

Sustainable Energy Briefing 19: Copenhagen – the race to the abyss

This SE Briefing provides a brief understanding of the issues that are to be discussed at the Climate Change Conference in Copenhagen (COP15), including the role of the USA in holding the world to ransom by not committing to a legally binding document.

South Africa has not provided the kind of leadership that it should given the amount of GHG emissions the country is responsible for. In fact, the country gains from not having reduction targets. Civil society must take a bolder and louder step not only at Copenhagen but in a post-Copenhagen environment.

The corporate world seems to be trying to hide the problem rather than deal with it. Thus a louder bolder civil society is vital especially on issues such as CDM and carbon capture and storage.

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I. Making Sense of COP 15

We are just days away from the start of the United Nations Climate Change Conference (UNFCCC) in Copenhagen. There is quite a bit of hype surrounding this meeting. The UNFCCC website claims that the meeting "will be a turning point in the fight to prevent climate disaster". Unfortunately, it seems that this may not be the case. Once again, the USA is still holding the world to ransom. Minister Sonjica was recently quoted as saying "*for me, the moral leadership from the US... would really change everything – the attitude of the people, the pace at which we are moving – because all of us are saying maybe it's not so serious if the US is not so strong on the issue.*"

*"We are compromising for one country. We are all trying to accommodate the richest country in the world, a country that has all the means. And, unfortunately, it is kind of holding us to ransom"*¹

Barack Obama gave the impression that things would be different and that he would be the change the world needs. The USA's climate change bill does not go nearly far enough and Obama has failed to show any leadership. The bill proposes reducing CO₂ emissions by a ridiculous 4 percent relative to 1990 levels, by 2020. Climate researchers believe that reductions of 40 percent or more are required.

¹ Momberg E, 'US is holding developing world to ransom', 22 November 2009, Sunday Independent.

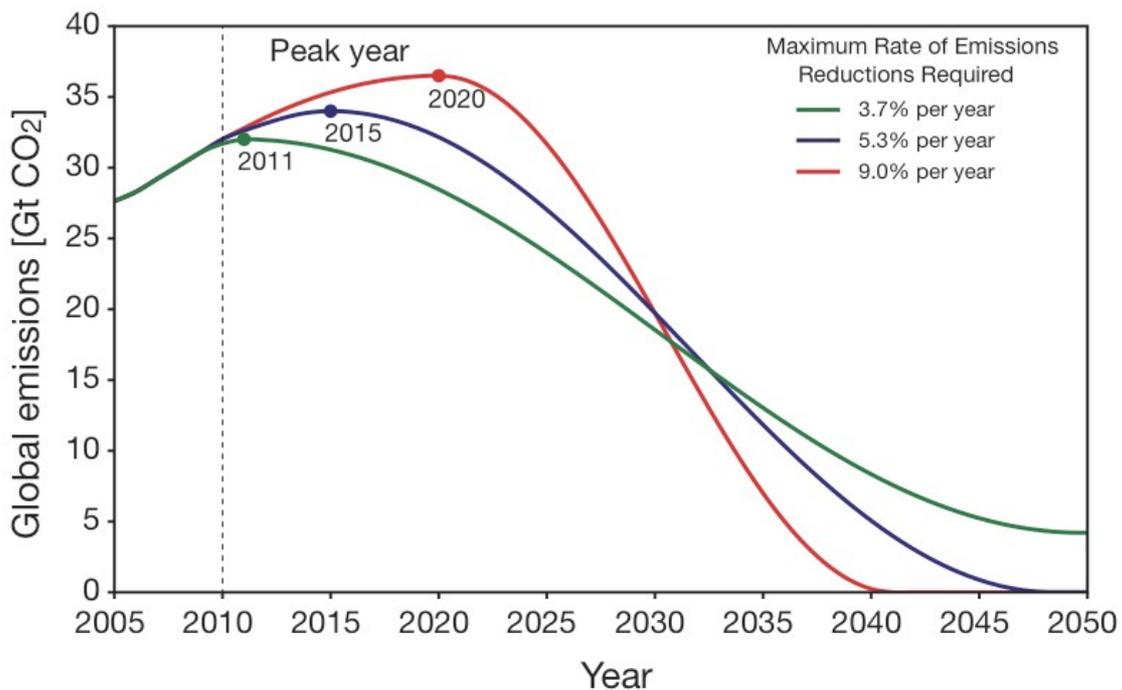
Obama has been accused by environmental organisations as “personally lowering the world’s expectations, using a “No we can’t attitude, instead of being the change he said he would be”. The USA and EU would like to see a non-binding agreement and more commitment from developing countries, especially from China. Developing countries have accused the USA and EU of moving the ‘goal post’ especially since they have not met their commitments set out in the Kyoto Protocol.

