

The role for EIA in Climate Change

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Outline

What does our government think about climate change?

What causes it and what effects can be expected with regard to flooding in Britain?

How does EIA address climate change?

What purpose and role can EIA play?

Conclusions

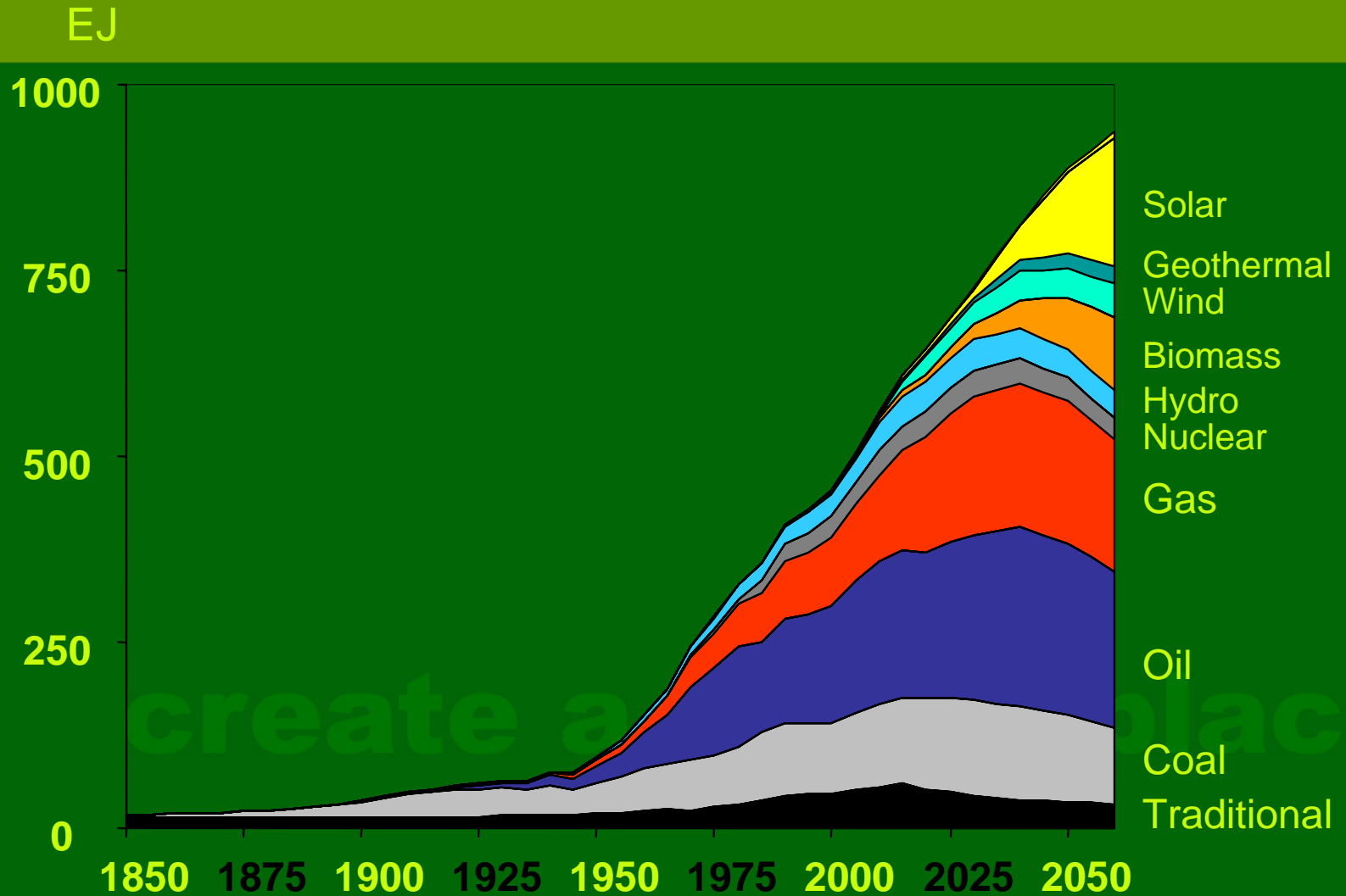
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1. What does our government think about climate change?

