

# Assessment Tools Developed by HELIO International

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OECD Workshop on Sustainability Assessment Methodologies

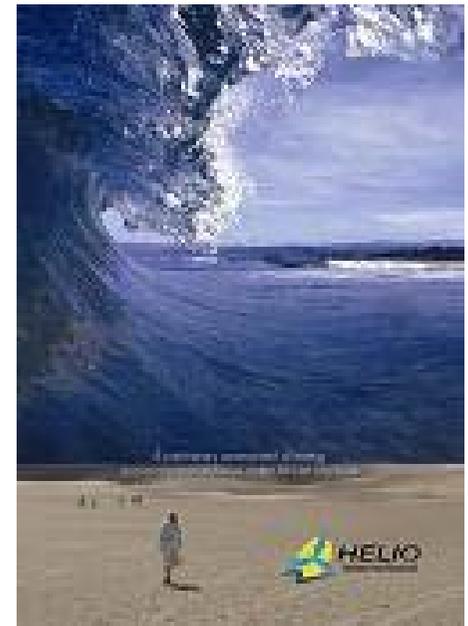
14-15 January, 2008  
Royal Tropical Institute, Amsterdam, the Netherlands

**Hélène CONNOR, Ph.D.**



# What is HELIO?

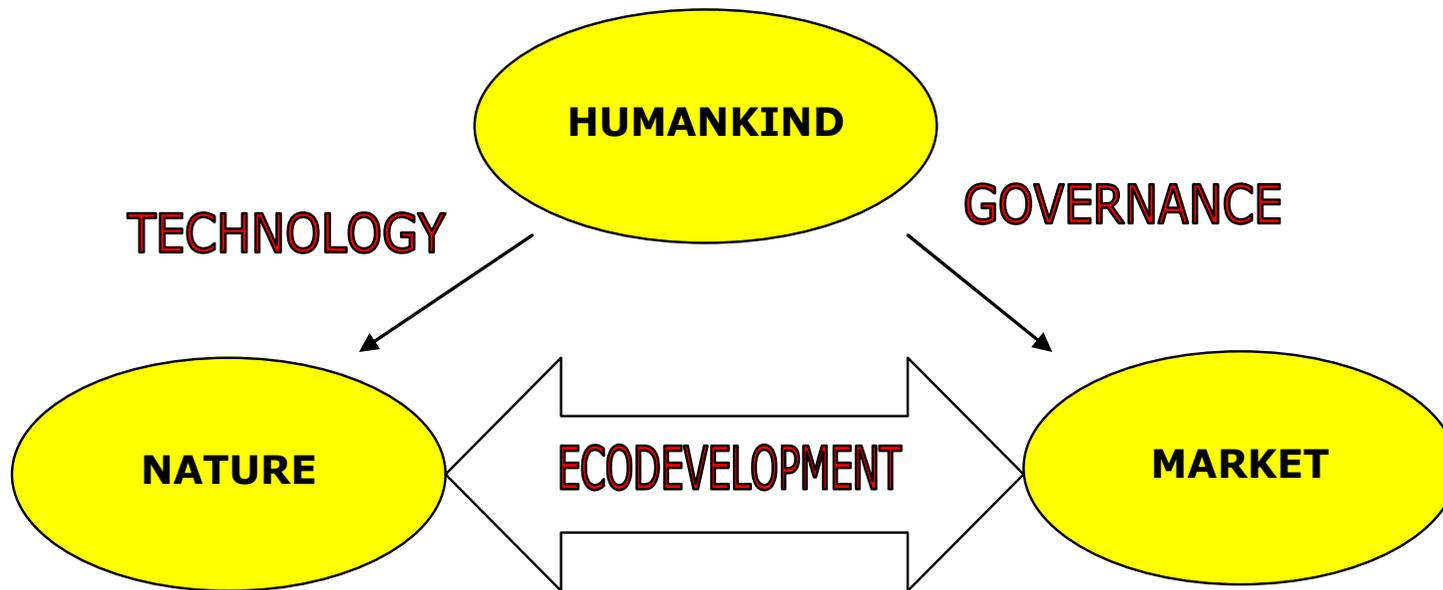
- Non-profit, based in Paris, France
- It has:
  - a small secretariat
  - an independent, international network of leading energy analysts
- It works on ecodevelopment and climate stabilisation/energy issues
  - SEW report series (since 1997)
    - 2006: *The Ultimate Challenge*
  - 2007 report
    - *A preliminary assessment of energy and ecosystem resilience in ten African countries*



