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GREENPEACE AFRICA COMMENTS: PROPOSED NATIONAL WATER RESOURCE STRATEGY 2 [NWRS 2]: MANAGING WATER FOR AN EQUITABLE AND SUSTAINABLE FUTURE

15 OCTOBER 2012

Introduction

It has been estimated that 98% of South Africa's water resources may have already been allocated, which raises serious concerns about how this country can cope with increasing water scarcity compounded by climate change impacts. Greenpeace Africa welcomes the development of the second National Water Resource Strategy, which will set out the strategic direction for water resources management in the country for the next 20 years. A key element of this strategy is that water availability is now seen as a national development constraint. Indeed, safe, affordable and accessible water is regarded as one of our planet's scarcest natural resources.

Specific comments on the Strategy Summary

Greenpeace welcomes the fact that the strategy recognises that water is a basic human need, and recognises that water plays a critical role to ensure equitable socio-economic development. The fact that a number of service delivery protests are centred around a lack of access to water demonstrates just how important adequate water is.

The strategy mentions that the decision on how best to allocate water between competing uses requires a complex and difficult assessment, which includes the ability to assess social, economic and ecological values arising from various water uses. There is no doubt that this is at the core of future water sustainability in this country. However, the 'full cost' of water use for specific sectors is very rarely taken into account.

However, Greenpeace believes that this strategy does not adequately take into account the major water-use implications of new coal-fired power stations. Greenpeace has begun to research the coal-water linkages in South Africa, and earlier this year launched a report commissioned by Greenpeace Africa entitled 'Coal's hidden water cost to South Africa' (attached to this email). In addition, Greenpeace will launch a further report (building on this previous work) on Wednesday 17 October entitled 'Water hungry coal: burning South Africa's water to produce electricity'. We would be more than happy to forward a copy of this report once we have launched it, and also to make verbal presentations to the Portfolio Committee Water and Environmental Affairs on this issue. Greenpeace believes that shifts away from coal and towards renewable energy and more ambitious energy efficiency plans would save significant amounts of water, and potentially help avoid conflicts of access to scarce water, and water rights.

Water and the energy sector

Coal-fired electricity generation currently contributes to over 90% of South Africa's electricityⁱ with Eskom accounting for a staggering 62.3%ⁱⁱ of South Africa's emissions in 2011.ⁱⁱⁱ Burning coal to produce electricity is an incredibly water intensive process,^{iv} with a number of serious implications for both water quantity and quality.^v Coal-fired power stations use significantly more water compared to the water needed for most almost 'water-free' renewable energy technologies. Eskom itself admits that in the process of generating electricity, the utility is a significant user of the country's freshwater, using a staggering 10 000 litres of water per second.^{vi} In one second, Eskom uses the same amount of water as a single person would use within one year, based on access to the minimum 25 litres of water per day. And in seven seconds, Eskom uses nearly the same amount of water as a household would use in an entire year, based on the free basic water allocation.ⁱ Within this context, in 2012 there are still nearly a million households without access to the minimum 25 litres of water^{vii} per person per day.

The electricity sector, dominated by Eskom, is frequently said to consume 'only' 2% of South Africa's water,ⁱ which translates to 1.76% of national water supply going to coal-fired electricity generation, compared to the 3% that goes to the industrial sector. While it is worrying that almost 2% of South Africa's water is going to a single entity, this statistic is also misleading, because it clearly does not take into account the water used during coal extraction,

ⁱ During 2011, Eskom used 327 billion litres of fresh water, amounting to a staggering 10 000 litres of water per second, compared to a single person using the minimum of 25 litres of water per day, which would amount to 9 125 litres of water per year or a household using the minimum 6 000 litres of water per month, which would amount to 72 000 litres of water per year.

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processing, pollution reduction processes, and the disposal of contaminated by-products. Wassung^{viii} therefore estimates that the full coal power generation process actually requires approximately 4.84% of national water supply – more than double the original statistic.

Eskom is the only recognised 'strategic water user' of national importance in South Africa.^{ix} But the utility's unnecessary water-use for its coal-fired power stations will push this country closer to a water crisis. The utility consistently makes seemingly convincing public statements about how it takes concerns about its water use and environmental sustainability 'seriously'.^x However, Eskom simply continues to prioritise coal to the exclusion of all other options. And the 'solutions' the utility proposes are not solutions at all, they are simply expensive technology-fixes designed to maintain the status quo. In light of global water scarcity and catastrophic climate change, incremental improvements in the technology used to burn coal to create electricity are simply not good enough. In reality, Eskom has failed to recognise that the way it currently generates, transmits and distributes electricity is flawed and unsustainable, with substantial, unavoidable and long-lasting impacts. The connection that is not being made is that reducing the country's coal addiction may actually help to cultivate economic growth and create sustainable jobs through renewable energy, while also reducing the pressure on South Africa's scarce water resources.^{xi}