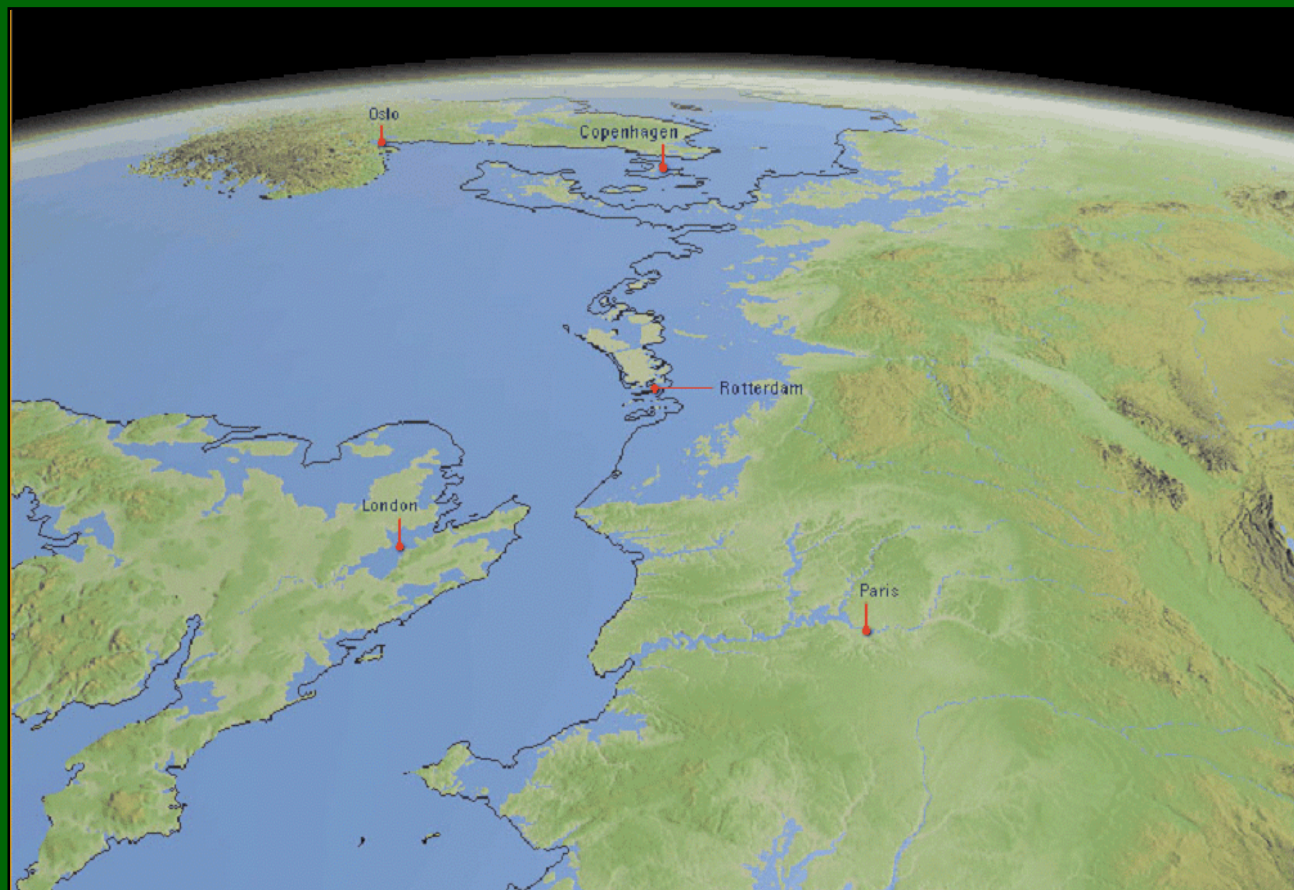
1. The climate is changing
2. Human activity is causing it
3. “The future is very uncertain and cannot be predicted. It is therefore important to develop policies that can cope with a range of different outcomes – and which can adapt flexibly as the situation evolves.” Foresight Future Flooding 2004

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The World's Energy Demand



What effects can we expect?



