Bharathidasan University

Programme: MSc Environmental Science and Sustainable Management

Course Title: ENVIRONMENTAL IMPACT ASSESSMENT (EIA)
Course Code: 21PGCC04

Unit- I Evolution of Environmental Assessment

Prof. R. Mohanraj
Dept. of Environmental Science and Management

How the EIA evolved…..1970s-1980s

1976 - three sites identified.

1979 - preferred site on coral reef next to Shiraho Village.

1980 - Anti-airport Shiraho villagers formed local opposition group, with later support from international and Japanese environmental groups.

How the EIA evolved…..1970s-1980s

1981 - 1st environmental impact statement (EIS) by private consultants.

1983 - 2nd EIS by private consultants.

1986 - 3rd EIS by Okinawa Prefectural Government.

1988 - Runway length reduced from 2,500 to 2,000 m and 4th EIS undertaken.

1989 - Site shifted to Karadake (north of island). New assessment started but never finished.

How the EIA evolved - 1990 onwards…..

1996 - Environment Agency (now Ministry of Environment) announced proposal for preservation of coral reefs in the Shiraho area through national marine park designation.

1993 - Site of new airport shifted to Miyara (inland).

1998- 5th EIS completed in 1998. Process stalled by opposition from local farmers. WWF sponsored study reported on the potential impacts on the reef from red soil run-off.

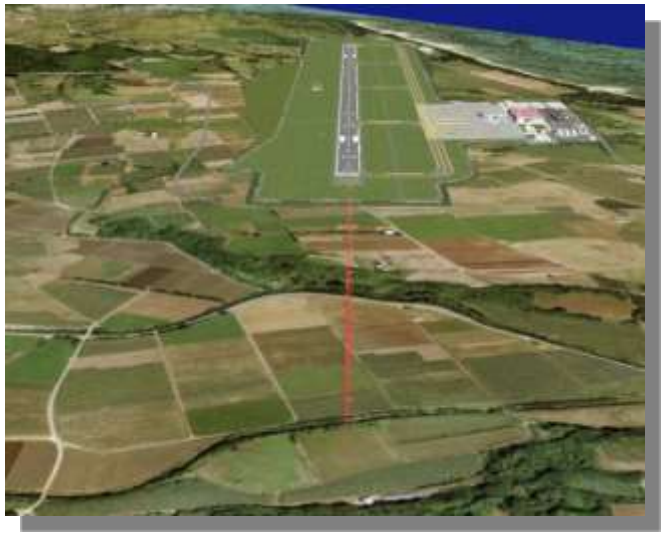
Environmental Assessment

How the EIA evolved - 1990 onwards…..

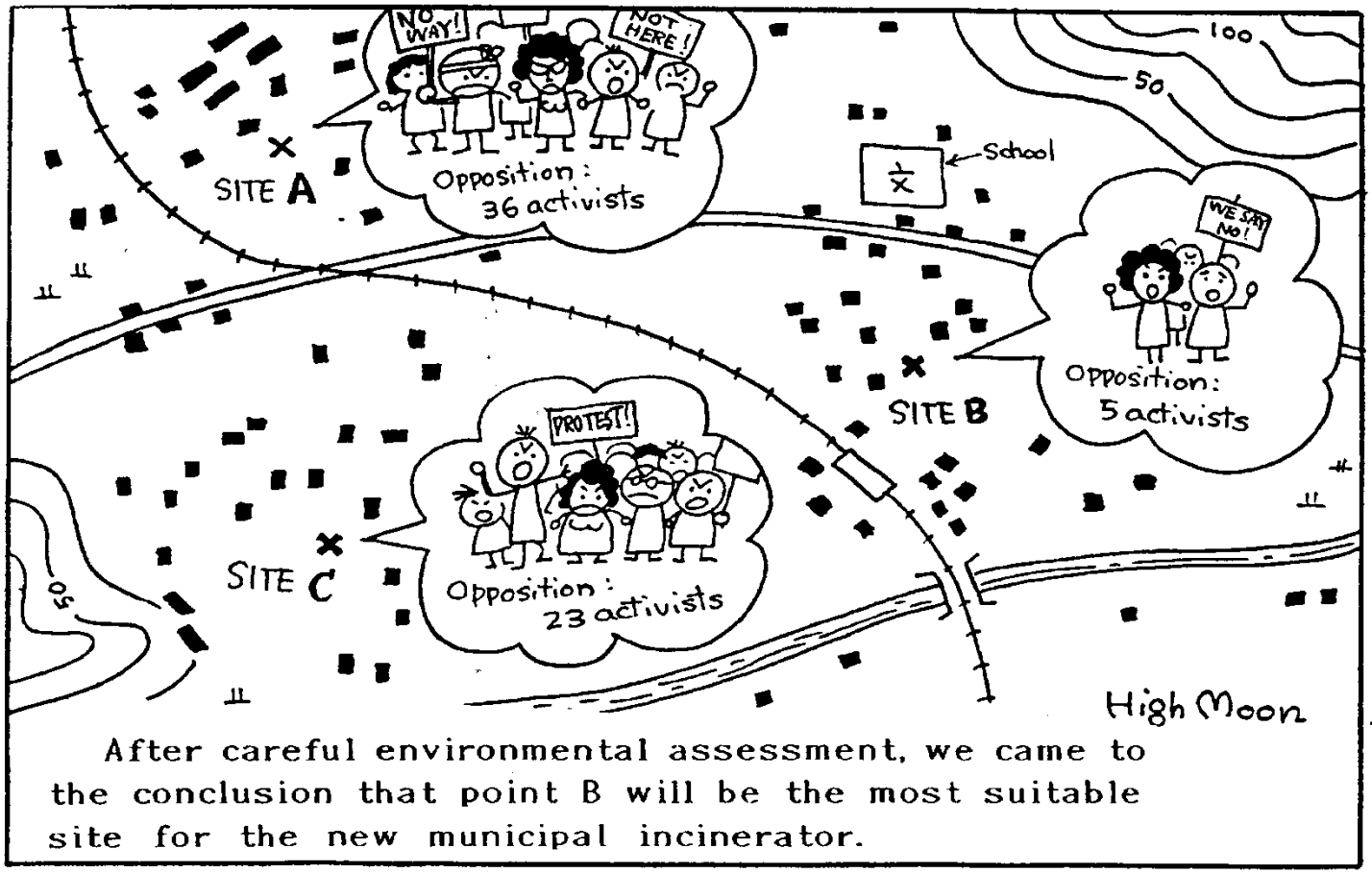
2000 - Application to start construction.

2001 - Special committee recommends relocating terminal buildings to eastern side of airport.

2005 - Permission to construct the airport given by national government.



Environmental Assessment



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The case study shows conflict between:

- those favouring development and material progress (Ishigaki island dwellers).

