

## **INTEGRATING CLIMATE CHANGE MITIGATION INTO EIA: REVOLUTION OR EVOLUTION**

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### **Abstract**

*Climate change is widely recognised internationally as a reality that is having a significant impact on the natural environment. This is due, in part to global warming which has accelerated as a direct result of human activity increasing Green House Gas (GHG) emissions, primarily through the burning of fossil fuels. In addressing climate change mitigation in Environmental Impact Assessment (EIA), the focus needs to be on assessing the extent of GHG emissions of a specific project in the EIA. One of the possible solutions to addressing climate change in EIA, is to integrate Green Building design and as built criteria into project assessment. A primary objective in Green Building is the reduction in GHG emissions. Buildings are considered to be responsible for approximately one third of global GHG emissions primarily through their energy requirements being largely met by the use of fossil fuels. Most EIAs involve a building of some form. While buildings are assessed with respect to their spatial footprint, they are not specifically assessed in EIA in terms of the carbon footprint and thus the buildings contribution to the climate change problem the world is facing. Including Carbon Footprint Assessment as part of the EIA, will provide project specific mitigation measures that directly reduce impacts on climate change.*

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### **1. Introduction**

How do we as Environmental Assessment Practitioners (EAPs) integrate climate change assessment into our EIAs? What adaptation and mitigation measures can we incorporate into project assessment when conducting EIAs? Is a revolution in EIA practice required in order for us to address climate change effectively in our EIAs, or is EIA practice evolving at a comfortable rate for us to address climate change in our EIAs?

The focus of this paper is to suggest one possible mechanism for effectively integrating climate change mitigation measures, as opposed to adaptation measures into project specific EIA.

### **2. Climate Change**

Climate change is widely recognised internationally as a reality that is having a significant impact on the natural environment. This is due, in part to global warming which has accelerated as a direct result of human activity. Extreme weather events from droughts and heat waves, to cyclones and blizzards occur all too frequently, with devastating effect on human communities and the natural environment.

The Intergovernmental Panel on Climate Change (IPCC) in their Climate Change Synthesis Report (SYR) of 2014 state:

*"The SYR confirms that human influence on the climate system is clear and growing, with impacts observed across all continents and oceans. Many of the observed changes since the 1950s are unprecedented over decades to millennia. The IPCC is now 95 percent certain that humans are the main cause of current global warming. In addition, the SYR finds that the more human activities disrupt the climate, the greater the risks of severe, pervasive and irreversible impacts for people and*

*ecosystems, and long-lasting changes in all components of the climate system.*" (IPCC SYR, 2014; Foreword: V).

In the latest IPCC special report released in 2018 on the impacts of climate change on global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, it is stated:

*"Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C. Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate"* (IPCC SPM, 2018, SPM4)

In South Africa, the South African government has also recognised the effect of human induced climate change on the natural environment:

*"...anthropogenic climate change represents an urgent threat to human societies and the planetary environment and requires an effective, progressive and incremental response"* (Draft Climate Change Bill. 2018: 17-18).

As EAPs we assess the environmental impact of development projects on the natural and socio-economic environment. Given the reality of climate change, we need to consider the impact on climate change by the projects we assess. How do we do this? At a project specific level, how can one mitigate the possible negative consequences of a development on climate change?

### **3. Carbon Footprint Assessment**

It is widely accepted that the main cause of climate change is Green House Gas (GHG) emissions as a result of human activity, primarily through the burning of fossil fuels (Aljero A. 2014: 4. European Commission. 2018. IPCC SYR, 2014; Foreword: V). These GHGs enhance the "Greenhouse Effect" by trapping radiated heat from the earth's surface and causing global warming (Australia. Department of Environmental and Energy, 2018.).

A cursory glance at international literature indicates that in addressing climate change mitigation in EIA the focus needs to be on assessing the extent of GHG emissions of a specific project in the EIA (Gemed D. and Sima A. D. 2015: 256, ARUP 2016: 1). There are some guidelines in European and North American literature on incorporating GHG emission assessment into EIA (European Commission. 2013).

One of the possible solutions to addressing climate change in EIA, is to integrate Green Building design and as built criteria into project assessment. A primary objective in Green Building is the reduction in GHG emissions (World Green Building Council. 2018, ARUP. 2016: 1), specifically carbon. Buildings are considered to be responsible for approximately one third of global GHG emissions principally through their energy requirements being largely met by the use of fossil fuels. Carbon dioxide emissions accounts for 30-40% of world wide GHG emissions (Mardiana A. Riffat S. 2015: 2). Most EIAs involve a building of some form. While buildings are assessed with respect to their spatial footprint, they are not specifically assessed in EIA in terms of the carbon footprint and thus the buildings contribution to the climate change problem the world is facing. There is no specific requirement for the calculation of GHG emissions in project specific EIA (European Commission. 2013: 29).