# The Concept of Ecodevelopment

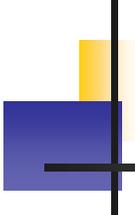
- 1972. Stockholm: eco-development in order to protect the environment from reckless economic development
- 1987. Brundtland Report: «sustainable development» replaces eco-development, but it adds a social dimension
- 2007. Bali states the failure of mitigation measures to deal with climate change: eco-development now requires genuine participatory governance

# Ecodevelopment



## Actors and Instruments for Ecodevelopment

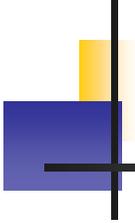
*(Source: HELIO International)*



# Assessing Ecodevelopment

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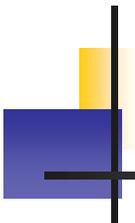
- Environment: world and local ecological balance
- Society: socio-cultural harmony
- Economy: efficiency-economic equity
- Technology: viability-safety
- Governance: civic organisation



# Development of Indicators

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- Selection of criteria for each aspect of ecodevelopment with stakeholders input
- Choice of indicators which are:
  - meaningful
  - relevant to the local context
  - specific, clear and simple
  - measurable; monitorable
  - policy oriented
- Validation and local pilot testing



# Environmental Viability

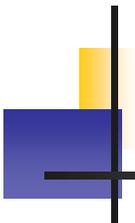
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## 1. Global environmental impacts:

- measured by CO<sub>2</sub> emissions per capita due to primary energy
- helps to monitor the main commitment under the UNFCCC

### ■ Vector:

- 1: 1990 level of global CO<sub>2</sub> emissions/capita
- 0: 1/10 of 1990 level of global CO<sub>2</sub> emissions/capita

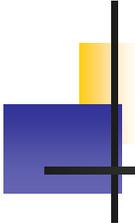


# Environmental Viability

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## 2. Local environmental impacts:

- measured by emissions of most significant local pollutant from the energy sector
- SO<sub>x</sub>, NO<sub>x</sub>, VOC, O<sub>3</sub>, Becquerels
- **Vector:**
  - 1: 1990 levels of emissions of the selected pollutant
  - 0: 1/10 of 1990 levels of selected emissions

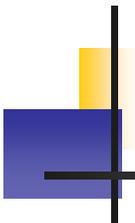


# Social Sustainability

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## 3. Rural electrification:

- measured by the percentage of rural households having access to power supply (grid or otherwise). Measure of comfort.
- **Vector:**
  - 1: 0% of rural households having electricity
  - 0: 100% of rural households have electricity

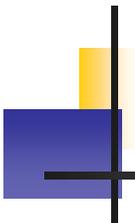


# Social Sustainability

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## 4. Employment Intensity:

- measured by the investment in renewables and energy efficiency programmes as a proxy to job creation
- **Vector:**
  - 1: 1990 country-level investment in renewables
  - 0: 95% of investment in energy systems in renewables and energy efficiency

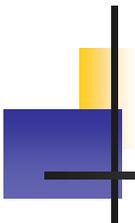


# Economic Viability

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## 5. Resilience to external impacts:

- stable energy prices and security of supply
- Vector in net energy-importing countries:
  - 1: 100% non-renewable imports in phys.units/total consumption of non-renewables in country
  - 0: 0% non-renewable imports in phys.units/total consumption of non-renewables in country

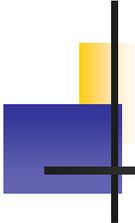


# Economic Viability

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## 5. Resilience to external impacts:

- stable energy prices and security of supply
- Vector in net energy-exporting countries:
  - 1: 100% non-renewable export value/value of total exports
  - 0: 0% non-renewable export value/value of total exports

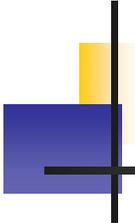


# Economic Viability

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## 6. Burden of energy investments:

- measured by the proportion of direct governmental investments in extraction, processing and delivery activities of non-renewable energy
- **Vector:**
  - 1: 10% of public level investment in non-renewable energy
  - 0: 0% of public level investment in non-renewable energy

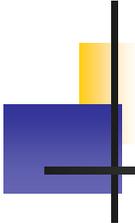


# Technological Viability

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## 7. Energy productivity (inverse of energy intensity):

- measured by GDP divided by primary energy use
- **Vector:**
  - 1: 0.094 US\$/MJ
  - 0: 0.94 US\$/MJ



