INDUSTRY AND SUSTAINABILITY: A RE-VIEW THROUGH CRITICAL DISCOURSE ANALYSIS

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Introduction

Within industry, the actions taken in response to an increasingly prominent environmental crisis include a number of possibilities. One of the most common responses is public environmental reporting. This paper provides a perspective on industry's responses to calls for sustainable development, not through an overview of trends and initiatives in the region, but through an in-depth analysis of one instance of environmental reporting, namely the annual Environmental Report (2000) of the Electricity Supply Commission of South Africa (ESKOM). This report was awarded the KPMG Gold award for the best sustainability disclosure in an annual report in the Public Entities Category (2000 Annual Report), and the KPMG Gold award for the best Corporate Environmental Report in the South African Category (2000 Environmental Report). KPMG is a global network of professional service firms providing financial advisory, assurance, tax and legal services (the letters KPMG stand for the names of the organisation's founding members). This report could thus be seen as an example of environmental 'best practice' in industry in the region.

This paper offers possible insights to those people in companies responsible for writing their environmental reports, to allow a greater understanding of the language and rhetoric they use. It also aims to help those who teach about the environment, by offering a possible approach for teachers that allows them to mediate between such texts as the ESKOM report and their students. Critical Discourse Analysis (CDA) of a document such as the ESKOM report can deepen students' understanding of the complexity of environmental discourses at play in society.

In the title of this paper, the word 'critical' is used to indicate an affiliation with CDA techniques. Nevertheless, it should be noted that this paper uses only those CDA techniques which might easily be applied by the general public, in an attempt to demystify discourse analysis and open it up for more general useage. This is not an

ideologically 'critical' paper in that, whilst I use critical analysis techniques, I attempt to avoid positioning myself ideologically as either for or against ESKOM. I am not trying to uncover hidden but foundational truths about ESKOM. Instead I try to show up contradictions and problematise the ESKOM use of language.

The title of the report used in the analysis is "Towards Sustainability". The theme of sustainability will be emphasised in this analysis, since it was an important focus for the World Summit on Sustainable Development. But it is also a word whose meaning and usefulness has been contested.

The meaninglessness of such universal statements (as 'sustainable development' and 'sustainability')... and the arrogance of the white, uppermiddle class, educated men who develop such statements, shines through. We need to be encouraging people to deconstruct these statements for the value they embody and the perspectives they contain (Gough, cited in Sauve, 1999: 24, explanatory comment in brackets mine).

For example 'sustainability' and the term from which it was derived, 'sustainable development', do not indicate 'what' is being sustained, or for the latter, 'what' is to be developed. Given the frequency of the usage of the word 'sustainability' it seems it may be useful to examine how this word is being used within the context of industry, and perhaps what is the underlying perspective contained within it.

Texts, such as the ESKOM environmental report, are instantiations of socially regulated discourses and their processes of production and reception are socially constrained (Janks, 1997: 329; Hodge & Kress, 1988: 4). Such a report is thus a form of social practice that is tied to a specific historical context and is a means by which existing social relations are reproduced or contested and particular interests are served. In this case, we are examining the social relations around environmental and sustainable developmental issues. We might therefore ask of the ESKOM environmental report questions that relate its discourse to the underlying social and environmental perspectives that the report embodies. Specifically, we might ask how these perspectives and their attendant relations of power are reproduced through the use of such words as 'sustainability' within the report.

Methodology

In answering these questions, this paper will adopt an approach that will include both engagement with, and estrangement from, the text. Engagement is necessary to allow the entry of the text into the confines of our subjectivity. It can also be described as 'reading with the text'. Here an important question would be: What do the ESKOM management want to say to us in this report? However, engagement without estrangement is to submit to the power of the text regardless of one's own positions (Janks, 1997: 330-331). In reading 'with' the text, we are accepting the preferred reading and thus offering unquestioning support for the status quo. This paper therefore uses CDA techniques to deliberately resist the text's apparent naturalness and tries to offer an alternative reading, i.e. it also attempts to 'read against the text', by asking such questions as: How is the text positioned or positioning? Whose interests are served by this positioning? Whose interests are negated? What are the consequences of this positioning? (Janks, 1997: 329). This paper will attempt to balance estrangement with engagement, as estrangement on its own is a refusal to allow otherness to enter, and may lead to an overly simple oppositionalising of, for example, ESKOM management versus the environmentalists of the world.