**7 m sea
level rise**

Source:

Shell

Netherlands

How does Climate Change Affect Flooding from Rivers?

Future is uncertain and cannot be predicted

More extreme weather (hottest, wettest etc)

This is leading to more extreme floods

In the last 10 years:

Easter 1998 Midlands

Autumn 2000 Yorkshire

Aug 2004 Boscastle

New year 2005 Carlisle

Summer 2007....



And on the coast

Sea level is rising

Increase in storminess

Environment Agency have been building in allowances for sea level increase since the mid 1990s.

2004 official recognition from Defra that due to climate change some coastal flood defences are not sustainable

In October 2006 the government produced clear guidance on how to deal with climate change with flood risk management

Planning for climate change

Defra Economic Appraisal Supplementary Guidance
October 2006

On coasts previously allowed 4 to 6mm rise per year

New guidance reflects an exponential curve

NW 2.5mm now, 13mm in 2085

SE 4mm now, 15mm in 2085

5-10% increase in wind speed and wave height

In rivers allow 10% increase in peak flow up to 2025,
20% up to 2085

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How does EIA address climate change?

Council Directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (85/337/EEC)

ANNEX III

3. A description of the aspects of the environment likely to be significantly affected by the proposed project, including, in particular

.....**climatic factors**,.....

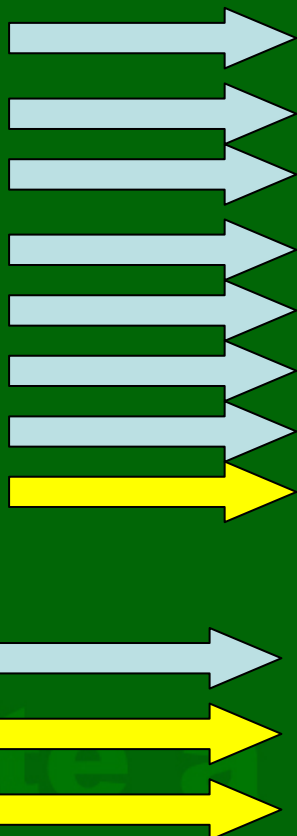
and

the inter-relationship between the above factors

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Effects of Climate Change on EIA and **SEA**

Climatic factors



Population

Fauna,

Flora

Soil

Water

Air

material assets,

Cultural heritage including
architectural and
archaeological heritage,

Landscape

Biodiversity

Human health

The Development

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What purpose and role can EIA play?



Issues

- EIA & SEA often limited to site or geographic boundaries

 - Weather and climate do not respect political or geographic boundaries,

- Climate Change impacts not site specific

 - acute at times but generally chronic

 - EIA better at addressing the 'acute' impacts of development, as opposed to 'chronic' impacts of climate change

 - SEA more suited to looking at chronic effects

- Impacts occur offsite

 - may take decades to materialise (health impacts of extreme weather and climate events, drier agricultural soils)

- 'Its just a small housing development'

 - hard for the proponent to associate his impacts with cumulative regional or national impacts.