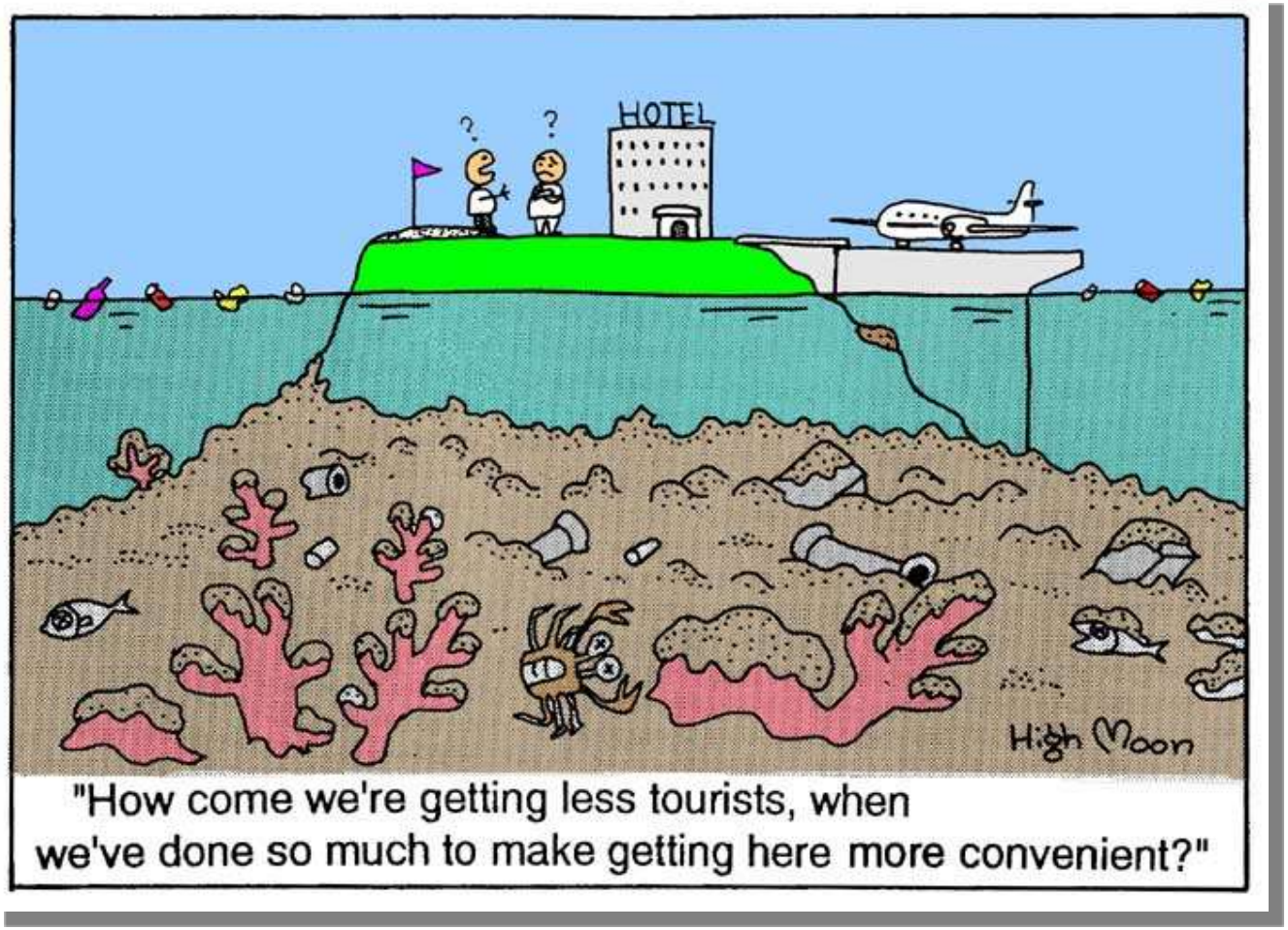
- those favouring harmonious relationship with nature and preservation of a way of life (Shiraho villagers).

- NIMBYists (local farmers).

- Post-materialists (Japanese and international conservation groups).

New Ishigaki Island Airport represents a microcosm of the conflicting interests surrounding almost all development decisions…….

Environmental Assessment



SEA and project level EIA play key role in enabling interest groups make long-term informed decisions.

Start with the basics

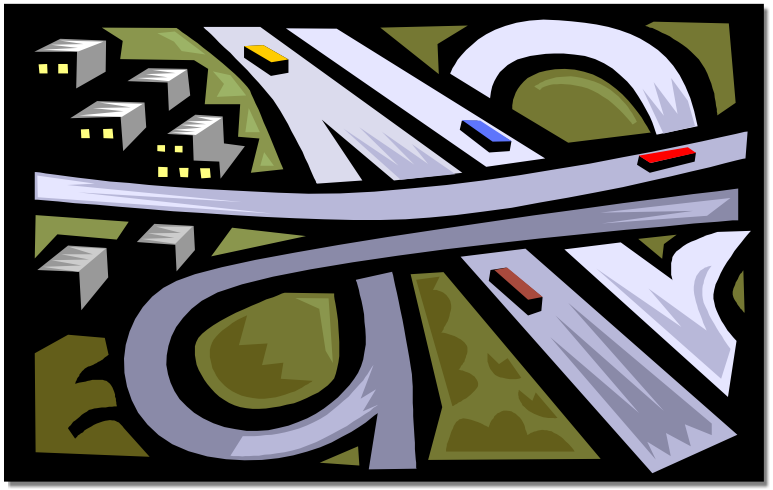
Is this a good way to understand EIA and SEA?

ENVIRONMENTAL ASSESSMENT + **STRATEGIC**

Or is this better?

SEA = GOOD STRATEGY

EIA = GOOD DESIGN



EIA and SEA share same origin

US Tradition of Administrative Reform and Natural Resource Management
National Environmental Protection Act 1969

Experience with Natural Resource Economics and Cost Benefit Analysis

CBA - Places a monetary value upon non-economic variables such as health impacts of air pollution

Emergence of a system of Global Environmental Governance
1972 Stockholm Environment Conference

Recognition of need for rational planning as a tool to **reconcile conflicts** between development and environmental protection

NEPA (1969) Influences

- US resource management tradition recognized the environment as the backbone of the economy and source of livelihoods.

- NEPA promoted efforts to prevent environmental damage through a **systematic interdisciplinary approach** to ensure appropriate consideration of unquantified environmental values.

- Clauses relevant to SEA contained in Section 102, with requirement for a detailed statement to accompany ***"proposals for legislation and other major federal actions significantly affecting the ….. environment."***

Environmental Assessment

Course Module on SEA
See the work in progress at http://unudev.org/wp/?page_id=92