China’s recent announcement of a 40% to 45% cut in its “carbon intensity” by 2020 has given the impression that China is willing to take a step to change the way business is done. However, it must be noted that carbon intensity² is not equivalent to emissions reductions per se – it is described as another form of energy efficiency. Even though, this step is not nearly enough of what is required by China, it has forced the hand of the USA and EU.

So while governments play with commas and full stops – to appease the USA and its allies - the earth continues to wither away.

II. Latest Science

According to ‘The Copenhagen Diagnosis³’, greenhouse gas emissions have continued to increase. The global CO₂ emissions in 2008 were almost 40% higher than those in 1990. At this rate, it is highly probable that warming will exceed 2°C, even with zero emissions after 2030. In fact, every year of delayed action increases the chances of exceeding 2°C warming and if global warming is to be limited to a maximum of 2 °C above pre-industrial values – global emissions need to peak between 2015 and 2020 and then decline rapidly.



² http://www.time.com/time/specials/packages/article/0,28804,1929071_1929070_1943912,00.html#ixzz0Yc3nmIq

³ <http://www.copenhagendiagnosis.com/>

There are still some who are denying that climate change is a problem. The recent hacking into a climate research centre in Britain has given these denialists a false sense of the moral high ground. However, the Copenhagen Diagnosis reaffirms that human activities have resulted in global warming. It is clear that over the past 25 years temperatures have increased at a rate of 0.19°C per decade. The report states that numerous satellite and ice measurements now demonstrate beyond doubt that both the Greenland and Antarctic ice-sheets are losing mass at an increasing rate. Melting of glaciers and ice-caps in other parts of the world has also accelerated since 1990.

Current sea-level rise has been underestimated and is estimated that it will be almost 80% above past IPCC predictions. It is predicted that by 2100, global sea-level is likely to rise to an upper limit of approximately 2 meters. Sea-level will continue to rise for centuries after global temperatures have been stabilized, and several meters of sea level rise must be expected over the next few centuries.

It is clear from the updated scientific analysis, that any delay in action will result in irreversible damage if warming continues in a business-as-usual mode. An important point made in the Copenhagen Diagnosis is:

“the risk of transgressing critical thresholds (“tipping points”) increases strongly with ongoing climate change. Thus waiting for higher levels of scientific certainty could mean that some tipping points will be crossed before they are recognized.”

III. Legally Binding Instrument

It's been almost 12 years since the Kyoto Protocol was adopted. The main aim of the Protocol was to tackle climate change through the reduction of global greenhouse gas emissions. A key aspect of the Protocol is that it set binding targets for industrialised countries for reducing greenhouse gas (GHG) emissions. According to the UNFCCC, the targets that were set, amount to an average of five per cent against 1990 levels over the five-year period 2008-2012. Needless to say the Protocol has not been as successful as we would have liked it to be as GHG emissions have increased.

One has to wonder why if we know that the agreement at Copenhagen is going to be a “watered” down one, that there is still so much emphasis being placed on the importance of this meeting. Perhaps it is due to the fact that it is important to ensure that the challenges facing Africa and other developing countries are considered and that the most vulnerable people are protected – no matter what the outcome. As such, developing countries must make their voices even louder in the discussions on Adaptation, Mitigation, Finance and Technology to ensure that the challenges facing them are heard.

In each of these discussions, the world must acknowledge that the challenges facing developing countries are distinct. In terms of adaptation, discussions at Copenhagen must deliver a comprehensive international programme on adaptation that provides access to significantly up-scaled finance (at least USD 100 billion per annum by 2020), technology and capacity building for all developing countries, recognising the particular vulnerability of countries in Africa.

Developed and developing countries must deal with mitigation differently. For example, in accordance with the science and in line with their historical responsibility for emissions, all developed countries must commit to legally binding emission reduction targets, of at least 40% reduction below 1990 levels by 2020. This does not imply that developing countries can carry on with “business as usual”. It is time for developing countries to take leadership to reduce its emissions.

The more difficult aspects of finance and technology transfer require developed countries to meet their commitments and obligations as set out under article 4 of the Convention. They also need to stop looking at this as if they are giving handouts – they are merely giving back what developed countries owe the earth. It can only be hoped that Copenhagen can deliver an up-scaled package of new and additional finance and technology (0.5% to 1% of the GDP of developed countries per annum).

All of these issues are extremely important to move forward and respond to climate change, but none of it will happen if there isn't a comprehensive legally binding document that comes out of Copenhagen.

IV. South Africa's duplicitous position

While Minister Sonjica's words seem quite bleak, the South African government/delegation still seems to think that their expectations can be met – or at least they are going to try and get as many “crumbs” as possible.