Reading 'with' the text is a simple matter of co-operatively reading the text and taking it on face value. Reading 'against' the text can also be a simple matter if one is very clearly starting from a position of estrangement (Janks, 1997: 331). For example, the environmental report of a Zimbabwean chemical company claimed that their emissions of sulphur dioxide were well within the legal limits, implying (in the preferred reading) that their factory was safe. Yet when an asthmatic visited their premises, she immediately found it difficult to breathe. It was not hard for her to read against the preferred meaning of 'legal limits', and decide that it certainly did not mean the factory was safe. She had found it easy to question the meaning of 'legal limits' and whose interests it served.

However, where we are not immediately estranged from a text, it may be harder to question, and this is where a systematic Critical Discourse Analysis (CDA) approach can be helpful. In this paper, I used a modification of Fairclough's CDA techniques, which involve the following: description (text analysis), interpretation (processing analysis) and explanation (social analysis). I focused primarily on just one text, the ESKOM Environmental Report (2000) report. As I was aware that this was a limited starting point, I also looked for the patterns I identified in this text in other related ESKOM texts. I asked the question: are my findings in the ESKOM environmental

report able to explain quite small features of other related texts? This approach, as a way to validate CDA findings, is suggested in Fairclough, 1992:238 and Potter and Wetherall, 1989:169-172. In the interests of brevity, I have reported only on the parallel findings and deepening insights that I found in just one related text, namely the ESKOM Annual Report, 2001.

In the interests of keeping the paper to a reasonable length and in order to avoid an overly technical approach, I did not address such issues as modality, lexicalisation, nominalization, or the use of the active or passive voice. Instead, this paper focuses on the visual signs of the report, the thematic structure of the text and its information focus (especially any information omissions), to give its main insights.

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DESCRIPTION OF THE SIGNS (TEXT ANALYSIS)

The visual signs

The report is printed on glossy paper and contains diagrams, graphs and colour pictures on each of its 56 pages. Running along the top of each page, heralding the text headings, is a pastiche made up of brightly coloured photographs of shiny fibre-optics, time lapsed moving lights, electrical equipment and pylons. Several of the photos are taken from the perspective of the viewer looking upward, into the sky.

The cover of the report has three photographs. The central and largest one is a satellite picture of the world at night. Africa is in the foreground. It is mostly in darkness, with some lighting at its edges and in South Africa. The rest of the world, in comparison, appears to be very brightly lit. The second photograph is of electricity pylons and a coal-fired power plant. In the foreground is a field of grass and flowers, in the background are white fluffy clouds, which one could initially mistake for steam emissions from the power plant stacks. The third photograph is of a rural house, featuring a prominent solar power panel, and a homely scene of children playing and a mother sitting nearby, preparing food.

On page five, a map of southern and central Africa is displayed over a full page. It is criss-crossed by red traces, indicating power lines, and scattered with multi-coloured dots, indicating power plants.

The verbal signs

The report provides a large amount of background information on ESKOM, its Environmental Management System (EMS), economic and social issues, and the performance of the company. It draws attention to the many sustainability projects in which they are involved and outlines the many mitigation measures underway to reduce impact on the environment. These measures focus on improved EMS implementations at certain of its coal sites, reduced water pollution and consumption, reduced air emissions, management of impacts on land and biodiversity through Environmental Management Programmes, land registers and pre-construction audits.

The report does not deal with how it disposes of its nuclear waste. It is nevertheless remarkable for its candour in reporting failures alongside successes. For example, it admits 21 legal contraventions, 66 environment-related complaints and reports, and, for the first time ever, gives details of the quantity and quality of emissions of its nuclear reactor. There are two sections of the report that deal directly with sustainability. The first is a summary (referred to as the "Executive Summary") of the five page section of the report entitled "Towards Sustainability". This section appears at the end of the report.

In the executive summary, the sustainability section is divided into two categories: demand-side options and supply-side options. There are two demand-side options: energy efficiency projects to improve industrial consumption, and load management systems to reduce maximum demand at peak times such as real-time pricing. There are 6 supply-side options including: re-commissioning an old plant; researching and constructing new coal, gas and hydro plants; research into solar, wind, wave and water power; research into distributed generation technologies, such as photovoltaic applications, fuel cell research and diesel for remote locations; importing and storing energy and implementing a Pebble Bed Modular Reactor (PBMR), i.e. nuclear power. These options are expanded in the section towards the end of the report. The PBMR is mentioned twice, once very briefly in the executive summary (one sentence) and once in the later expanded version (4 paragraphs).