# Technological Viability

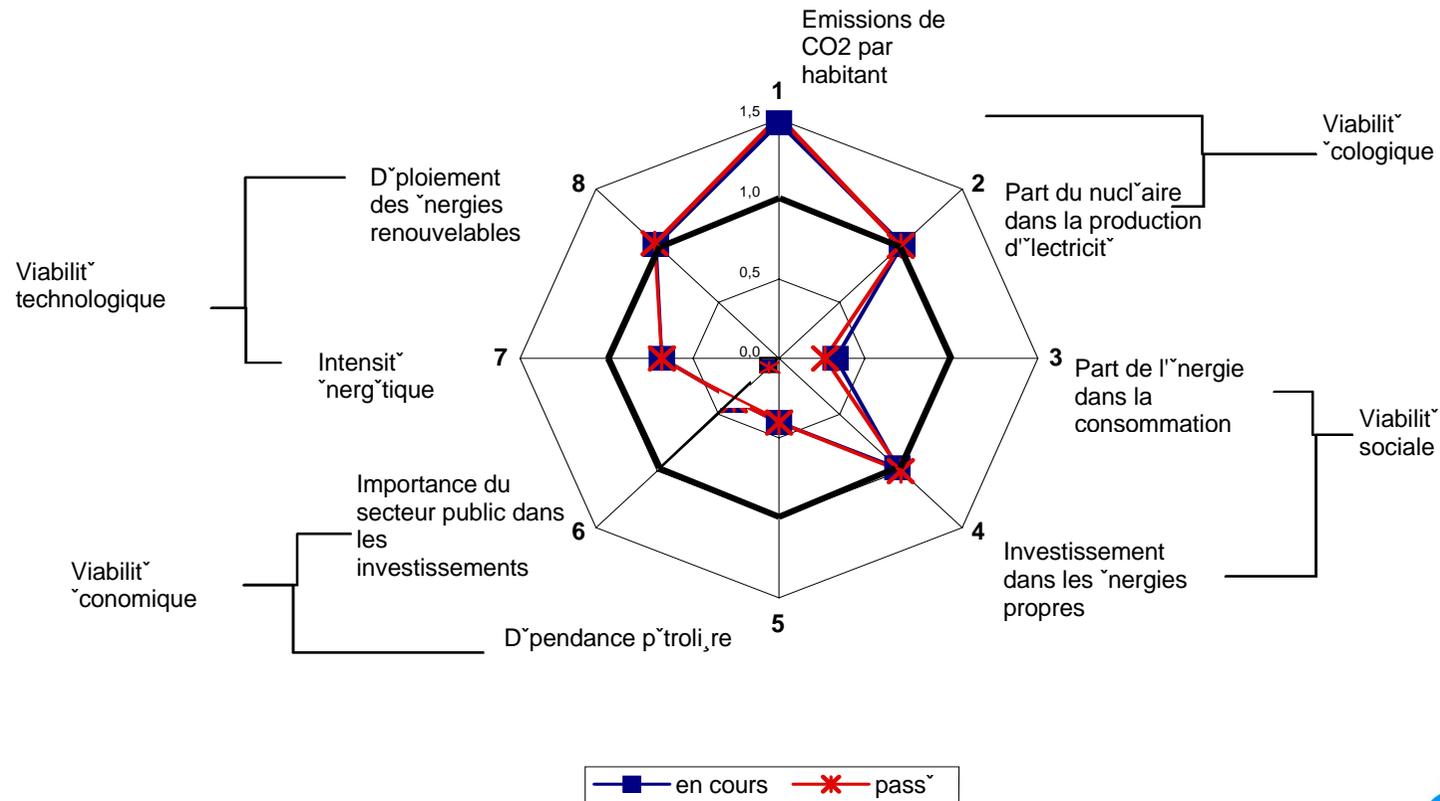
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## 8. Renewable energy development:

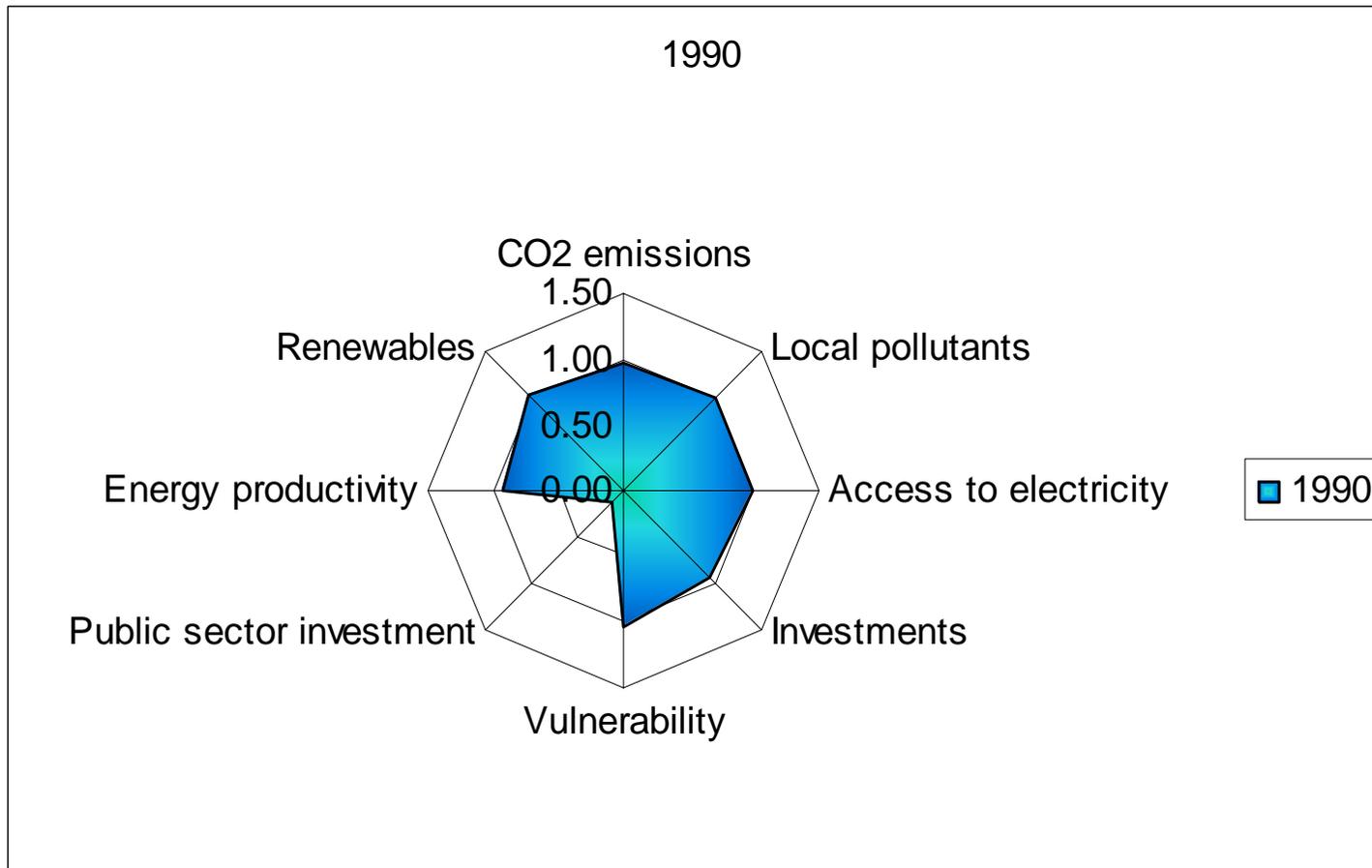
- measured by the share of energy output from energy conservation, efficiency and renewables
- **Vector:**
  - 1: 1990 level of renewables/world's total net primary energy use
  - 0: 95% of renewables in country's total net primary energy use