The South African government like many others are conceding defeat and are holding out for the smallest gains. When asked why South Africa does not take a lead and get developing countries to force change by being proactive and taking the first steps. Something the SA government can do especially given the commitments in the LTMS. The response was “why must the developing countries make the first move when developed countries especially the USA do not seem to want to play fair?” This behaviour is childish to say the least. The earth is running out of time.

Perhaps the non-compromising position of the USA suits some of these participating countries. If we look at South Africa's expectations, which of course are informed by national interests, then we do indeed find some hypocrisy.

On the one hand the government acknowledges that **SA needs global reductions in GHG emissions to ensure that the impacts of climate change do not undermine its development. They even suggest that the country must also be in a position to undertake “bold and extensive adaptation measures to reduce vulnerability and build resilience”**. While on the other hand it is this same government that has allowed the likes of Sasol and Eskom to continue its “business as usual” outlook and emitting hundreds of millions of tons of GHG.

Furthermore, the South African government claims **“as a developing country with huge developmental challenges, South Africa needs carbon space in order to meet its developmental needs. They cannot afford to take on any binding emission reduction targets”**. South Africa is one of the biggest emitters of GHG amongst developing countries and taking this position allows it to hide from its responsibility. Now is the time to take on binding

emission targets. This argument does not hold any weight, given the findings of the Earthlife report on the potential for job creation and growth in the renewable energy sector. The most in-depth research⁴ on the renewable energy industry in South Africa indicates that:

- Renewable energy electricity generating technologies will create 36 400 new jobs when providing 15% of the total electricity mix in 2020 (without taking jobs away from the coal-based electricity generating sector).
- Targeted deployment of solar water heaters can result in the creation of at least 118 000 new, direct jobs

V. Climate Justice

The climate change summit in Copenhagen is not going to clinch a legally binding agreement. It is believed that the most that could be expected is a non-binding political declaration. As disappointing as this may sound, it is important to continue putting pressure on the governments and to continue fighting for a legally binding agreement. Whatever the outcome, it is imperative that the most vulnerable around the world is protected.

Climate change is here now; it is not going to dissipate after Copenhagen. It is time for civil society to realise that now is not the time to give up. We must continue putting added pressure on our respective governments and insist that the following issues are included in any Copenhagen agreement:

- Global emissions must peak no later than 2015/2020, and warming must be limited to 2°C.
- Governments must respect the binding emissions reduction targets for developed countries of at least 40% below 1990 levels by 2020 (as agreed to in Kyoto Protocol).
- At least US\$150bn per year in public finance from developed countries for adaptation and mitigation in developing countries.
- A fair contribution of mitigation action from developing world, consistent with the demands of science.
- A rejection of CDM - The CDM is inherently unfair and is based on the failure of industrialised countries to achieve necessary emissions reduction targets.
- Phasing out of nuclear, coal, oiled fired power generation immediately as these are long term investments and have major impacts on national budgets in the future.

⁴ Agama Energy, "Employment Potential of Renewable Energy", 2003, pg. iii

VI. Sweeping it under the carpet: Carbon Capture and Storage

Ironically there are aspects of the Kyoto protocol that no matter what the outcome in Copenhagen will still be moving full steam ahead. One such issue is that of flexible mechanisms such as the Clean Development Mechanism (CDM). The CDM allows developed countries to invest in projects that supposedly reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries. In essence, the corporate world has found a way to make money out of the devastation of the earth.

Carbon Capture and Storage (CCS) is an example of one of the technologies that is fast gaining popularity amongst some of the biggest emitters of GHG and a technology that would earn companies huge amounts of CDM funding. In South Africa, Sasol is investigating the feasibility of CCS to reduce its carbon footprint.

CCS is the term used to describe the technology of 'capturing' greenhouse gas emissions from industrial processes and pumping them into underground reservoirs for storage. It is advocated that burying the carbon dioxide underground could reduce a country's greenhouse gas emissions. Even though the technology is untested and is also proving to be more expensive than renewables and energy efficiency [which is Eskom admits to in its application to NERSA], it is being promoted by the fossil fuels and energy industries as an alternative to reducing reliance on fossil fuel energy sources.

There are a few different type of sequestration that are being investigated:

Ocean sequestration - involves mixing the CO₂ in the ocean.

Chemical sequestration - involves forming the CO₂ into a solid.