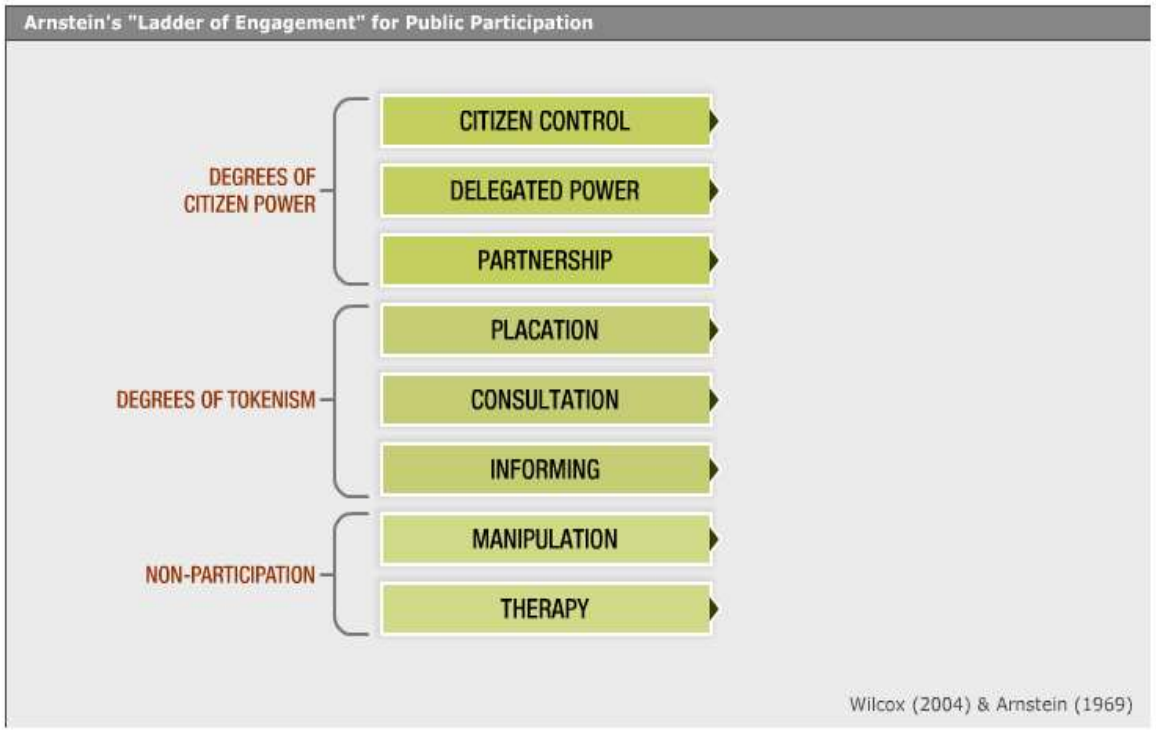
Strategic Environmental Assessment
Course Module

- Welcome
- BACKGROUND
- STRATEGIC ACTION
  - 1. Introduction
  - 2. Strategic actions
  - 3. Understanding the strategic action
  - 4. Timing of the SEA
  - 5. Planning systems
  - 6. Who should be involved in SEA?
  - **7. Engaging the public**
  - 8. Institutional context for effective SEA
  - 9. Summary
- SEA PROCESS
- > BASELINE
- > ASSESSMENT
- > IMPLEMENTATION
- References
- Definitions

Search

7. Engaging the public

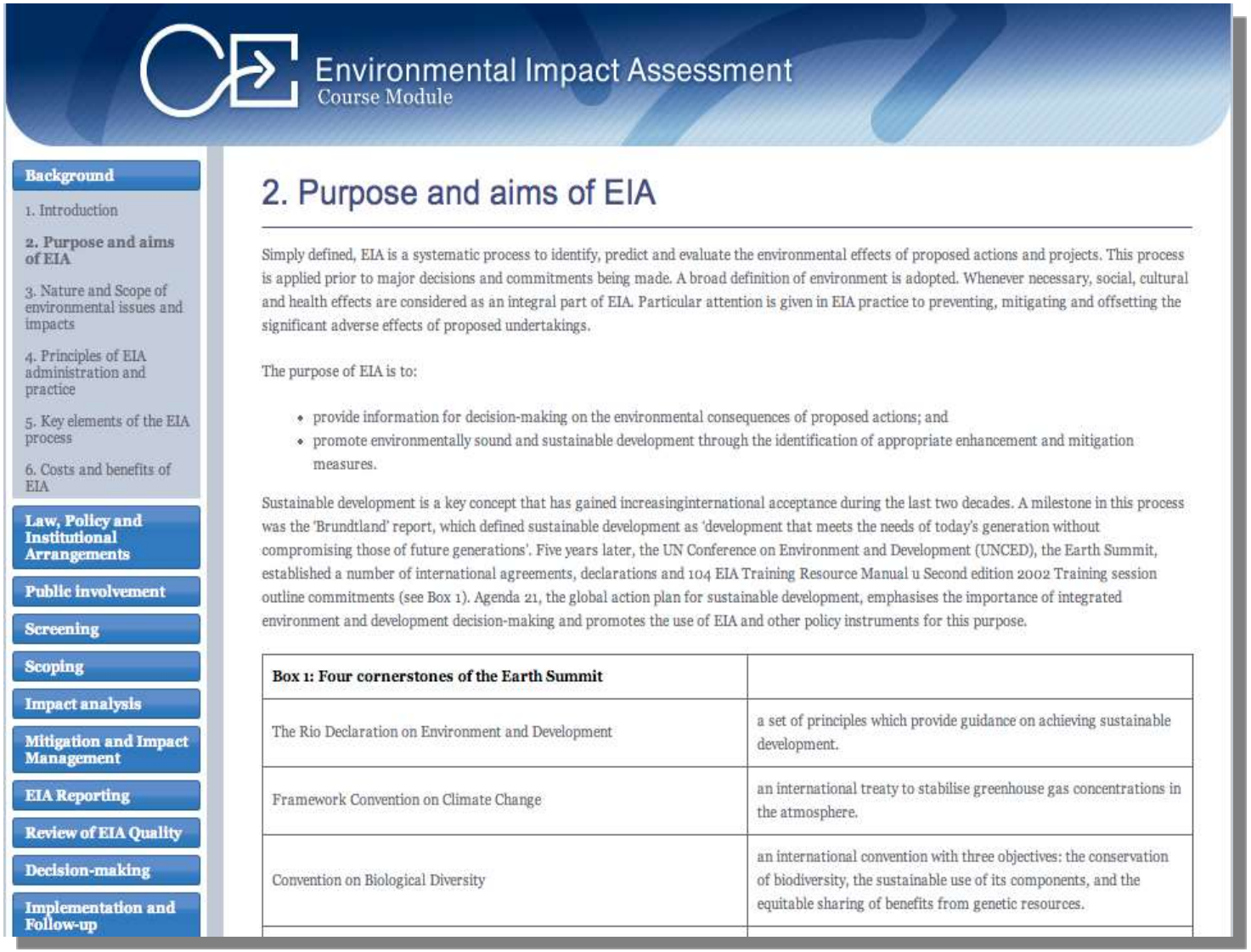
You will (hopefully) be familiar with Arnstein's (1969) "ladder of engagement":



Environmental Assessment

New module on EIA

See http://unudev.org/wp2/?page_id=145



Environmental Impact Assessment
Course Module

Background
1. Introduction
2. Purpose and aims of EIA
3. Nature and Scope of environmental issues and impacts
4. Principles of EIA administration and practice
5. Key elements of the EIA process
6. Costs and benefits of EIA
Law, Policy and Institutional Arrangements
Public involvement
Screening
Scoping
Impact analysis
Mitigation and Impact Management
EIA Reporting
Review of EIA Quality
Decision-making
Implementation and Follow-up

2. Purpose and aims of EIA

Simply defined, EIA is a systematic process to identify, predict and evaluate the environmental effects of proposed actions and projects. This process is applied prior to major decisions and commitments being made. A broad definition of environment is adopted. Whenever necessary, social, cultural and health effects are considered as an integral part of EIA. Particular attention is given in EIA practice to preventing, mitigating and offsetting the significant adverse effects of proposed undertakings.

