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ENGINEERING PROFESSORS' COUNCIL (EPC) ANNUAL CONGRESS

Roland Clift

Centre for Environmental Strategy
University of Surrey



THE QUEEN'S
ANNIVERSARY PRIZES
FOR HIGHER AND FURTHER EDUCATION

2002



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Sustainable Development is

“ ... development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

***Our Common Future*, World Commission on Environment and Development, Oxford University Press (1987) (“The Brundtland Report”)**





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The overarching goal of sustainable development is

“... enabling all people throughout the world to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations”

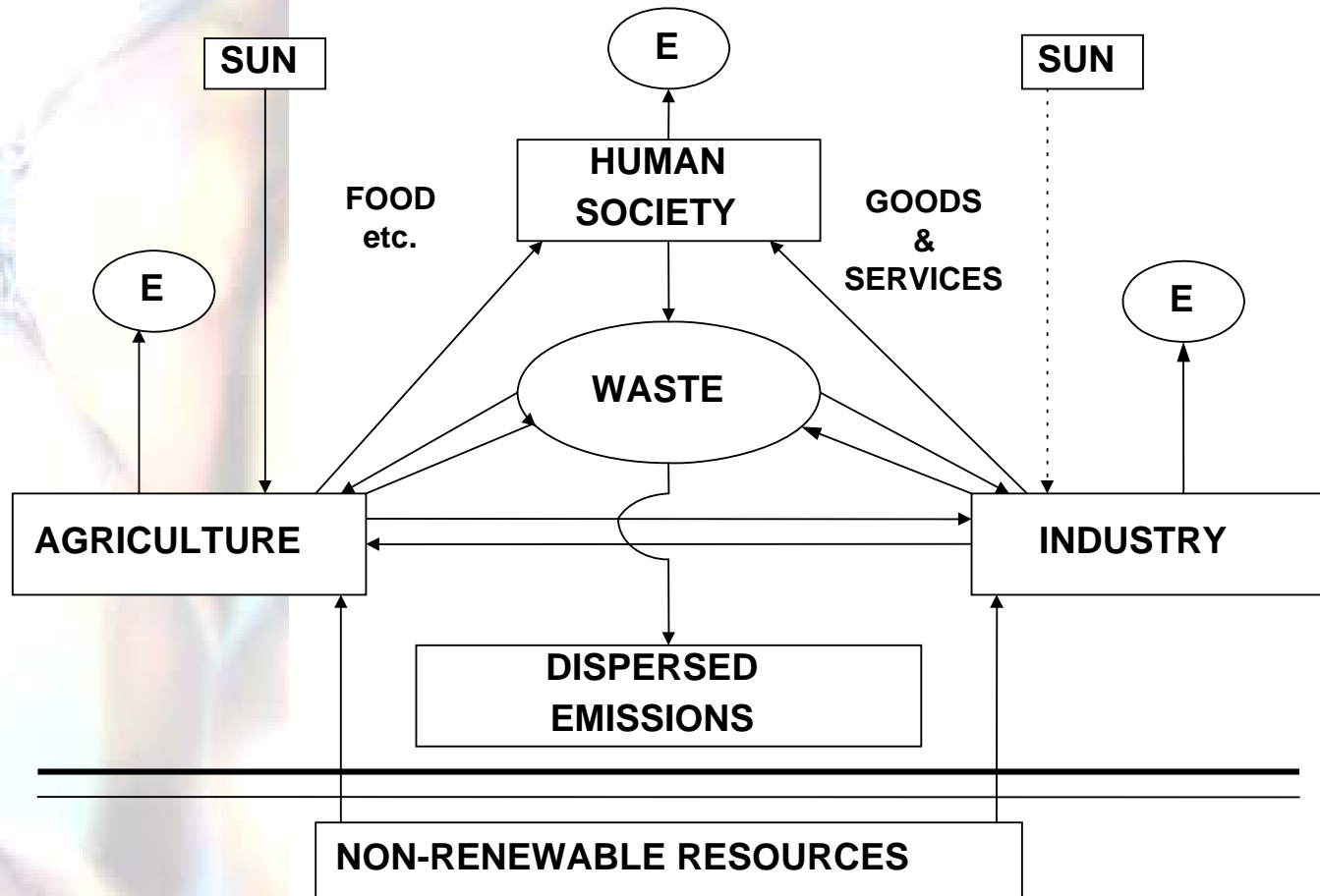
**One Future – different paths,
UK Strategic Framework for Sustainable
Development, 2005**