According to the National Water Act (Act no. 36 of 1998) the government, as trustee of the nation's water resources, must allocate water equitably, and in the public interest.^{xii} These allocation decisions are becoming more and more crucial against the backdrop of an impending water crisis, which makes transparency and accountability in the water sector even more important. However, there is a serious lack of transparency regarding water management plans and water licences in South Africa. Most of this information remains confidential, with access restricted. Of the 22 mines that supply Eskom with coal, half were operating without a valid water licence in 2010,^{xiii} which creates clear threats to the accountability of users and the protection of this country's water resources.^{xiv}

The hidden water costs of coal

Greenpeace Africa believes that managing South Africa's water resources effectively means carefully considering the water use impacts of current (and future) investment decisions. According to the True Cost of Coal in South Africa report, commissioned by Greenpeace Africa and carried out by the University of Pretoria, per year that it operates, 'Kusile will cost taxpayers as much as R60 billion in hidden costs'.² The study measured the negative externalities associated with Kusile, only taking into account the power station's contribution to climate change, health impacts, water use impacts and coal mining impacts. The externalities are in fact dominated by water use impacts – the study found that over R40 billion of Kusile's hidden costs actually comes from water use impacts. Per unit of electricity produced, Kusile will use 173 times as much water as wind power would. This means that not only does South Africa's dependence on coal have implications for global climate change, but in fact may also exacerbate the impending water crisis that this country faces.

Transparency in the water sector

The overall impacts of water use during electricity production are currently underestimated, and nearly 2% of South Africa's water is allocated to a single entity: Eskom. These two issues raise major concerns around transparency and accountability in terms of water allocation and management in South Africa.

South Africans have a right to know how water is being allocated, managed and polluted. Confidentiality in the water sector essentially disempowers the people of this country, effectively removing their ability to hold industry accountable for its water use. This is particularly true given the fact that no part of the country's water resources are regarded as 'private property', and the National Water Act (Act no.36 of 1998) clearly states in its preamble that "water is a natural resource that belongs to all people". The current allocation of water to the coal mining industry and to Eskom for coal-fired electricity is not a transparent, accountable or sustainable decision. And it is definitely not in the public interest, given that **there are very effective alternatives to coal, but there are no alternatives to water.**

²The True Cost of Coal in South Africa: paying the price of coal addiction. Available:
<http://www.greenpeace.org/africa/en/News/news/The-True-Cost-of-Coal/>

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The solution to water-use impacts in the electricity sector and demand-management

The vast majority of renewable technologies use substantially lower amounts of water than coal-fired electricity generation.^{xv} ^{xvi} Wind and solar photovoltaics (PV) are virtually 'water-free' technologies.^{xvii} Not considering these alternatives is economically irresponsible, considering the high opportunity costs. In fact, investing in another new coal-fired power station (Kusile) equates to a hidden cost of an estimated R42 billion per year that it would operate - and this is only taking into account the water use of the power station.^{xviii} At the high end, the estimated total social damage cost (or externality cost) of Kusile is economically very significant, and could amount to R60.6 billion per year that it operates.^{xix}

The real solution to South Africa's water and electricity crisis is not incremental improvements in coal technology, it is an Energy [R]evolution: a shift away from coal and nuclear energy, and towards renewable energy and energy efficiency. Implementing an Energy [R]evolution in South Africa would not only deliver sustainable electricity to all citizens, but would drastically decrease the amount of water required for electricity production in the country: to half of what would be required for coal mining and coal power combined, and to a level even lower than a 2007 baseline.³ By shifting away from coal and nuclear energy and towards renewable energy systems, substantial amounts of scarce water could be saved, and diverted to other sectors where it is urgently needed, avoiding water insecurity and potential conflict.^{xx}

Conclusion

South Africa is facing huge political decisions related to where the country's water should be allocated in the future. It is also a country that is facing potential conflicts over water rights due to increasing water scarcity. It is clear that new investments must be made into water resources infrastructure

Increasing the number of coal-fired power stations in the country will unfortunately solve nothing. There are clear and very real benefits to shifting away from coal and towards renewable energy, which would create jobs, stimulate the economy, reduce the country's contribution to catastrophic climate change, and would be the best socio-economic use of the country's dwindling water resources. But this shift must be made urgently, and ambitiously.