The purpose of EIA is to:

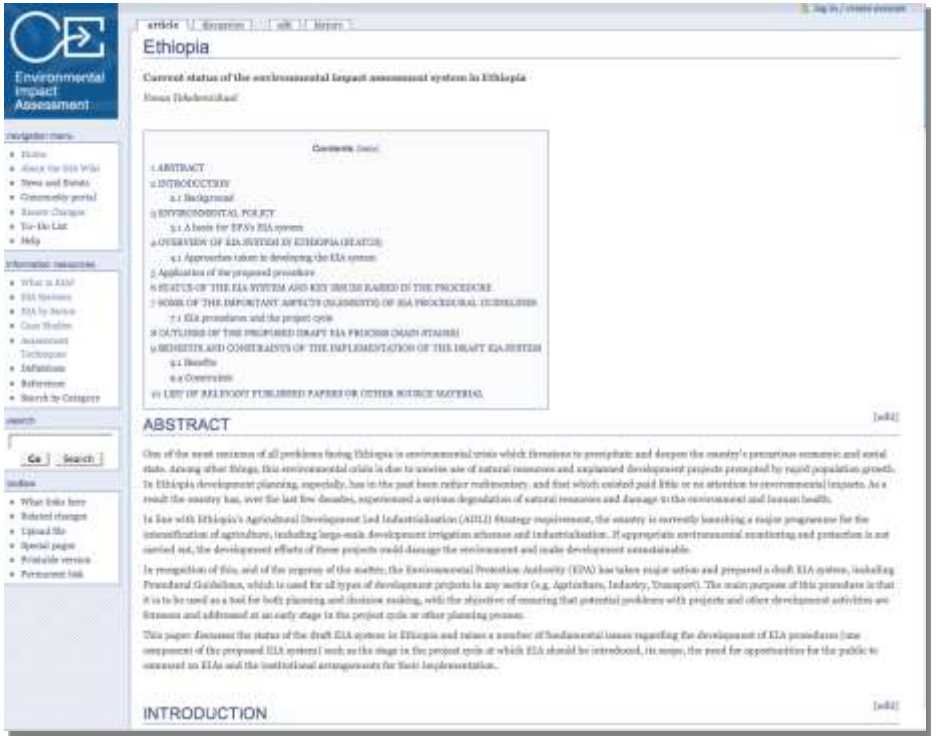
- provide information for decision-making on the environmental consequences of proposed actions; and
- promote environmentally sound and sustainable development through the identification of appropriate enhancement and mitigation measures.

Sustainable development is a key concept that has gained increasinginternational acceptance during the last two decades. A milestone in this process was the 'Brundtland' report, which defined sustainable development as 'development that meets the needs of today's generation without compromising those of future generations'. Five years later, the UN Conference on Environment and Development (UNCED), the Earth Summit, established a number of international agreements, declarations and 104 EIA Training Resource Manual u Second edition 2002 Training session outline commitments (see Box 1). Agenda 21, the global action plan for sustainable development, emphasises the importance of integrated environment and development decision-making and promotes the use of EIA and other policy instruments for this purpose.

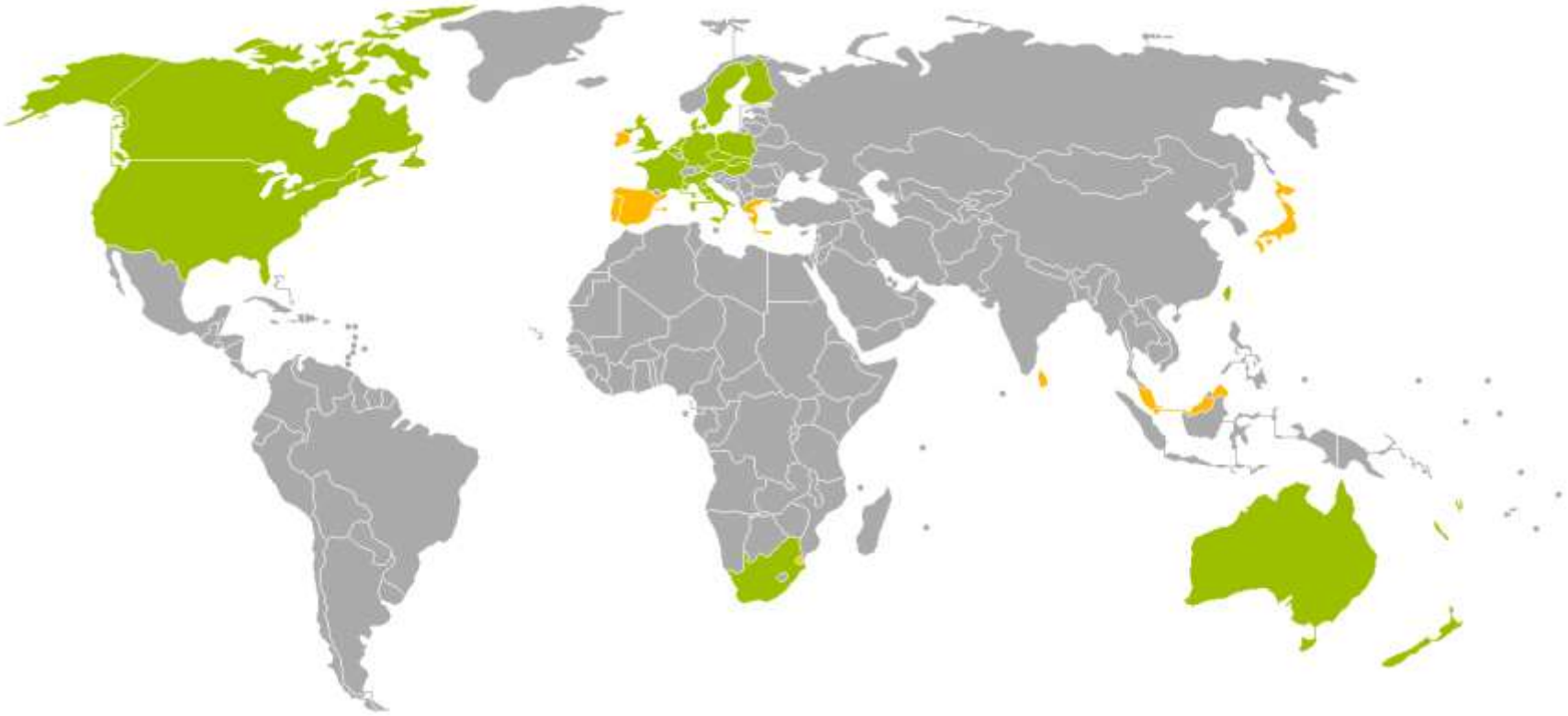
Box 1: Four cornerstones of the Earth Summit	
The Rio Declaration on Environment and Development	a set of principles which provide guidance on achieving sustainable development.
Framework Convention on Climate Change	an international treaty to stabilise greenhouse gas concentrations in the atmosphere.
Convention on Biological Diversity	an international convention with three objectives: the conservation of biodiversity, the sustainable use of its components, and the equitable sharing of benefits from genetic resources.

Environmental Assessment

Wikis (online encyclopedia)
See http://sea-wiki.unu.edu



SEA around the World



Existing SEA Procedures

Incomplete SEA Procedures

EU Directive 2001/42/EC

"To provide a high level of protection to the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development….."