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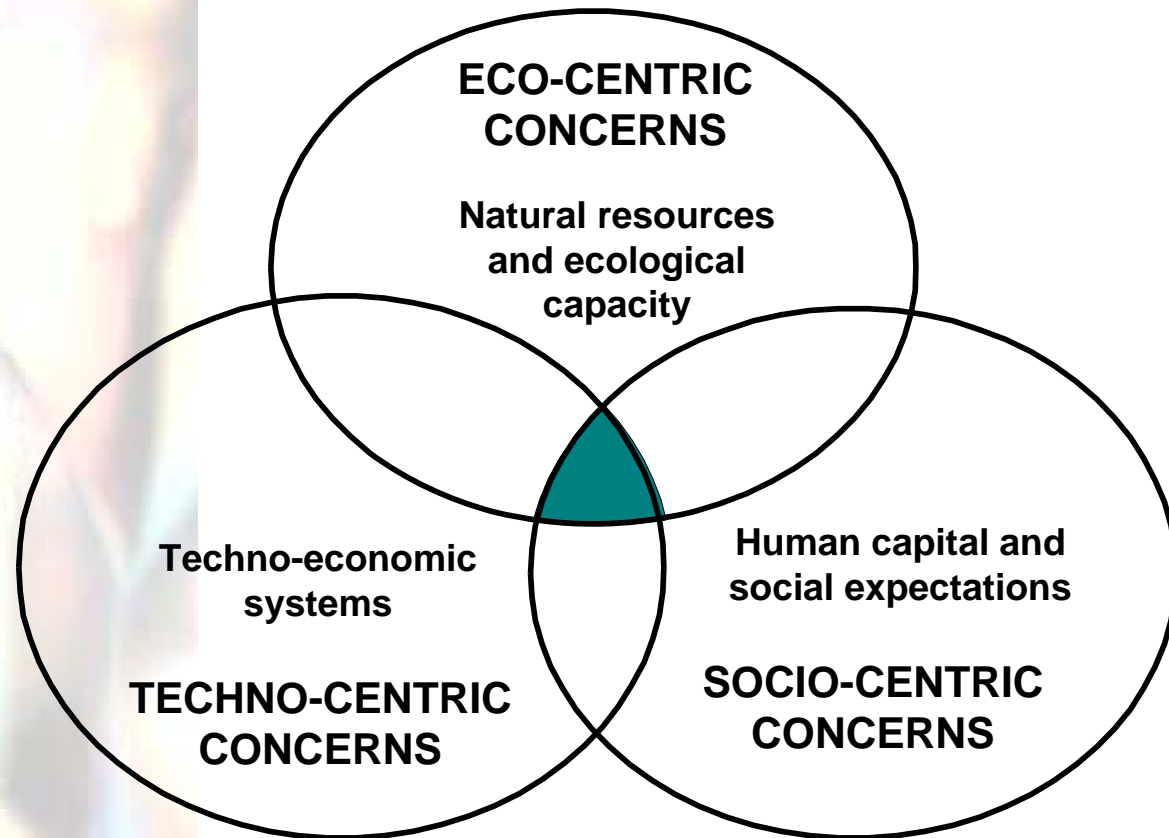
THE HUMAN ECONOMY





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THREE DIMENSIONS OF SUSTAINABILITY