# Graphic Representation of Energy Policy Assessment

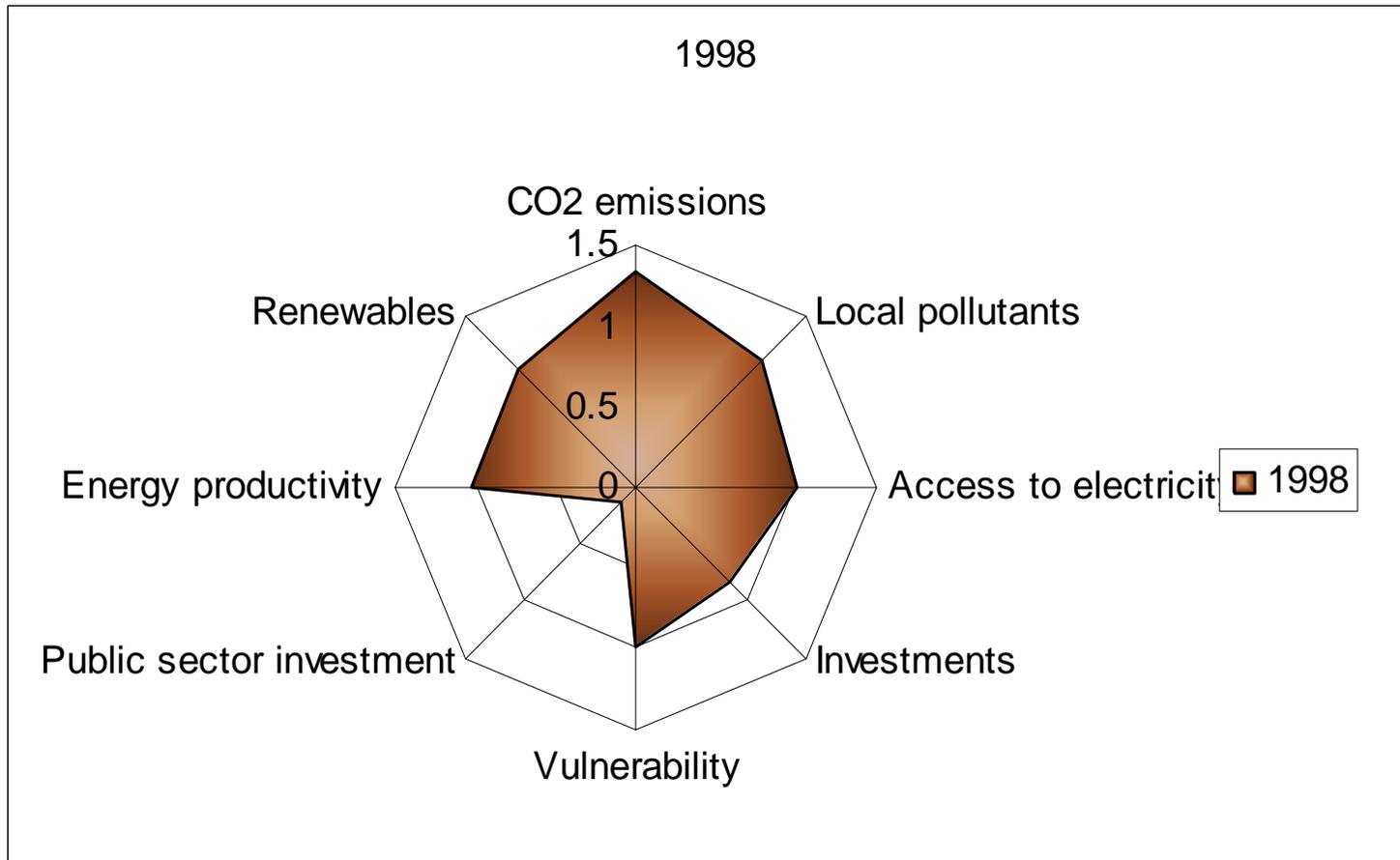
## Les Huit Indicateurs de Viabilité

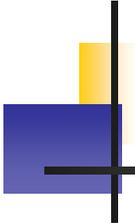


# Graphic Representation: by year (1990)



# Graphic Representation: by year (1998)



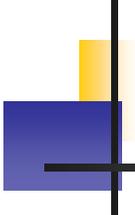


# Civic Viability

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## 9. Quality of information:

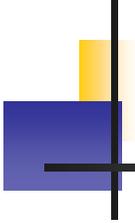
- measured by the early dissemination of quality information allowing the equality of participation by independent bodies and energy agents (as demand and supply sides)
- **Vector:**
  - 1: 1990 budget of local/national environmental NGOs
  - 0: Information and PR budget of energy agencies are equal to the budget of local/national NGOs



# Civic Viability

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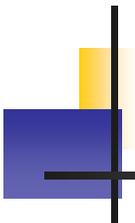
- Participative governance
  - measured by the number of independent bodies and ENGOs on the boards of energy agencies
- Vector:
  - 1: 1990 proportion of independent members on energy agencies Boards of Administration
  - 0: equal number of both shareholders and independent members



# Policy Pre-conditions

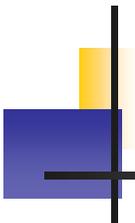
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- Analysis of the local context
- Study of local policies and trends
- Impacts of climate change to be taken into account
  - need for adaptation as well as mitigation measures



# Assessing the Sustainability of Climate Projects

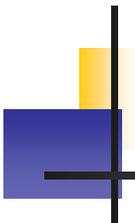
- 1999: Presentation of a matrix to screen MDP projects at COP5
  - Creation of SouthSouthNorth (SSN)
  - Matrix SSN
    - eligibility tests (with thresholds)
    - additionality filters
    - indicators for viability and assessment
    - feasibility indicators: ranking; selection
- creation of the Gold Standard (COP9)



# Other Quantified Assessments by HELIO International

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- **Project VAR:** *Assessing the vulnerability adaptation and resilience of energy systems in ten African countries*
  - presentation and methodological workshop in Bali (COP13)
- **Project MEDRES with ADEME:** *Assessing the impact of renewable energy electrification in rural regions of the Southern Mediterranean*



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Thank you for your attention

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For more information please go to:  
[www.helio-international.org](http://www.helio-international.org)