INTERPRETATION OF THE SIGNS (PROCESSING ANALYSIS)

Reading with the text

The visual signs, with their bright lights and vision of the need in Africa for electricity, imply that ESKOM is a forward thinking organisation, committed to the future and to providing Africa with energy. It plans to be in the forefront of energy production in the region. It takes the stance that a company can be both environmentally friendly and a competent producer (as is implied by the picture of the power station in the flower field) and that its activities will bring a better quality of life (implied in the picture of the rural family with solar energy) to all in Southern Africa (evident in the map). ESKOM is a remarkable company in that it has a strong environmental management focus, has a strong social conscience (for example, sees itself as having an important role in the development of the region) and has a strong commitment to being open about its environmental impacts. However, it is also a company run on shrewd economic lines that will confidently maintain its market superiority into the future. The demand for energy is so large that ESKOM is rapidly expanding production, through old and new technologies.

ESKOM has taken a pragmatic stance on the generation of energy using nuclear power. Given the need for energy in the developing Southern African region, directly related to its potential for development, and given the relatively clean nature of nuclear energy (apart from the radio-active waste), ESKOM considers nuclear reactors to be an important and viable option for sustainable power production in South Africa. Thus it confidently places the PBMR in the sections on sustainability, as it will help secure future generations of power, at the same time reducing a variety of emissions usually associated with power generation.

Reading against the text

The image of Africa in darkness, with only South Africa and the rest of the world lit up, summons images of the colonialist ideal of enlightenment: bringing light into darkest Africa. That South Africa is, in this picture, also well-lit might also be read as an indication of South Africa's vision of itself as bringing 'the light' to other African countries. Additionally, the map of Africa, showing ESKOM's commitment to bringing electricity to Africa, is strongly reminiscent of maps of Africa from Cecil John Rhodes' times: here, instead of electricity lines, there were railway lines. The 'feel' or atmosphere around these maps was similar, the makers of both the ESKOM map and the Cape-to-Cairo railway maps proudly showing how Africa was going to be

developed by forward thinking visionaries intent on bringing enlightment ideals into the Dark Continent. Although these pictures on their own could not sustain this reading, they could indicate a need to look out for evidence of neo-colonialist tendencies within the discourse embodied by the ESKOM environmental report, or other similar reports. Also, enlightenment in itself is perhaps only a problem if it is imposed, rather than a mutual sharing of ideas and a mutual growth. Although the similarity of the ESKOM front page pictures to colonial pictures is unnerving, perhaps a deeper reading of this and related texts is needed before drawing conclusions.

The large amount of information provided and the status of the report, indicated by its high gloss print, could be read as giving weight to the environment, but could also be read as a publicity stratagem (surely less gloss would be more environmentally friendly?) Does this report represent an attempt to obtain good publicity, by making the most of the environmental focus of the time? One might hypothesise that if the environmental focus of the time were to change, then ESKOM's focus on the environment might change too.

Omissions

The absences in the ESKOM report may also be meaningful. To begin with, there is the relatively small coverage of the PBMR. This perhaps functions to make nuclear waste seem ordinary and thus worthy of no more importance than any other fuel option. The absence of any acknowledgement of the public debates and even outcries around the PBMR contributes to making it seem 'natural' and logical. Should we be reading 'with' the text on this one? Is nuclear power actually quite safe? The arguments for and against nuclear power are complicated, technical and full of uncertainty on both sides. The global trends in society would indicate a preference towards a precautionary approach to nuclear power because of its potential problems. For example, Newsweek has this to say about the current attitude towards nuclear power: "Nuclear: 'Future fuel' of the past 50 years, is now shrinking because of high costs and safety worries (Sparks, J.D., Newsweek, April 8 – April 15, 2002: 42)".

Nuclear waste seems to be the ultimate sustainability question because its negative consequences may be felt in such a distant future. It is thus hard for us to engage with the problem of nuclear waste in the present. Perhaps our approach to nuclear waste might be a good marker of how seriously we are taking sustainability to heart,

where sustainability is given its original focus as "Development that meets the needs of the present *without compromising the ability of future generations* to meet their own needs" (Our Common Future, 1987: 43, my emphasis).