A TAXONOMY OF DECISIONS

Decisions

**Decisions with agreed
criteria**

**Decisions without
agreed criteria**

**With prior articulation
of preferences**

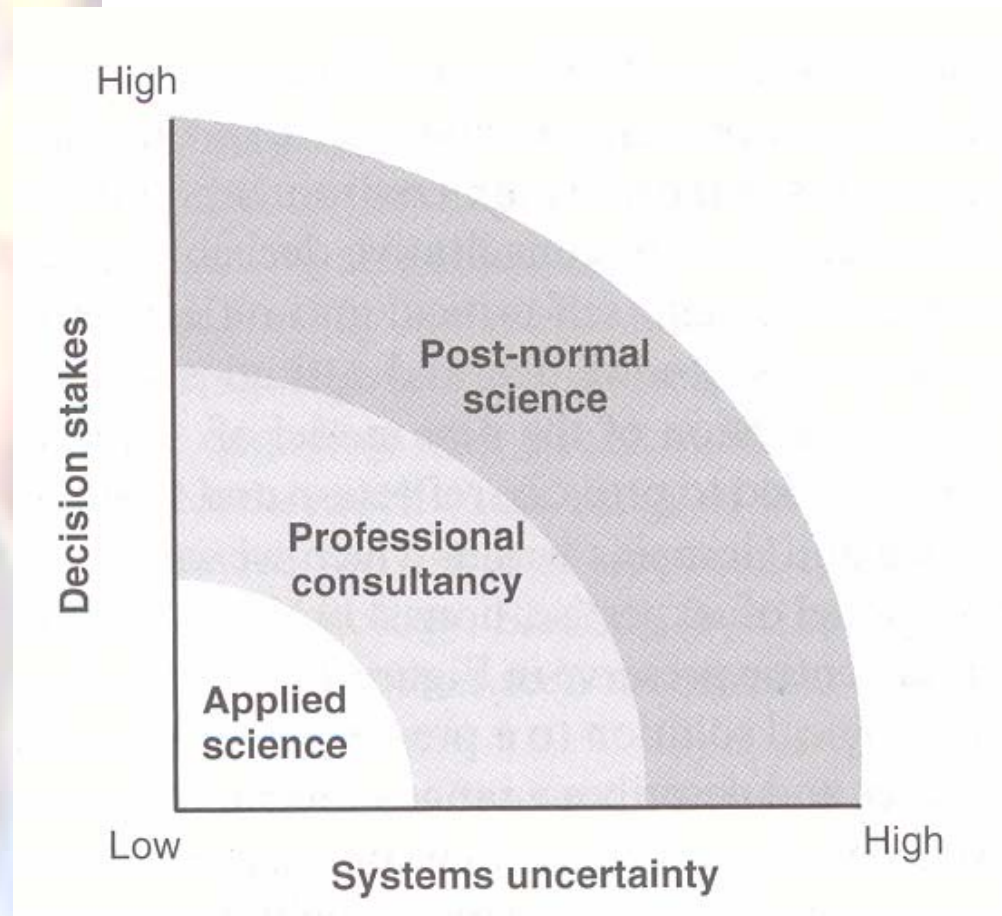
**Without prior articulation
of preferences**





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POST-NORMAL SCIENCE (after Ravetz)



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ROYAL COMMISSION ON ENVIRONMENTAL POLLUTION 22ND REPORT: “ENERGY - THE CHANGING CLIMATE” (2000)

“...the world is now faced with a radical challenge of a totally new kind which requires an urgent response...”

By the time the effects of human activities on the global climate are clear and unambiguous it would be too late to take preventive measures.”

Recommended ensuring that concentration of carbon dioxide in the atmosphere does not exceed 550 ppmv, twice the pre-industrial level.





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A COMPLETELY DIFFERENT APPROACH:

“... an effective, enduring and equitable climate protocol will eventually require emission quotas to be allocated to nations on a simple and equal per capita basis... nations’ emission quotas (should) follow a contraction and convergence trajectory.”

“...UK carbon dioxide emissions must be reduced by almost 60% from their current level by mid-century.”