UNECE SEA Protocol of 2003 seeks to:

Ensure that environmental, including health considerations are thoroughly taken into account in the development of plans and programmes….

Also establishes clear and transparent procedures for SEA, and provides for public participation…

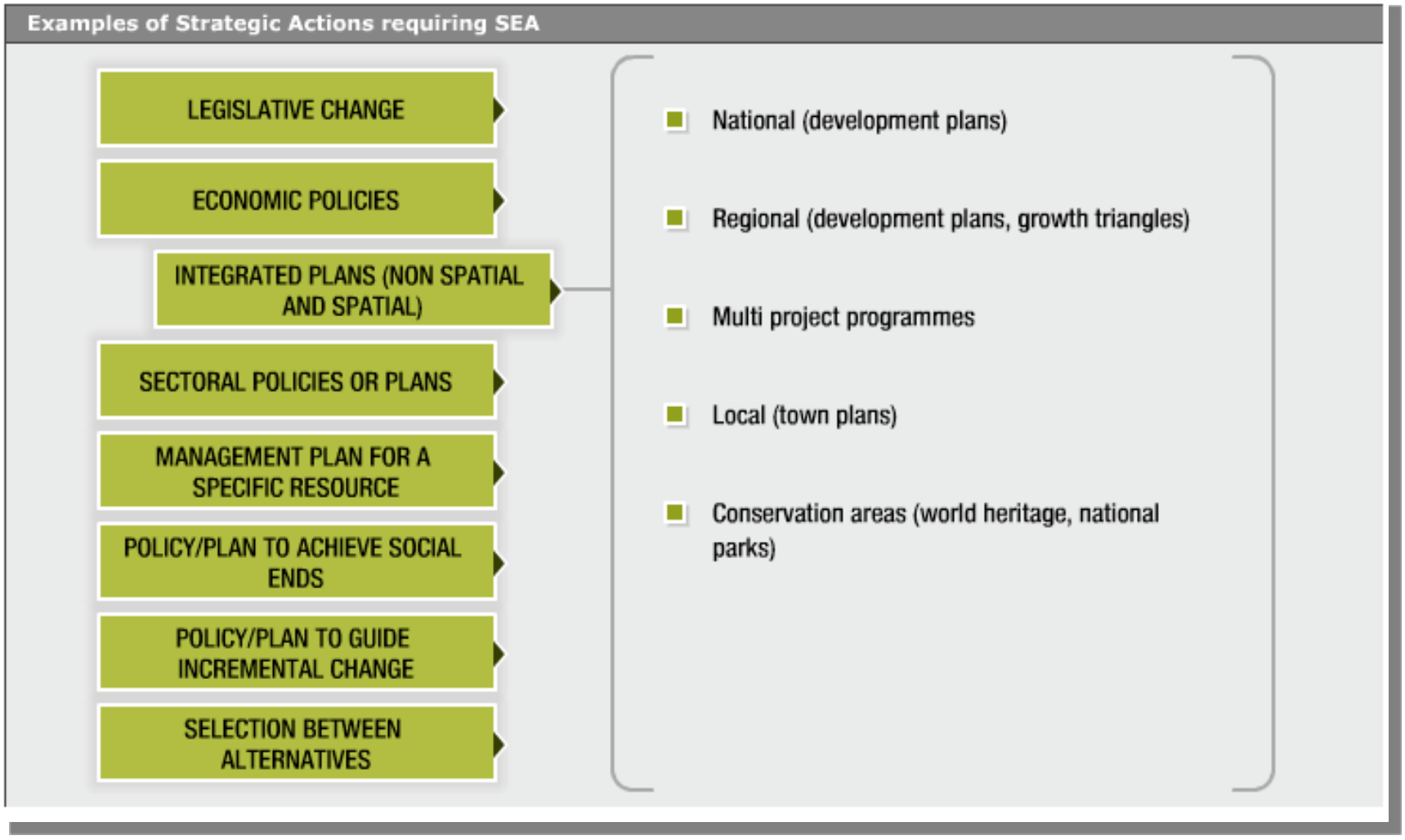
What is SEA?

- Assessment of environmental effects of policies, plans and programmes
- Environmental issues included at **earliest stage** in planning process (allows consideration of alternatives often ignored in the project level EIAs)
- Facilitates **long-term planning** and anticipation of environmental problems
- Includes assessment of **cumulative**, indirect, synergistic, delayed, regional, trans-boundary and global impacts
- **Reduces time** and effort required in project level EIA by identifying issues and initiating baseline studies

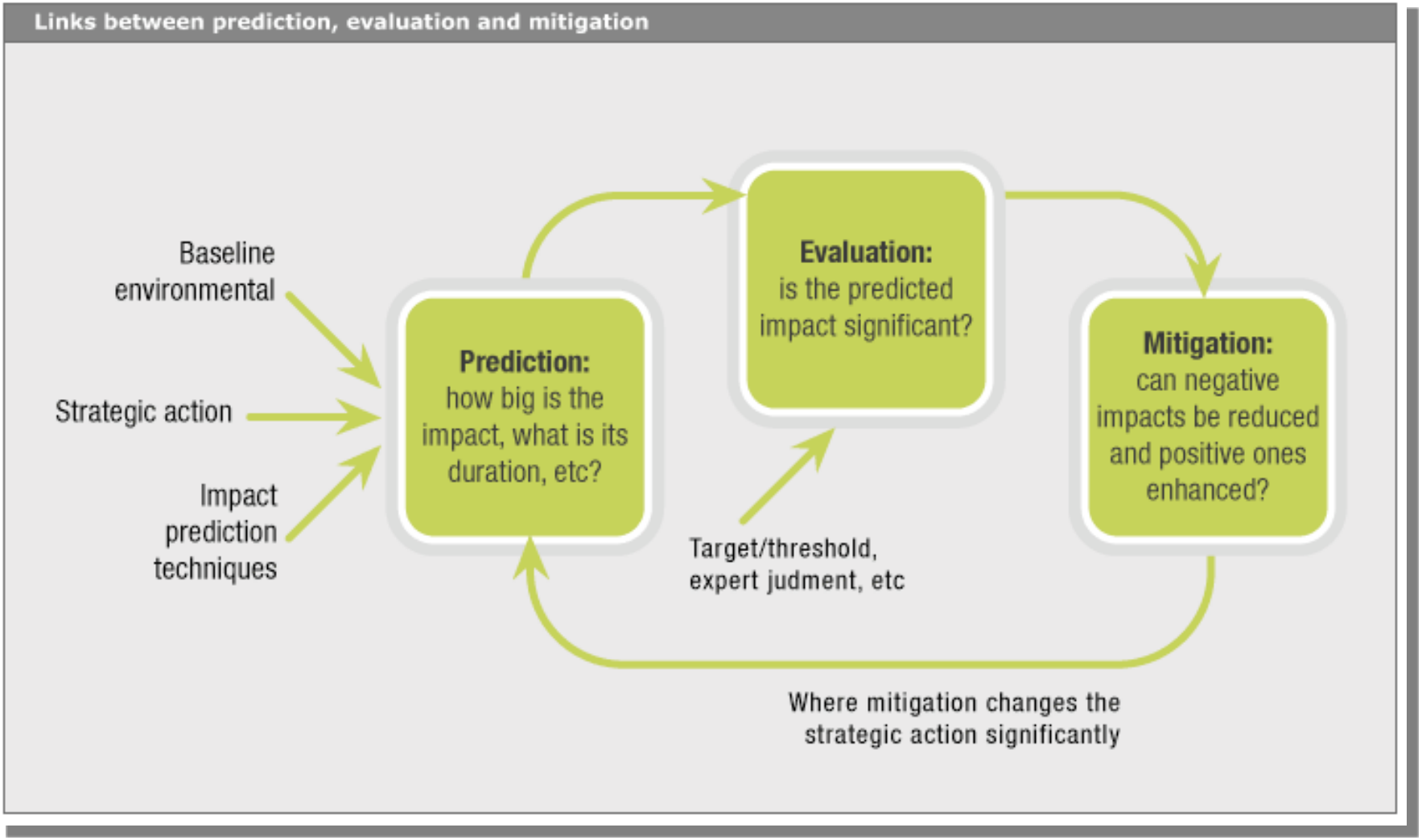
According to Partidario, SEA is….