The absence of information on ESKOM's nuclear waste disposal is an interesting omission given the candid flavour of the rest of report. This omission serves to make the other confessions seem possibly like a smoke screen. One has the impulse to ask what else has not been reported? If the company is at least seen to be trying to be open, is this enough? Bourdieu, 1998, comments that often in society, it *is* enough to be seen to be trying to follow the rules, even if one is not actually, behind the scenes, following them. This tendency in society may be innocuous in some situations, but in others, such as where the welfare of people is at stake, it can be dangerous.

What does ESKOM mean by 'sustainability'? Or, rather, whose interests are being served when ESKOM talks of 'sustainability'? To answer these questions I refer back to the report's introductory sentence on sustainability. In this sentence, ESKOM's approach to sustainability is stated as being a process which:

... provides the strategic framework for projections of supply-side and demand-side options that will need to be implemented to meet future energy demands (ESKOM Environmental Report, 2000: 7)

There is no mention of the environment, and from this statement, it would appear that sustainability, for ESKOM, has more to do with business (energy production) sustainability than environmental sustainability. Thus one might argue that it is not the interests of the Earth (and thus sustainable living) that are being served, but of the company.

To add to this, if one looks at the list of planned projects aimed to encourage 'sustainability', most of the projects cannot be differentiated from projects designed to ensure the company's usual business growth. For example, wind energy generation is starting to produce significant profits for companies in the USA and Europe (Earth Policy Institute, 2001). The projects that involve photovoltaic fuel cells are described as being of particular importance in remote areas without access to the main power grid. Reading against this, one might see that such research has more to do with expanding the energy market than to do with cleaner energy production. The

confident inclusion of the PBMR in the sustainability section may seem odd to those readers from non-business/pro-environment backgrounds, who might consider nuclear energy to have a question-mark over its contribution to sustainability of the Earth's ecosystems. However, it does not seem odd to a person whose subjectivity is constructed by a meaning of sustainability as sound development and good business sense. The projects to reduce the amount of electricity demand could be read as environmentally friendly, but is this because, as yet, ESKOM cannot keep up with demand? Given the hypothesis that ESKOM's definition of sustainability is more to do with business sustainability than environmental sustainability, one might predict that they would not continue these projects should demand decline below their capacity to produce.

EXPLANATION OF THE SIGNS (SOCIAL ANALYSIS)

Different lexical selections can signal different discourses (colonial, liberal, labour discourses). Most texts are hybrids, which draw on more than one discourse. ...Textual instantiations capture the clash of discourses and demonstrate ideological forces at work to produce a different hegemony (Janks, 1997: 335)

In this ESKOM document, the two main discourses are: the discourse of environmentalism (sustainability) and the discourse of economic rationalism (arguably very close to a discourse of neo-colonialism or 'modernism', with its reliance on market *dominance/expansion* rhetoric and perhaps explaining why such images as the dark African continent seem natural). Although not very obvious in the ESKOM Environment 2000 report, there is also a hint of a patriotic/black empowerment discourse (such as in the central position of Africa on the front cover).

The document should be seen within a context of strong pressure on companies to be 'environmentally friendly' coupled, nevertheless, with a strong pressure to be classically successful within the dominant paradigm of economic development. The need for ESKOM to prove itself as an agent of development is especially strong in the South African context because South Africa is a newly independent country with serious issues of poverty to address. There is a clash between these two ideologies and the discourses with which they are associated, but the contradiction in the use of both at the same time is hidden, for example, through the use of professionalism and etiquette.

Hodge & Kress (1988: 3-5) explain how such an ideological complex as that which produced the ESKOM report "projects a set of contradictions which both legitimate and ameliorate the premises of domination". They explain how the different halves of the contradictions would cancel each other out. "We need therefore, to invoke a second level of messages which regulates the functioning of ideological complexes, a level which is concerned with the production and reception of meanings." Hodge and Kress go on to explain that this second level of meaning must be "highly visible in politeness conventions, etiquette, industrial relations, legislation, and so on".

So, for example, in the PBMR contradiction where one discourse says nuclear energy is sustainable and the other says it is not, the contradiction is hidden in the following ways.