Carbon Foot Print Assessment (CFA) measures the total amount of carbon dioxide and other GHGs of a defined population, system or activity. EAPs should focus specifically on the consideration of the carbon foot print of buildings and similar structures, such as concrete bases or walls, as a means to integrate climate change mitigation measures into project specific EIA. Including CFA as part of the EIA, will provide project specific mitigation measures that directly reduce impacts on climate change. This could be achieved by proposing mitigation measures for the reduction of GHG emissions (ARUP, 2016: 2, 9). Green building certification criteria can provide guidance for appropriate climate change mitigation measures, particularly those related to GHG reduction measures. An advantage for the project proponent of including CFA information in the EIA is that the recommended mitigation measures will have potential cost savings, especially for the operational phase of the project (Jones S A., Mandyck J. 2016:1 ).

#### **4. Environmental Impact Assessment**

The EIA is an evaluation tool designed to generate a report that considers the potential positive and negative impacts that a project or development may have on the natural, social and economic environment. The EIA report should provide sufficient information to enable the decision maker the ability to make an informed decision as to whether to grant environmental authorisation for a development application or not. (Convention of Biological Diversity. 2018).

##### 4.1. Legal Framework to address Climate Change in EIA

While there is general recognition that climate change is real as a result of accelerated global warming, is there a legal basis for this issue to be addressed in EIA?

The use of EIA to address climate change is internationally recognised :

*"Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment"* (European Commission. 2013: 11).

Currently there is still no formal legal requirement for EAPs in South Africa to address climate change in EIA. However, in view of the implications of climate change on South Africa, there is an expectation to address climate change impacts in EIA reports. Gilder, Warburton and Parramon (Warburton Attorneys) concur with the following legal comment:

*"there is an implied requirement to consider climate change during the EIA process, where relevant"* (Gilder A. Warburton C. Parramon M. 2011).

On the 8 June 2018, the South African draft Climate Change Bill GN 580 was gazetted, it states the following in section 7 (a) and (b):

*7. Every organ of state must coordinate and harmonise the policies, plans, programmes and decisions of the national, provincial and local spheres of government that exercise functions that effect or are affected by climate change or are entrusted with powers and duties aimed at the achievement, promotion, and protection of a sustainable environment, in order to-*

*(a) ensure that the risks of climate change impacts and associated vulnerabilities are taken into consideration; and*

*(b) give effect to the national adaptation and mitigation objectives set out in this Act.*

How, exactly this must be achieved in EIA is not yet prescribed, but the intention is clear that climate change must be addressed and the EIA is one of the legislated environmental tools that can give effect to this directive. Within the South African context there is very little information on how one actually effectively addresses climate change in project specific EIA. Inclusion of climate change mitigation measures in EIA may need to be enforced through a legal directive.

#### 4.2. Adaptation and Mitigation

Adapting or mitigating projects or developments are possible solutions to addressing global warming effects on climate change.

Adaptation measures require planning (adapting) to possible future impacts of climate change. Adaptation measures to address climate change in EIA are more widely and more easily considered where relevant to a specific project (Agrawala S., Kramer A. M., Prudent-Richard G. and Marcus Sainsbury M. 2010: 8).

*"For example, in infrastructure, examples include raising river or coastal dikes, promoting flood-resistant roads, or improving the effectiveness and backup capacity in energy, water and sewage system capacities. Such actions could be highly relevant for developments and projects for which EIAs are developed"* (The International Institute for Sustainable Development. 2018: 1).

Despite adaptation measures being seemingly easier to incorporate into EIA, Enríquez-de-Salamanca et al argue that even adaptation measures are not adequately addressed in the EIA process (Enríquez-de-Salamanca Á. et al. 2017: 94).

However, rarely, if ever are climate change mitigation measures (as opposed to adaptation measures) that are specific to the project being assessed considered in EIA. How does one effectively integrate climate change mitigation measures into project specific EIA? (Vong Sok , Bryan J. Boruff & Angus Morrison-Saunders, 2011:317; Aljareo A, 2014 :2 ; Denga A. M. 2014 : 32). I propose that the use of CFA integrated into project specific EIA will provide a valuable tool in addressing Climate Change in EIA.

#### **5. CFA, Green Buildings and EIA**

CFA is already a valuable tool for many companies reducing not only the carbon footprint of their business operations and buildings but results in substantial cost savings. CFA has become a well-practiced tool for many consultants that specialise in undertaking CFA.

Green building certification criteria, specifically related to carbon footprint reduction, combined with an effect CFA tool may provide the means for climate change mitigation measures to be integrated into project specific EIA.

There are a variety of methods and tools that can be used for CFA and green building certification. A common aspect of these tools is the reduction of GHG emissions, particularly carbon.

#### **6. Conclusion and way forward**

Given the urgency with which we as the human species need to address the negative consequences of climate change, perhaps a radical paradigm shift by way of revolution is required to force EAPs to assess GHG emissions of development projects. If we choose to follow the evolutionary route, we may be too late.

The South African EIA industry is the primary context for my research and practical application in which I plan to test this proposal. However, this research should have relevance to EIA practice worldwide.

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