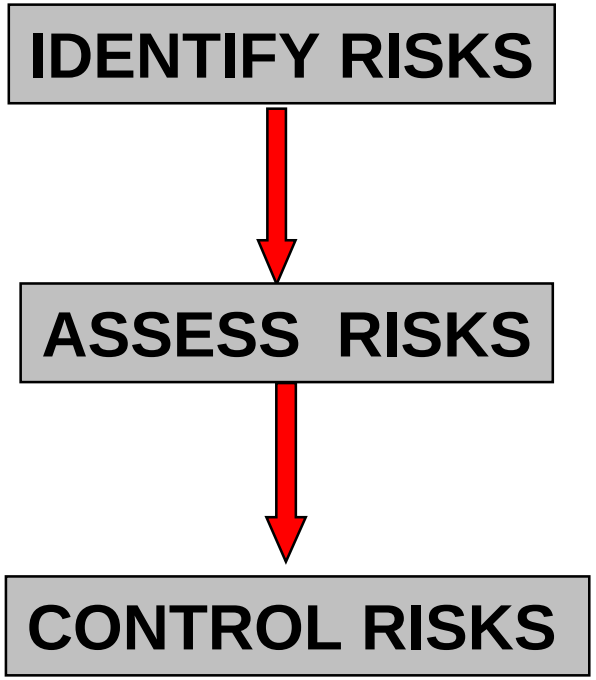
Risk Management Culture

- Proactive - what might happen
- Long term thinking
- Consultation and team work
- Systematic
- Logical analysis of data
- Balance
- Opportunities and losses

Structures

- Legislative structures
- Governmental structures
- Organisational structures
  - policy,
  - management structures and systems
  - responsibilityand accountability
  - resources
- Communityand representative groups

PROCESS



Risk = what might happen to impact objectives

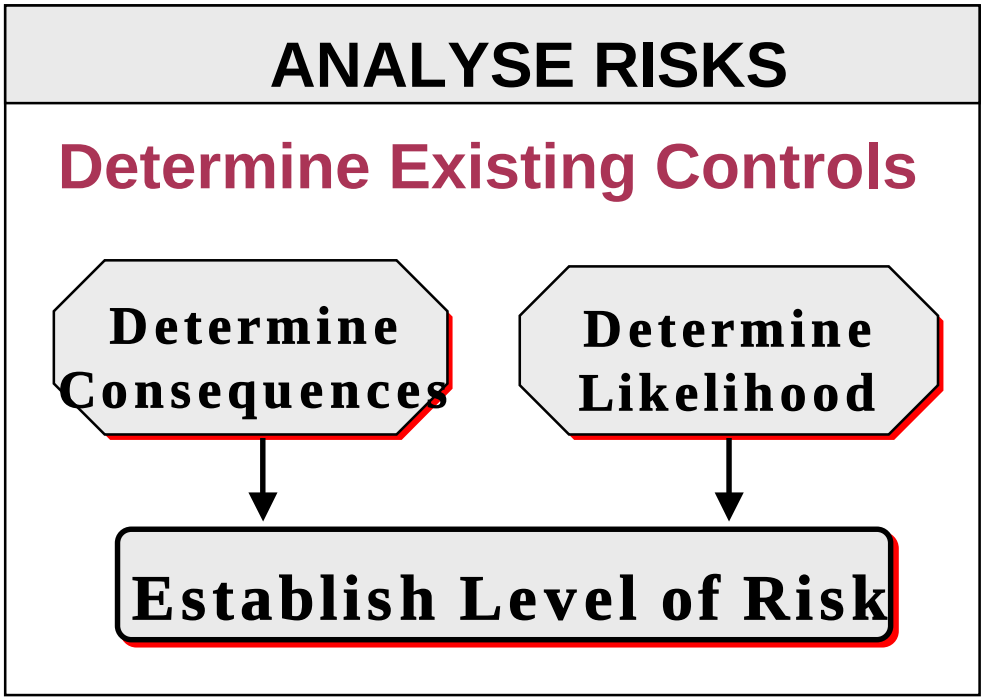
- Identify What might happen and how
- Analyse consequences, likelihood and existing controls from data and facts