Unfortunately, we are already suffering from the unintended consequences of past choices, as the problems we face have become more complex over time. A significant water crisis is looming in South Africa, and investing in new coal-fired power stations instead of renewable energy and energy efficiency puts all South Africans at risk. Fortunately, we are still in a position where we are able to make choices, but they need to be the right ones, and they need to be made now. Investing in new coal-fired power stations instead of renewable energy and energy efficiency puts all South Africans at risk. Water is not just an environmental issue. It is a fundamental issue at the very heart of justice, development, economics and human rights. It is time to end the era of coal in South Africa through a just transition away from coal and towards renewable energy. Our ability to deal with a changing climate and future water insecurity depends on it.

Greenpeace Recommendations in terms of water management in South Africa

Water is a critical resource, which is under threat. While there are no alternatives to water, there are effective and sustainable alternatives to coal. Given South Africa's exceptionally high levels of water insecurity, further coal expansion could push this country closer to the brink of a series of water crises and water conflicts.

Therefore, given the massive water implications of burning coal to produce electricity:

1. The South African government should immediately prioritise renewable energy over water intensive coal-fired electricity.
2. As part of a just transition away from coal, Kusile should be cancelled, there should be no further investments in coal-fired power stations and Eskom should shift these investments towards renewable energy instead.

³ These calculations are based on a comparison of water usage for two scenarios in 2030 (compared to a 2007 baseline): The Reference Scenario (modelled on the IRP2010 scenario) and Greenpeace's Advanced Energy [R]evolution scenario.

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Government Departments

- South Africans have a **right to know how scarce water resources are being allocated, managed and polluted**. Confidentiality in the water sector disempowers the public, effectively removing our ability to hold industry accountable for its water use, particularly given that no part of South Africa's water resources are regarded as 'private property'.^{xxi} In the interests of transparency and accountability, the **Department of Water Affairs** should ensure that all of the information around water management plans, reconciliation studies, the prioritisation of water supply to strategic users and water use licences are publicly accessible.
- The **Department of Water Affairs** should conduct a strict and robust water demand assessment for Kusile coal-fired power station, and any other kind of coal expansion in South Africa. These assessments should take into account the costs of inter-basin transfer schemes and the implications of climate change for future water availability, and must be made public.
- Given that the Department of Water Affairs clearly states that water demand must be managed, and water used as efficiently as possible, the most effective way to manage the water demand for the electricity sector is for Eskom to shift towards relatively 'water-free' renewable energy technologies. This means that government departments (including the **Department of Water Affairs** and the **Department of Energy**) should ensure that Eskom immediately begins to shift significant investments towards renewable energy as an alternative to coal.
- The impacts of choosing to invest in coal-fired electricity instead of renewable technologies have not been transparently assessed. Therefore, a thorough public investigation of the full water use of the electricity and coal mining sector should be initiated by the **Department of Water Affairs** in collaboration with the **Department of Mineral Resources** and the **Department of Energy**.
- Detailed information about the decisions taken around water use licences and coal mining should immediately be made publicly available by the **Department of Water Affairs** and the **Department of Mineral Resources**.
- The **Department of Water Affairs** should ensure that activities at coal mines operating without valid water use licences are suspended with immediate effect until valid licences are in place.
- The health and other social impacts of coal use and coal mining should be recognised, quantified and mitigated by the State and polluters, including Eskom. This information must be in the public domain.
- The enforcement of appropriate legislation by the **Department of Water Affairs** and the **Department of Mineral Resources** is critical to ensure more effective and efficient water use, while also reducing operating costs.
- Thus far, the government has not been able to produce overarching documentation that proves that South Africa's water resources have not in fact already been over-allocated. In the light of the fact that water is a common good, which the government has the responsibility to distribute equitably, the **Department of Water Affairs** must produce proof that South Africa is not already at the limits of the water that can be allocated.

Eskom

- **Eskom** should produce and implement a 20-year renewable energy roadmap, outlining its commitment to begin investing in significant amounts of renewable energy.
- **Eskom** is responsible for its supply chain. As a result, the utility must be accountable and held liable for ensuring that the coal mines that supply the utility do actually operate with valid water licences.
- **Eskom** should explicitly quantify, and incorporate the negative externalities of coal-fired electricity generation into the costs of new coal-fired power stations. This information must be in the public domain.

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- Eskom should immediately begin a shift away from coal-fired electricity generation to relatively 'water-free' renewable energy electricity generation. Implementing an Energy [R]evolution would not only deliver sustainable electricity for all South Africans, but would drastically decrease the amount of water required for electricity production in the country. This would mean that nearly 50% of South Africa's electricity could be supplied by renewable energy by 2030.

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xiii Wassung, N. 2010. op. cit.

xiv ibid.

xv Inglesi-Lotz, R. and Bignaut, J. 2011. op. cit. p.88.

xvi Wassung, N. 2010. op. cit.

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