- An instrument (process) that assists and facilitates decision-making.
- An instrument that acts at **strategic** levels of decision-making.
- Flexible, diversified, taylor-made to each decision process.
- Participated.

Examples of Strategic Actions



The SEA Process - An Overview



Limitations of SEA

- **Data collection is complex:** SEAs cover large areas - sometimes several countries and large number of alternatives.
- **Uncertainty** regarding future socio-economic conditions and techologies.
- Strategic action may have **no formal authorisation stage**. SEA is inherently a political process. E.g. who decides whether a country needs nuclear energy and how?
- SEA as a concept is **not yet politically accepted**.

How SEA and EIA Interact?

National level

- decision(s) on *technologies for final waste treatment*, e.g. reuse, dumping or incineration and total treatment capacities
- SEA carried out to identify available options and assess their impacts

Regional level

- decision(s) on where treatment *sites* will be located
- SEA assesses locational options and their environmental consequence

Project level

- decisions on *design and mitigation* measures for each of the selected locations
- project EIAs are tiered to earlier assessments and decisions as such, they are specific, limited and to-the-point

Source: Sadler and Verheem, 1995

What is EIA?

- **Systematic examination** of the significant environmental impacts of projects.
- **Process/preventative measure** applied at the planning stage to ensure that development proposals are environmentally sound and sustainable.
- Tool to provide decision-makers and the public with **environmental information.**

Steps in the EIA Process

- **Project Screening** - is an EIA needed?
- **Scoping** - which impacts and issues to be considered?
- Description of the project/action and alternatives
- Description of the environmental baseline
- Identification of key impacts

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- **Prediction of impacts**
- Evaluation and assessment of significance of impacts
- Identification of mitigation measures

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- Presentation of findings in an Environmental Statement (including a non-technical summary)

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- Review of Environmental Statement

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- **Decision-making**

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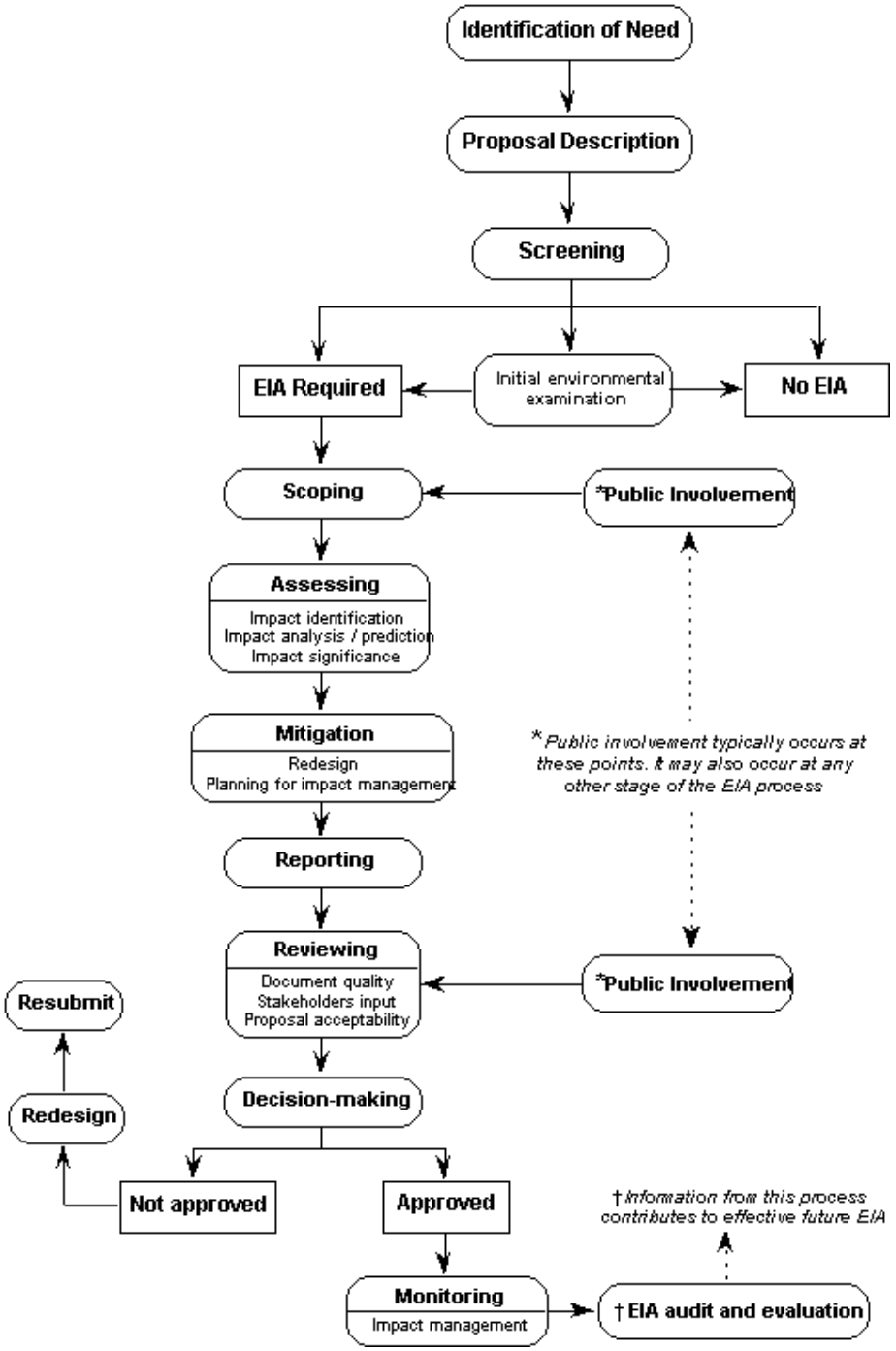
- Post-decision monitoring
- Auditing of predictions and of mitigation measures