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SUSTAINABLE DEVELOPMENT

Three “legs” to the argument, corresponding to the three components of sustainable development:

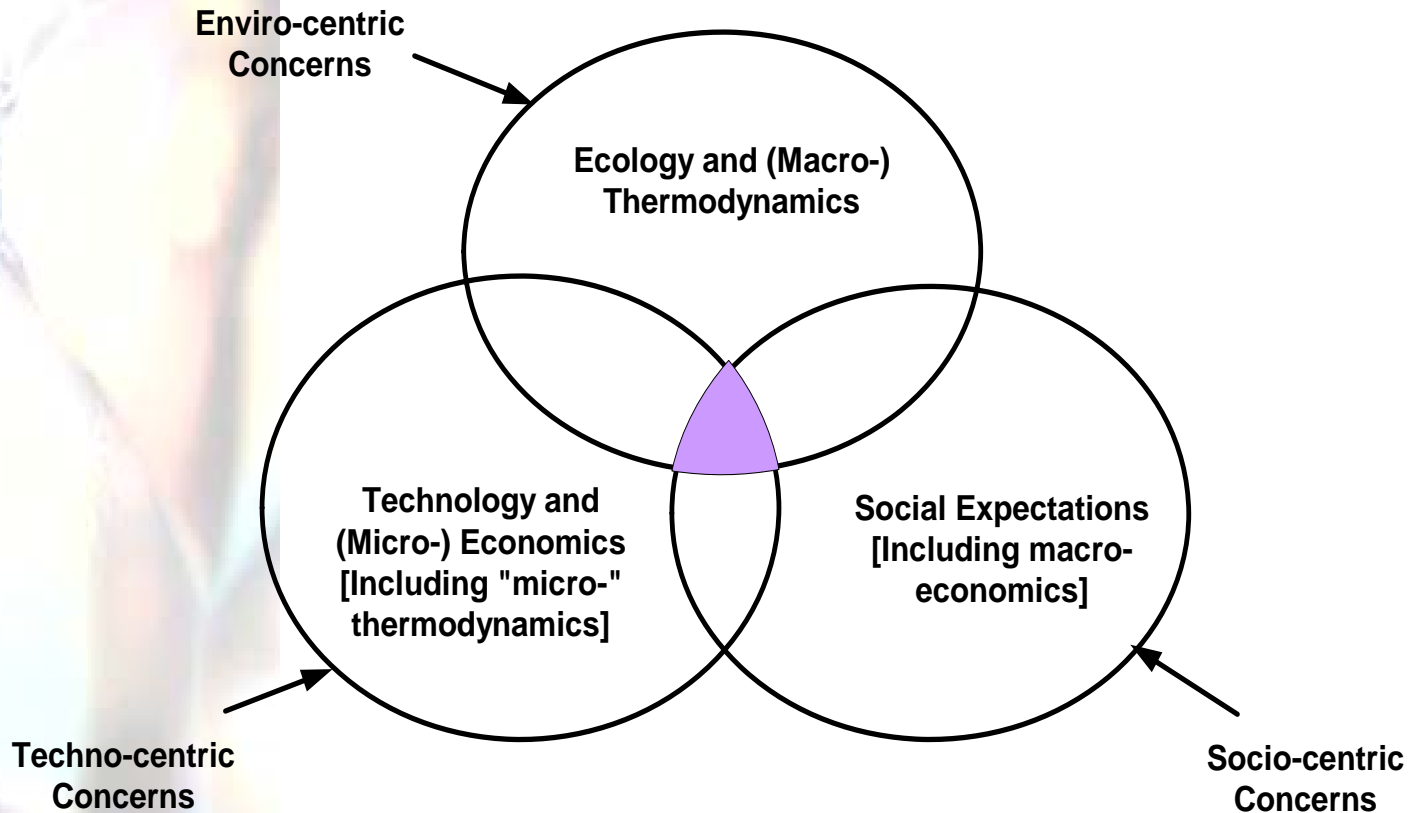
1. **Enviro-centric:** limit on carbon dioxide concentration in the atmosphere;
2. **Socio-centric:** the “contract and converge” principle;
3. **Techno-centric:** the target is technologically and economically feasible.





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SUSTAINABLE DEVELOPMENT





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FOUR SCENARIOS FOR 2050

1. “Techno-fix” – final demand at 1998 level
- 2.,3. 36% reduction in demand
- mainly through improved building performance
4. 47% reduction in demand below 1998 level





CONCLUSION

**For the UK, 60% reduction in CO₂ emissions by 2050 is possible.
The technology is (or soon will be) available.**

But is the political will available...?