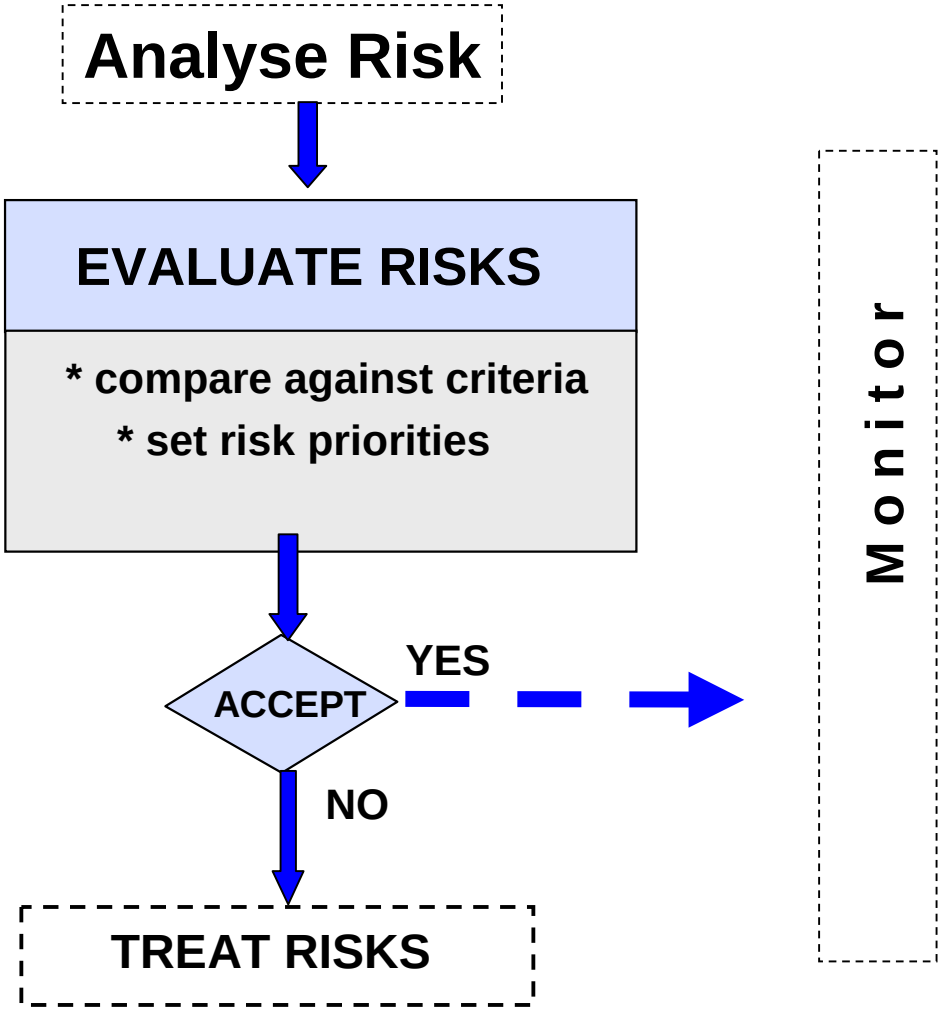
Risk Assessment

- Make decisions taking into account views of stakeholders and outcomes of risk analysis
- Put in place systems to reduce risks, but plan for recovery

Risk Management

- Identify What might happen and how — **Identify**
- Analyse consequences likelihood existing controls using data and facts — **Analyse**
- Make decisions taking into account views of stakeholders and outcomes of risk analysis — **Evaluate**
- Put in place systems to reduce risks, but plan for recovery — **Control**


ANALYSE RISKS
Determine Existing Controls
Determine Consequences
Determine Likelihood
Establish Level of Risk


Analyse Risk
EVALUATE RISKS
* compare against criteria
* set risk priorities
ACCEPT
YES
NO
TREAT RISKS
Monitor

Reasons for choice

- Compatible with ISO and IEC risk assessment standards
- Compatible with risk management process as seen by financial, insurance engineering and safety people
- Avoids confusion of double meaning of risk management

CONTROL

- **Reduce**
- **Deal with**
  - eliminate, reduce, transfer, retain
- **Manage**
  - Plan Act Review Improve