- Public Consultation

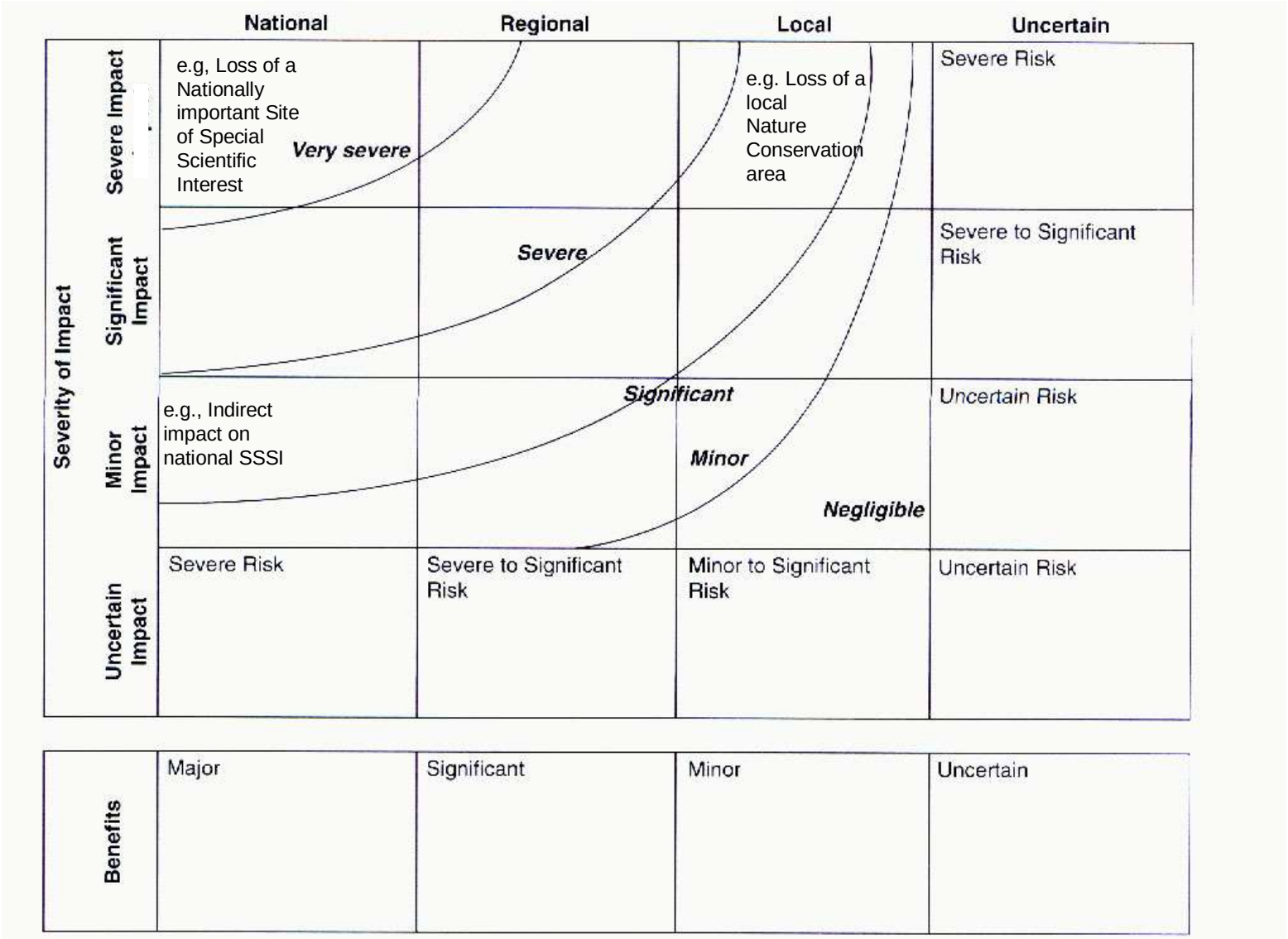
Step by Step Flowchart



How to assess environmental impacts?

- **Type and nature** - from biophysical to socio-economic
- **Significance** - sometimes small impacts can be highly significant - e.g. disturbance of nesting of pair of endangered birds (e.g. Aichi Expo 2005)
- **Extent** - local to global
- **Timing** - immediate or some time later (e.g. exposure to carcinogenic chemicals can be responsible for cancers 30 years later)
- **Duration** - short term (e.g. construction noise) to permanent (e.g. relocation of a village)
- **Uncertainty** - depends on the likelihood and consequences of the impact occurring
- **Reversibility** - some impacts are reversible (e.g. rehabilitation following decommissioning), others may be irreversible (e.g., CO_2 emissions from vehicles)

Assessing Significance



Some failings of the EIA Process

- Full range of alternatives (including no development) not always considered (but see case from Japan on Moodle).
- Difficult to develop effective mitigation measures.
- Cumulative impacts often ignored or unquantified.
- Development agencies sometimes confused about the purpose of EIA (it is just bureaucratic red-tape in project development?).
- Detailed environmental statement sometimes seen as an end in itself. Tendency to produce litigation proof documents.
- Tendency to consult with public only after the decision has effectively been made. Public participation is reactive not interactive.

Some benefits from EIA

- EIA can be used to modify and improve project design.
- Can ensure that project related resources are used effectively/efficiently
- EIA ensures incorporation of social and health aspects (e.g. worker migration, housing, education impacts, etc.)
- Helps with identification of measures for monitoring and managing impacts (including mitigation).

Lets look at the experience of the M4 Relief Road around Newport (Wales)

Plan unveiled in December 2004, estimated cost of 350 million UK Sterling (US$ 660 million).

Planned to open in 2012.

Environmental Assessment

Background to the Project

- 1989 - South Wales Area Traffic Study (SWATs) commissioned (functions as an SEA), examining the existing and future performance of the highway network.
- 1991 - Secretary of State announced a number of new road projects, including the M4 Relief Road.
- Engineering consultants contracted to identify the preferred route for the Relief Road. Looked at options to the north and south of Newport.
- 1995 - Secretary of State announced the preferred route, passing to the south of Newport.
- 1999 - Common Appraisal Framework study published (an SEA).
- 2004 - Final route determined (after detailed assessment).