- In terms of rules about the production of meanings, it is hidden by the
 professional relegation of the reporting on the PBMR to the same importance
 as any other energy source. It would be 'unprofessional' (or 'overly emotional')
 to emphasise the PBMR issue in a serious report such as this one.
- In terms of rules about the reception of meanings, the contradiction is hidden by rules of politeness, as in, 'it would be unfair and impolite to criticize ESKOM when it is clear that they have been trying so hard'. Also, there are rules about criticizing the 'hand that feeds you': ESKOM has such a central role in producing power in the region, that etiquette would have one politely allow its contradictions to go unnoticed. One risks being labeled 'unpatriotic' or 'anti-development' should one point out the contradictions in ESKOM's rhetoric.

The effect of these rules of production and reception is to legitimate and ameliorate the premise of domination upon which rests the position of ESKOM as a primary economic player in the region.

Parallel findings and deepening insights found in the ESKOM Annual Report, 2001.

It should be noted that the Environment Report (2000) was written two years ago in a Southern Africa that looked very different to the Southern Africa of the present.

September 11th, the economic and political strife in Zimbabwe, and its effects on the economies of the region, had not yet happened. The New Partnerships for African Development (NEPAD) with its rhetoric of the African renaissance, was not yet in existence.

Perhaps as a result, the latest, 2001, ESKOM annual reporting strategy looks very different to the 2000 Environment Report. As predicted by the CDA of the 2000 environment report, which suspected the focus on environment was something of a publicity strategy, the change in international focus away from environment, towards issues of immediate economic and national security and patriotism, has meant that the environmental focus has been dropped. Instead of a separate environmental report, this has now been included within the annual report. The 2001 annual report has no sections that deal directly with sustainability and only one heading dedicated to the environment, which simply gives the environmental policy. It would appear that in the clash amongst the different hegemonic discourses, the discourse around the African renaissance has superceded the others.

Parallel to the 2000 environmental report, nuclear energy in the 2001 annual report is given no more prominence than any other form of energy, and 'sustainability' is used in ways that seem to imply sustainable business rather than a sustainable Earth. For example, the 2001 annual report talks of 'sustainable energy supplies' (17) and 'sustainable human resources' (25)

A characteristic of the African renaissance discourse, as it has been interpreted in ESKOM's 2001 annual report, is the use of rhetoric borrowed from colonialist discourses. This seems to support the hypothesis that neo-colonialist rhetoric was present in the 2000 report. In the 2001 report, however, the rhetoric is stronger and more explicit. For example, there is a focus on large-scale projects and smaller projects to be replicated in all developing countries.

A global effort is underway to design projects in South Africa....using some of the core debates at the Summit as a foundation. This would be a global legacy that ensures that specific projects are implemented across Africa and are able to be replicated in all developing countries (ESKOM annual report, Chairman's statement, 2001: 22)

This is a characteristic pattern of neo-colonialist (some might call them 'modernist') strategies: it is assumed that there is 'one big answer' to everyone's problems. The possibility of locally initiated, highly differentiated projects at a smaller scale is overlooked. It is this assumption that leads to grand schemes in which small communities have few rights. These strategies have been severely questioned (e.g. Bauman, 2000). The assumption that one group of people can have 'the answer' for another group of people underlies this model of development, and it was this same assumption of 'knowing better' that lay beneath colonialist strategies of the past. Even the innocence of wanting to 'help' and be of service, seen here in the ESKOM annual report, is commonly seen in the early African colonialist missionary rhetoric (Page & Page, 1991: 6).

A comment in the report that shows both the will to be of service, mixed in with the assumption of 'knowing better' (bringing light into the darkness) is as follows:

In a very real sense, ESKOM is a partner with other African utilities on the continent improving economies and advancing socio-economic development. We do this by both literally and metaphorically bringing light and energy to our continent (ESKOM annual report, chairman's statement, 2001: 20)

Is this colonizing rhetoric acceptable because it is being spoken by African people with 'knowledge and power' about their 'less developed' countrymen/women and neighbours, rather than foreigners about African people?

The Chairman's 2001 statement also draws on the unlimited growth model of rationalist (modernist) economics when he says:

It is now possible to visualize a different Africa...an Africa whose scope for growth is limited only by its imagination...(ESKOM annual report, chairman's statement, 2001: 20)

This idea of unlimited growth is seen by some to be contrary to sustainability principles (Mies & Shiva, 1993; Sachs, 1999). The United Nations Environment Programme's *10 Years after Rio* assessment claims that whilst there are environmental improvements in industry, these are being overtaken by economic growth and increasing demand for goods and services (UNEP, 2002:19). Thus

another question is: how viable is the unlimited growth model as the basis for sustainable development?