TREAT

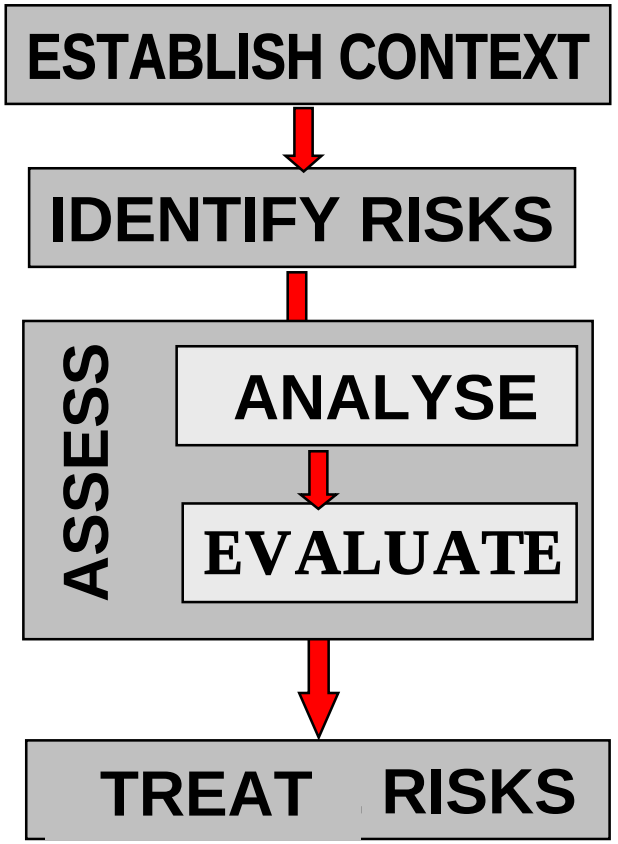
- Identify treatment options
- Evaluate treatment options
- Prepare management plan
- Implement plan
- Define mechanism for monitoring

Treatment Options

- Avoid - Eliminate
- Reduce probability
- Reduce Consequences

RISK CONTROL

- Transfer or Share Risks
  - Insurance
  - Subcontracting
- Retain and plan


ESTABLISH CONTEXT
IDENTIFY RISKS
ASSESS
ANALYSE
EVALUATE
TREAT RISKS

Context

The things you need to find out and set up before starting to identify risks


ESTABLISH THE CONTEXT
The Strategic Context
The Organisational Context
The Risk Management Context
Develop Criteria
Set the structure

Context Includes

- Stakeholder identification and setting up consultation paths
- Defining objectives and needs of stakeholders
- Identifying benefits
- Identifying issues and scope
- Planning what detailed studies are needed