Relationship between the SEA and EIA

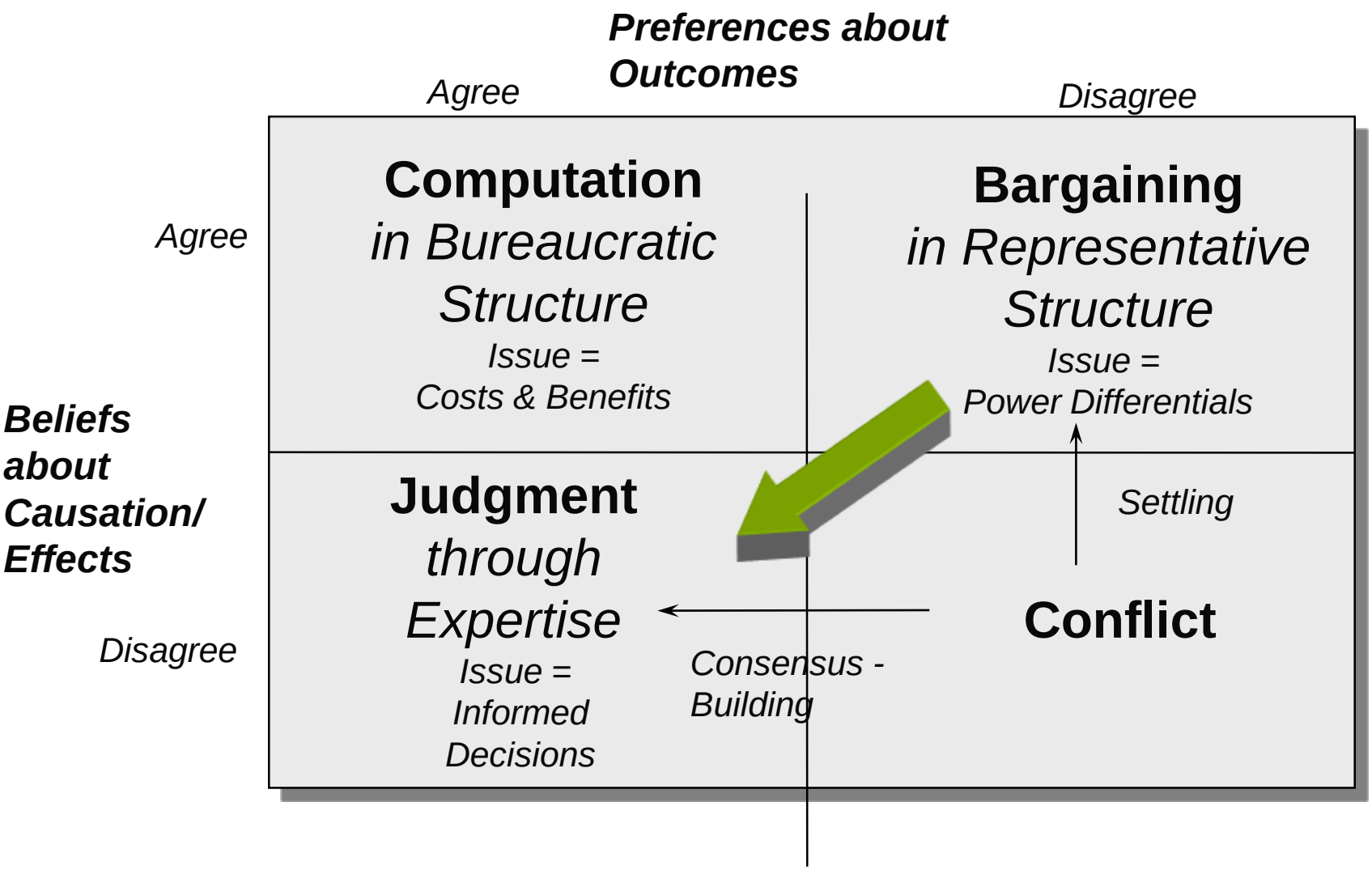
- The SWATs report effectively committed the Government to the Relief Road.
- A new bridge had been constructed across the Severn Estuary effectively predetermining the need for a new Relief Road.
- Existing M4 could not be widened due to tunnel works on one part.
- EIA looked at over 40 alternative routes, before narrowing to 5.

Relationship between the SEA and EIA

- Considerable opposition from local communities and environmental groups.
- Potential impacts on several Sites of Special Scientific Interest (SSSI) (wetlands) and an area rich in archaeological sites.
- SEA (multi-model study) was conducted after the first EIA.
- There was no public participation in the SEA.
- SEA concluded that steps to reduce the demand for car journeys plus improved public transport could be a successful alternative to major road-building. It also recommended constructing a toll road.

Some Reflections

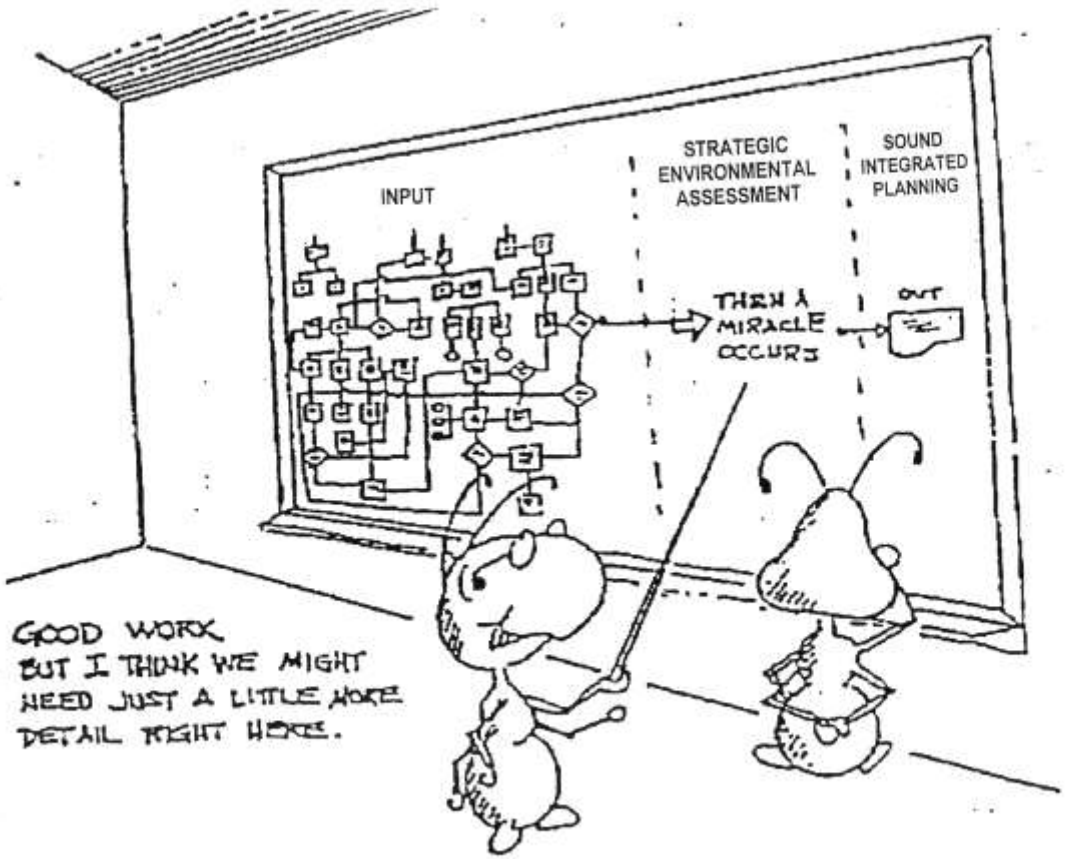
Environmental Assessment



Kai N Lee (1994), Compass And Gyroscope: Integrating Science And Politics For The Environment

Environmental Assessment

There is still a lot of work to be done on SEA.
A Miracle……in the making…..



Environmental Assessment

Again, Partidario reminds us that SEA, in its wider sense, is one possible instrument to assist this integration of sustainable development considerations at strategic levels of decision-making. To achieve that purpose it must however:

- look beyond the narrow meaning of environment and keep the focus on sustainability;

-ensure a long-term perspective in a real strategic context;

- clearly assume its socio-political role in the decision-making context.

Environmental Impact Assessment (EIA) in India

The foundation of environmental impact assessment (EIA) in India was laid in 1976-77 when the Planning Commission asked the then Department of Science and Technology (DST) to examine the river-valley projects from environmental angle. This was subsequently extended to cover those projects, which required approval of the Public Investment Board. However, these were administrative decisions, and lacked the legislative support. To fill this gap, the Government of India enacted the Environment (Protection) Act (EPA) on 23rd May 1986.