International Lessons For The Incorporation Of Climate Change Considerations Into Environmental Assessments In South Africa

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Presentation Outline

1. Introduction
2. Methodology
3. Summary of literature reviewed
4. Main Findings: Overview of lessons learned
5. Conclusion

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1. Introduction

- Climate change:
  - Measurable and scientifically proven reality
  - Poses irreversible risks
- Developments have impacts on climate change (GHG emissions) and could be impacted on by the effects of climate change (such as sea level rise or drought)
- EIAs are important pro-active tools to support decisions regarding climate change adaptation and mitigation
- **Following sections: International and SA policies and guidelines**

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1. Introduction (continued)

International Policies and Guidelines: World Organisations

- Recommendations for addressing climate change in impact assessment was included in:
  - 1992 UNFCCC
  - 1997 Kyoto Protocol
- Guidance and publications on incorporating climate change into environmental assessment and development planning:
  - IPCC, United Nations, European Union, IFC, Organisation for Economic Co-operation and Development (OECD), IEMA, **IAIA**, etc.

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1. Introduction (continued)

Policies and Guidelines: Individual Countries

- Various countries have identified the intent to assess climate change in environmental assessment programs
- Canada – developed country that is furthest along
- 2003: *General Guidance for Practitioners on Incorporating Climate Change Considerations in Environmental Assessment* (CCCEAC, 2003)

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1. Introduction (continued)

SA Policies and Guidelines

- SA Government acknowledged (Climate Change Response White Paper, 2011):
  - "***Climate change is one of the greatest threats to sustainable development***"
  - "***Climate change, if unmitigated, has the potential to undo or undermine many of the positive advances made in meeting South Africa's own development goals and the Millennium Development Goals (MDGs)***"
- SA thus:
  - Ratified the UNFCCC in August 1997
  - Acceded to the Kyoto Protocol in March 2002
  - Committed to 42% GHG emissions reduction in 2030 under Copenhagen Accord in 2009

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1. Introduction (continued)

SA Policies and Guidelines (continued)

- Significant domestic action needed in all sectors
- SA's vision for effective response to climate change contained in Climate Change Response White Paper
  - Guided by principles in the Constitution, NEMA, Millennium Declaration, UNFCCC and the Kyoto Protocol

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1. Introduction (continued)

South African Policies and Guidelines (continued)

- SA proposes carbon tax as an intervention to achieve GHG mitigation – comprises a significant component of National Climate Change Policy
  - Legislative mechanisms being declared to align reporting and classifying of GHG emissions for tax purposes
- Policies to be applied in EIA, pro-active decision-making tool (ideally also at strategic environmental assessment level – SEA, EMF, INRM, etc.)
- EIAMS (2014) identified inadequacies of impact assessment and management practices, requiring instruments and tools to guide implementation practices
  - One such inadequacy, which represents gap in SA legislation: Assessment of ways in which proposed developments can adopt mitigation and adaptation measures to deal with climate change impacts

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1. Introduction (continued)

South African Policies and Guidelines (continued)

- EIA and Management Strategy (2014) identified inadequacies of impact assessment and management practices, requiring instruments and tools to guide implementation practices
  - One such inadequacy, which represents gap in SA legislation: Assessment of ways in which proposed developments can adopt mitigation and adaptation measures to deal with climate change impacts

1. Introduction (continued)

Conclusion: SA Policies and Guidelines

- To achieve its climate change goals - SA to urgently prepare regulations, guidelines and toolkits for incorporating climate change impacts into environmental assessment
- Concern w.r.t. overregulation. Other approaches such as best practice guidelines…?
- SA lags many countries BUT can benefit by learning from other countries – as illustrated through this study, which identified certain lessons for SA on incorporating climate change into impact assessment

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2. Methodology

- Literature review and syntheses of six journal articles
  - Reviewed articles assessed and evaluated the incorporation of climate change considerations into project-scale EIAs
  - Range of developed and transitional countries
- Main objectives of the study:
  - Tease-out the implications for the SA
  - Identify lessons SA can learn
  - Make appropriate recommendations for SA to consider when preparing regulations, guidelines and toolkits

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3. Summary of Literature Reviewed

- **Canada** (two articles) - Canada was first to incorporate and has most experience in this regard
  - Ohsawa and Duinker (2014), and Byer and Yoemans (2007)
- **South-Korean** (one article)
  - Yi and Hacking (2011)
- **Denmark** (one article)
  - Larsen (2014)
- Studies that incorporated EIAs from **various countries** (two articles)
  - Agrawala *et al* (2010), and Watkins and Durning (2012:296)

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4. Main Findings: Overview Of Lessons Learned

Main lessons learned:

4.1 Assessment methodologies

4.2 Definitions

4.3 Addressing the technical challenges in dealing with project-specific impacts on climate change

4.4 Addressing impact 'significance'

4.5 Addressing GHG mitigation

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4.1 Assessment Methodologies

4.1.1 Consistency

- Need for consistent GHG assessment and quantification methodologies identified by various authors
- Incorrect methodologies can be associated with "hidden bias", not true measure of climate change

Lessons for SA:

- **Systematic assessment methods are needed**
- **Substantial guidelines are needed that describe desired assessment principles (with sufficient examples)**

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4.1 Assessment Methodologies

4.1.2 Addressing uncertainty

- Research found that climate change was not adequately addressed in EIAs
- Major difficulty for EIAs: Determining **how climate change uncertainties can impact** project, and how to **effectively incorporate uncertainties** into EIA analyses
- Contributing factor: Low access of EAPs to climate change information
- Risk of counterproductive or unnecessary investment in adaptation (of e.g. design), if uncertainties not adequately understood and considered

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4.1 Assessment Methodologies

4.1.2 Addressing uncertainty (continued)

- Three basic methods to integrate climate change uncertainties into EIAs:

1. Sensitivity analysis

- Useful analytical screening device, good first step in many analyses
- Focus: Identification of threshold vulnerabilities (not prediction)

2. Scenario analysis

- Approach most widely used for addressing uncertainties
- Provides alternative views of the future (useful for assessing alternatives)

3. Probabilistic analysis / Simulation

- More complex descriptions of alternatives than sensitivity and scenario analysis

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4.1 Assessment Methodologies

Lesson for SA: Uncertainties could be addressed using each method, or various sequences and combinations

- Two main factors determining choice of analytical approach:
  - 1. Importance of specific impact and of the info resulting from the analysis
  - 2. Quality of models and of qualitative data available

Choice of analytical model in impact assessment (Byer & Yoemans, 2007)

	Model and data availability		
Importance	**Poor**	**Fair**	**Excellent**
Low	None	Sensitivity	Sensitivity and scenario
Medium	Sensitivity	Scenario	Scenario
High	Sensitivity	Scenario	Scenario and probabilistic

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4.2 Definitions

- Research revealed a lack of definitions for terms used in guideline documents - such as "medium" or "high" emissions
- Terminology such as "carbon" also in varying and contradictory manners

Lesson for SA:

- **Guideline documents should:**
  - **Limit number of terms used**
  - **Include definitive list of appropriate terms**
  - **Include consistent and thorough definitions of GHG emission levels, especially in determining thresholds such as 'small', 'medium' and 'large' intensity emitters**

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4.3 Dealing with CC at Project Level

- Various studies acknowledged the challenge of assessing project-scale GHG emissions on climate change – since it represent an 'insignificant' portion of global emissions
- Project-scale projections also tend to me more uncertain than over larger spatial area

Lessons for SA:

- **Use regional inventories and/or targets to overcome the challenges in dealing with project-specific impact on climate change: Compare regional targets (e.g. a 10% decrease in GHG emissions for a specific region) with estimated project emissions**
- **Should be a link between relevant policies/plans and mitigation in each project to achieve worldwide goals to stabilise the climate**

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4.4 Addressing Impact 'Significance'

- Significance in climate change assessment often approached inconsistently and/or ambiguously
- Also often inconsistently addressed between similar types of Canadian EIAs

Lesson for SA:

- **Use average emission intensity per product unit in the same industry (i.e. CO_{2e} per product unit) – will allow comparison in same industry**

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4.5 Addressing GHG Mitigation

- Measures to mitigate GHG emissions mostly only limited to BATEA (best available technology economically achievable)

Lessons for SA:

- **EIAs should provide clarity on how to implement BATEA**
- **More effort and research needed to ensure implementation of BATEA**
- **More effort and research needed to identify and assess further mitigation measures (other than the BATEA)**

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5. Conclusion

- SA lags various other countries regarding integration of climate change in EIA, but have the opportunity to learn from other countries' experience
- Extent and speed of climate change requires a sense of urgency in improving environmental assessment processes
- Study identified various valuable and necessary lessons for SA
- **BUT**, although important, these are insufficient to address the scale of climate change **-**
- In addition to the lessons identified, SA needs to:
  - **Redirect the current 'path-dependency' on large infrastructure development** (expensive, emission intensive, and exposed to risks and damage). Require rapid move towards decentralised, small-scale, more flexible decision-making and infrastructure, to deal with the reality and uncertainty of climate change; and
  - **Consider the appropriate level for incorporating climate change** mitigation and adaptation within IEM and planning (EIA vs. SEA/EFM/INRM)

Thank you

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