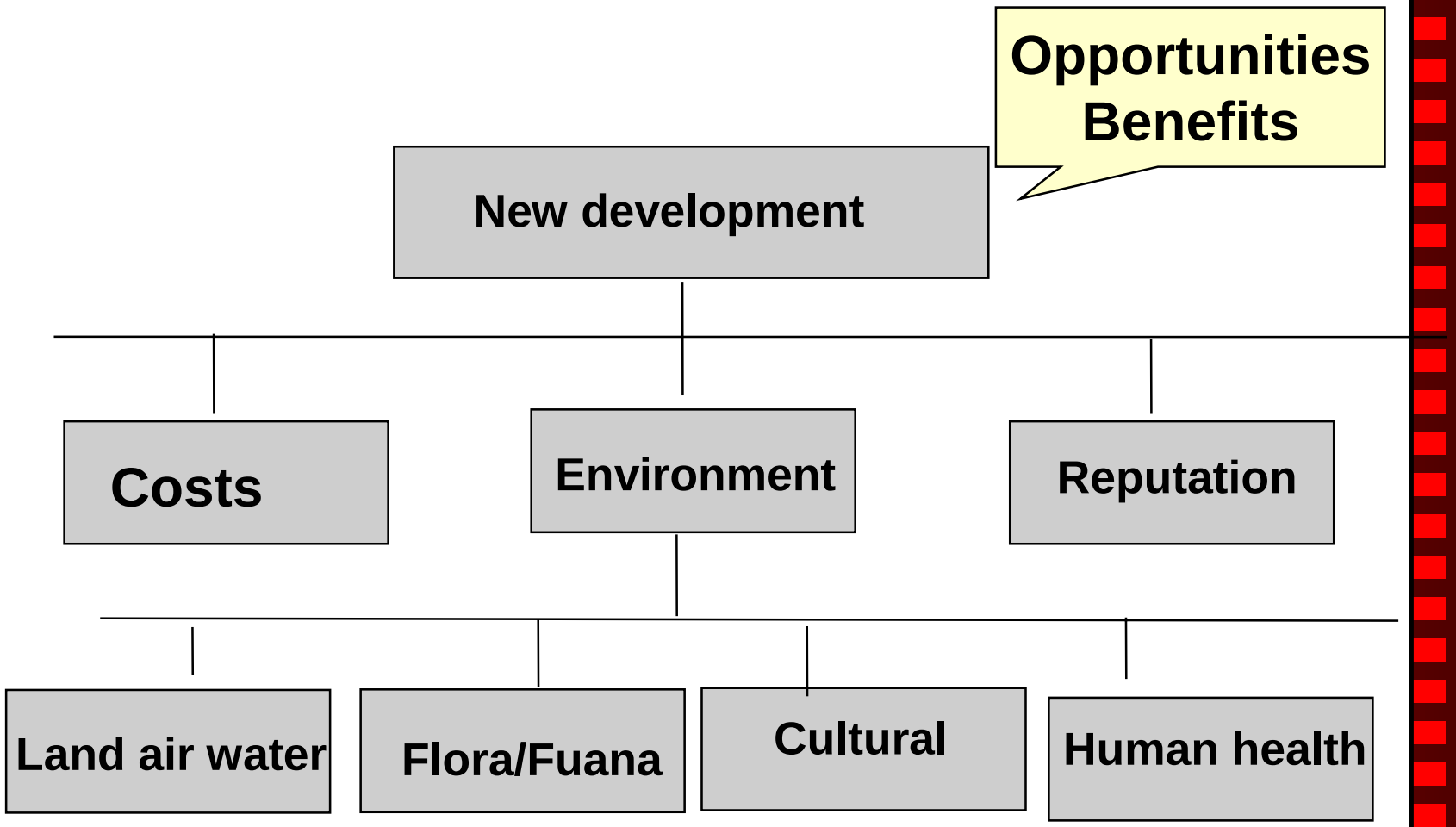
Establish Criteria

- Criteria for intolerable risk
- Criteria for tolerable but treated risk
- Criteria for acceptable risk (no treatment needed