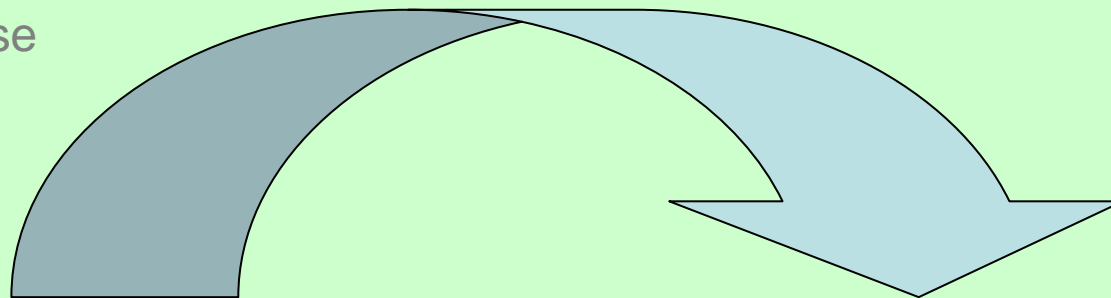
But: Key Questions for Practitioners and Decision makers



Environment
Agency

Does the development/plan/strategy/scenario encourage and promote reducing greenhouse gas emissions?

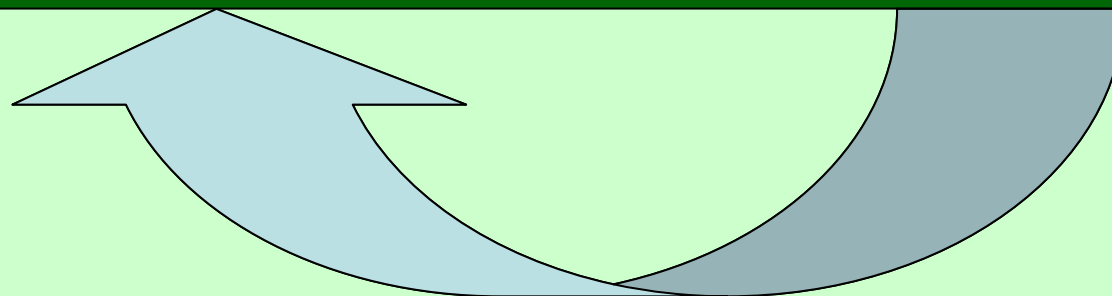
Greenhouse
Gases



DEVELOPMENT

ENVIRONMENT

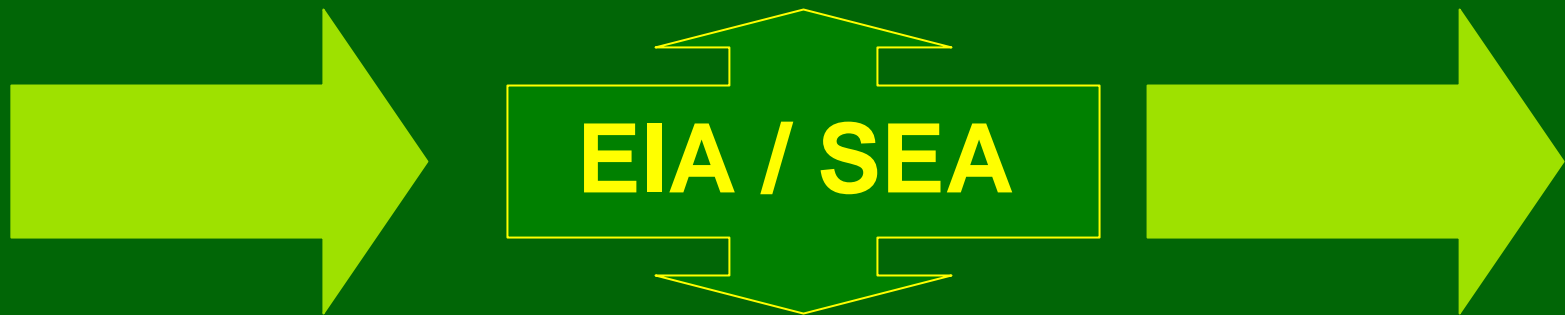
Climate Change



Does the development / scenario help to prepare for the effects of climate change?

So how can we use EIA?

**REGULATORY TOOL
for RISK ANTICIPATION**



**DESIGN TOOL for
PROGRAMMES / PROJECTS**

Why is EIA Useful?