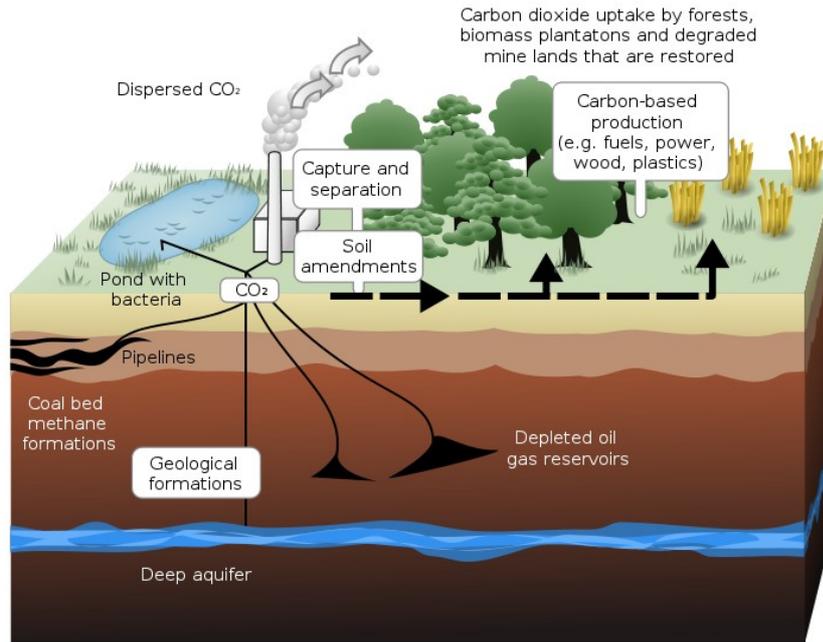
Biological sequestration - is the natural absorption of CO₂ into plants.

Geological sequestration - is a technology that puts CO₂ into deep, underground geological storage.

The geosequestration process starts with the capture and separation of the CO₂. Capturing CO₂ from mixed gas streams requires advanced technologies and can be quite an economic challenge. The challenge is to separate the CO₂ quickly and effectively. Once the CO₂ has been captured it will be compressed to a liquid (supercritical liquid) and transported, under pressure – possibly long distances. The CO₂ is then injected into deep underground storage, at depths of at least 800 metres. At this depth the CO₂ supposedly remains a liquid. The requirements for successful CCS are quite stringent. The following assumptions are necessary:

- depth of the impervious rock layer from the earth's surface is 1100m
- carbon dioxide injected at 50 kg/s for 30 years
- average pressure prior to injection is 12 MPa
- temperature is around 60°C
- porosity of the formation is 15%
- average permeability is 100 mD⁵ horizontally and 10 mD vertically

⁵ MD - Millidarcy - traditional unit for permeability and is a measure of the ability of a porous material (often,



A recent UN report calls on world governments to establish an international fund for investment in ocean environments, which naturally "capture" carbon and so help combat climate change. The proposed "Blue Carbon" fund would become an international climate change policy instrument for the future trading of carbon credits for marine ecosystems that capture carbon. Such a **premature reliance on unproven technologies such as CCS** runs the risk of diverting investments and research funding away from more sustainable technologies and mitigation options.

The technology has not yet been proven to be safe and already industry is promoting it as the solution to Climate Change. It is believed that it will be at least 20 to 25 years before CCS may make a meaningful contribution to climate change mitigation. This implies that CCS will thus only be useful by 2030. If emissions need to peak between 2015 and 2020 then CCS as would miss the mark completely.

One of the biggest dangers is that it will be a licence for industry to continue producing large amounts of GHG with the justification that the gases are not going into the atmosphere and in fact is being "stored" underground. There is no guarantee that the GHG disposed of underground will be stored permanently and not leak. Some studies have shown that leakage is likely due to the differences and instability of the geological formations. The implications of leakage for the global climate system could thus be catastrophic. Besides the fact that this could provide a false perception of the amount of GHG emissions in the atmosphere, CCS would merely shift the responsibility of dealing with GHG emissions to the next generation.

South Africa has embraced the idea of CCS and has established a Centre for Carbon Capture and Storage. The centre is responsible for establishing a demonstration plant that will be operational by 2020. The Long Term Mitigation Scenario calls for 5% of the country's GHG emissions to be captured and stored.

a rock or unconsolidated material) to transmit fluids.

VII. Concluding Remarks

It is clear that Copenhagen is not going to deliver a deal that we will be able to celebrate. This does not mean that we must give up. In fact it is the biggest indication that environmental justice organisations and civil society have a lot more work to do. This is especially the case with regards to flexible mechanisms and the use of technology such as carbon capture and storage. Civil society must be able to stop government from using large amounts of money on technology that is not yet proven when known alternatives already exist!

It is also imperative for the South African government to realise that they cannot continue to avoid their responsibility of reducing its carbon emissions. It is time for the country to take the lead and to endorse the following:

- Global emissions must peak no later than 2015, and warming must be limited to 2°C.
- Governments must respect the binding emissions reduction targets for developed countries of at least 40% below 1990 levels by 2020 (as agreed to in Kyoto Protocol).
- At least US\$150bn per year in public finance from developed countries for adaptation and mitigation in developing countries.
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