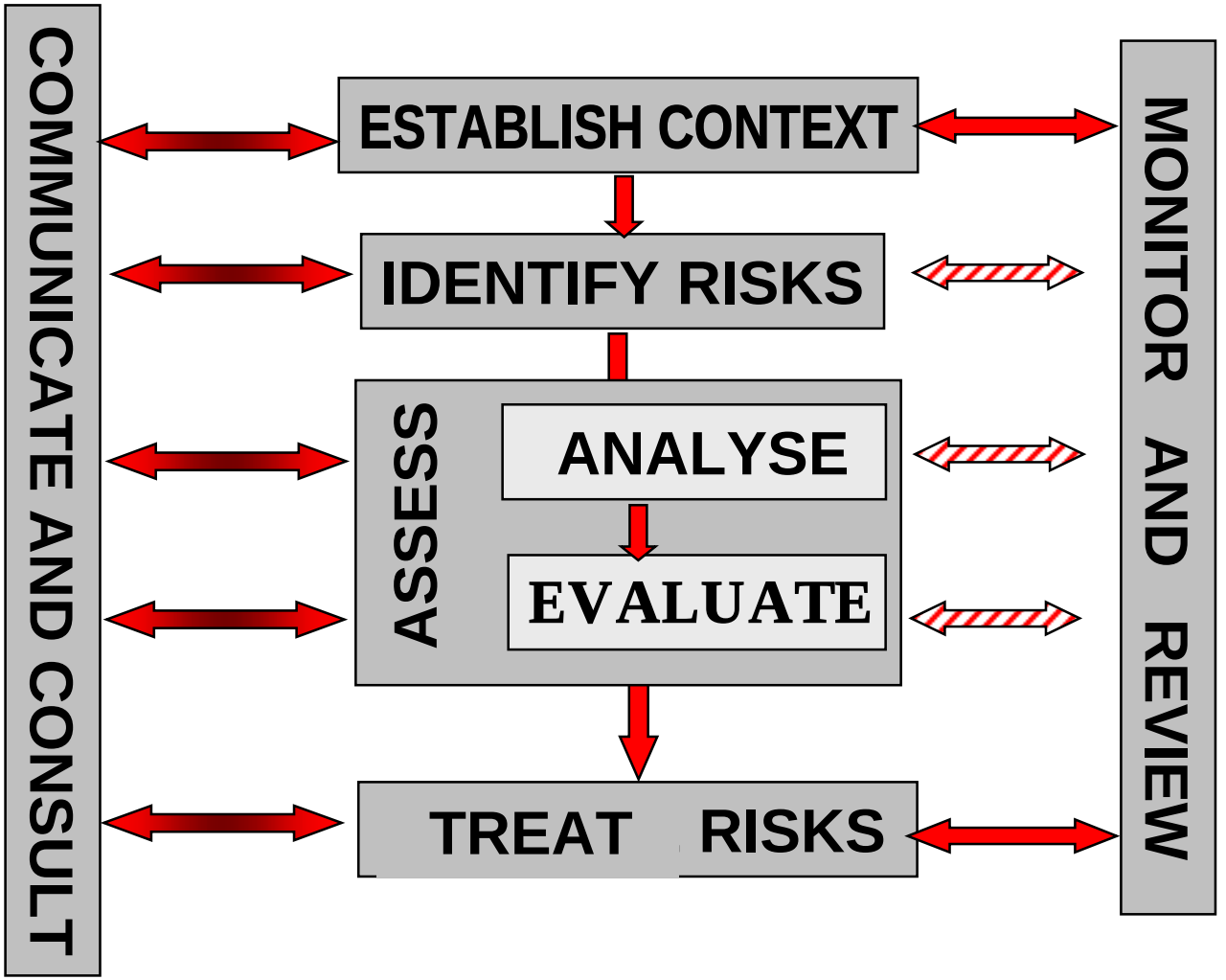
Criteria based on

- Legal limits
- Sustainability
- Biodiversity
- Community values
- Cost benefit criteria

Structured Approach



PROCESS


COMMUNICATE AND CONSULT
ESTABLISH CONTEXT
IDENTIFY RISKS
ASSESS
ANALYSE
EVALUATE
TREAT RISKS
MONITOR AND REVIEW

Communication
Internal and External

- Stakeholder views and needs are important
- Poor communication is source of risk
- Team approach needed to identify risks
- Ownership of risk management process helps ensure treatment happens

Whats New

- formal process
- stress placed on context and identification
- consideration of positive as well as negative outcomes
- integrated risk management
- planning for recovery
- monitoring and feedback

Uses of Risk Management

- **Strategically to set Government Policy**
  - What are major risks to the environment
  - What strategies are needed to prevent long and short term harm
  - How is development balanced against risk
  - What regulations and procedures are needed to protect environment
  -
  -

As a legislative mechanism

- To reassure the public and government that risks are properly managed

Within Companies

- To manage opportunity and change effectively
- To identify and minimise ways in which activities may harm environment
- To minimise business and reputation risks arising from the way in which environmental issues are managed
- To plan recovery strategies

- **Organisational level**
  - Preventing accidents and disasters
  - Minimising long term significant impacts
  - Staying within the law
  - Avoiding poor publicity
  - Best use of resources
- **Line management level**
  - Optimising day to day decisions
  - Minimising losses
- **Everyone -**
  - Culture of what if thinking

International Trends

Embracing Risk Management

- To integrate Management of Risks
- To protect directors and officers
- To optimise use of resources
- To manage change

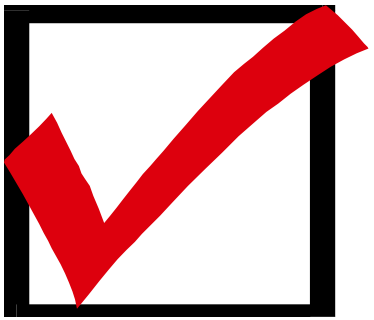
Challenges of Environmental Risk Management

Environmental risks are characterised by

- long term issues
- complex interactions
- irreversible outcomes
- a high degree of uncertainty
- little data
- limited models for analysis
- conflicting interests
- very varied perceptions

Defining Criteria

- No change is not an option- where do we want to go?



Decisions must be made

Waiting until we have all the facts is not an option

- Decisions can be based on identified risks and logical analysis of such data as is available or on gut feel, the short term needs of the loudest stakeholder and political expediency

How to Assess Risk

- Quantitative or Qualitative ?
- Decision Rules or Judgemental ?

Identifying Risks

- History demonstrates we can't identify long term risks
- We can't go back and we can't stand still
- New science brings benefits to society as well as risks

Proceed with Caution

- Identify the risks we can
- Analyse as well as we can with as much scientific and quantitative knowledge as we can get
- Evaluate on the basis of judgement of possible benefits and costs to all stakeholders
- Decide best course of action
- Keep monitoring to see how it all goes