EIA/SEA is closely linked to new investment
Strategic Planning

New schemes and projects

The extension or adaptation of existing
plants, roads, etc

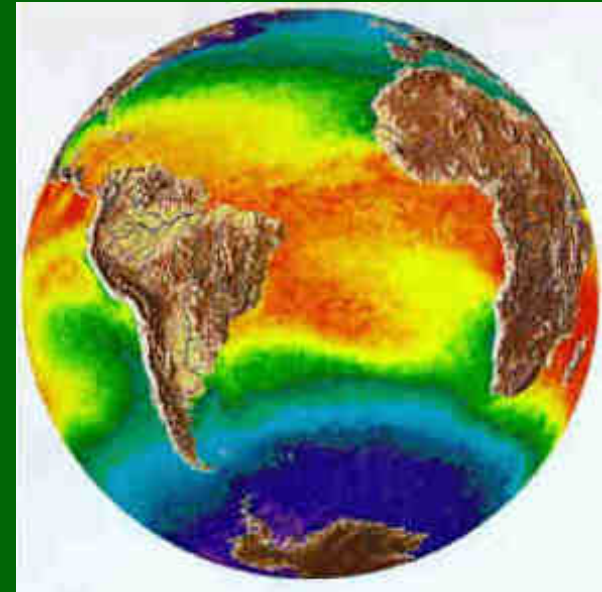
At strategic level SEA influences the
fundamental nature of the development

At project level through consideration of
Alternatives and Mitigation EIA can be used as
a design tool.

Facilitates communication with public, statutory
bodies and decision makers

Recognised aid to decision-making

Now look at how this is applied within the
Environment Agency



Environment Agency
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Strategic level Influence

To be useful environmental assessment needs to start early

Environment Agency policy to carry out some form of environmental assessment of all our plans, strategies and projects

We use SEA to help determine flood risk management policy in catchments: CFMPs

Policies to increase, maintain or reduce levels of protection

On the coast SEA is also used in Shoreline Management Plans

Strategic Options

Traditional engineering

- Straighten, widen, deepen the river
- EIA highlights Major adverse impact
- Also little flexibility with regard to climate change



Walls



Embankments



These approaches
have limited flexibility
with regard to climate
change



In Bewdley environmental assessment has helped to produce a more innovative solution

Diversion and Bypass Channels

Jubilee River, a diversion channel for the River Thames



Newer Approaches

Flood Storage

Still a highly
engineered
solution

Potential for
habitat creation
needs to be built
in at start

Or will be
returned to former
use



Natural storage

Urban: Sustainable Urban Drainage Systems (SUDS)

Rural, land use management

Tree planting or blocking moorland grips

Sustainable Catchment Management Plan in Forest of Bowland

River Swale Regeneration project

Need to produce data to prove can make a difference to flooding as Future Foresight Flooding Report April 2004 concluded land management will have little effect on worst case scenarios

On the coast

Climate change is forcing decisions regarding sustainability of coastal defences

Environmental assessment crucial in identifying effects



Communication

Environmental Reports must get the results to decision makers and stakeholders

Objective assessment of vulnerable socio-economic sectors and environmental parameters

Need to clearly communicate:

- Results** of the assessment

- Information about the **level of uncertainty**

- Terms and definitions**



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Conclusions

EIA/SEA provides a valid & impartial tool to assess climate change impacts on the project and of the project on the environment

EIA/SEA – takes the long term view = more sustainable

Can help developers change their projects to be more resistant to the impact of climate change = better investment

Provides a means to reduce the impact of the development on climate change = cumulative effect of EIA means every little helps

Asks “what if” questions and uses its results to judge whether and how climate change may be significant

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Key Questions

3 Key Questions that EIA Practitioners & Decision Makers must now ask:

What are the effects of this project or strategy on climate through GHG emissions?

What effects will climate change have on the long term sustainability of this project or strategy?

What effects will climate change have on the impacts from this project or strategy?