CONCLUSION

The ESKOM reports are merely instantiations of discourse. Their production and reception are governed by rules in which the writers of the texts are well-versed. Thus these texts are significant, in terms of this CDA, largely because of what they say about the discourses allowed by society (who is allowed to say what, when). In other words, the writers of these texts are governed/constrained by a set of rules about which they may be more or less conscious, but which nevertheless exert a strong control over them: they reflect the constraining and enabling rules of society.

Keeping this in mind, it is important that this CDA paper is not seen to be criticizing the actual company of ESKOM or the writers of the annual reports. On the contrary (and this is why it is necessary to genuinely read 'with' the text as well as 'against' it): it is important to hear what the management is trying to say within the ESKOM reporting documents. Thus, it is true that ESKOM is one of the best examples in Southern Africa of a company taking its environmental responsibilities seriously. It is also true that they are working hard to improve the quality of life for Southern Africans in general: we could not do without their contribution to society. Having myself worked in industry on environmental projects, I respect the work that ESKOM has put into its environmental initiatives. One of the reasons for choosing them to be the focus of this re-view is because they are so obviously above reproach, given the set of business rules by which they are constrained and on which their survival depends.

Bhaskar (1989: 73) explained that such objects as ESKOM are not the starting points of inter-relationships but the results of those inter-relationships. He says "on the realist and relational view advanced here, collective phenomena are seen primarily as the expressions of enduring relationships". Latour (1993, 1999) noted how he wanted to write without 'denunciation' by focusing at the same time on both the network relationships and their apparent 'quasi-objects' (such as ESKOM), rather than on the objects alone, or the networks alone.

Therefore, some questions that remain after this CDA might be: What characteristics of the inter-relationships of society ensure that a company such as ESKOM, which

has the intention to be more socially and environmentally responsible, nevertheless uses questionable rhetoric and a questionable business approach? Their rhetoric appears to mirror that of colonialist times and their business approach seems to draw on the same methods used by the people who created the current environmental crisis, despite evidence that those methods are seriously flawed. Another question might be: Can sustainability, in its original sense, be achieved using the same approaches that lead to the current socio-ecological problems?

This paper is therefore trying to show the complexity of environmental issues, and to break open for debate some of the hegemonic discourses currently being used within arenas focusing on sustainable development. The challenge is to create expectations of our businesses, such as ESKOM, that they move beyond their current globalising, dominance rhetoric towards power-sharing rhetoric, where the voices of the marginalized, and their call for greater environmental protection, are not silenced.

REFERENCE LIST

Bauman, Z. 2000. Liquid Modernity. Cambridge: Polity Press.

Bhaskar, R. 1989. *Reclaiming Reality: A Critical Introduction to Contemporary Philosophy*. London: Verso.

Bourdieu, P. 1998. *Practical Reason: On the Theory of Action*. Cambridge: Polity Press.

Earth Policy Institute. 2001. Wind Power: The Missing Link in the Bush Energy Plan. *Earth Policy Alert*, 2001-3.

http://www.earth-policy.org/Alerts/Alert14.htm

ESKOM. 2000. *Eskom Environmental Report, 2000.* www.eskom.co.za http://www.eskom.co.za/enviroreport01/index.htm

ESKOM. 2001. *Eskom Annual Report, 2001.* www.eskom.co.za http://www.eskom.co.za/annreport02/index.htm

Fairclough, N. 1992. Discourse and Social Change. Cambridge: Polity Press

Kress, G. & Hodge, R. 1988. Social Semiotics. New York: Cornell University Press.

Janks, H. 1997. Critical discourse analysis as a research tool. *Discourse Studies in the Cultural Politics of Education*, 18(3), 329 - 342.

Latour, B. 1993. An interview with Bruno Latour. Interviewed by T. Hugh Crawford. *Configurations*, 1993, 1 (2), 247-268.

http://muse.jhu.edu/demo/configurations/1.2crawford.html

Latour, B. 1999. Pandora's hope: essays on the reality of science studies.

Massachusetts: Harvard University Press.

Mies, M. & Shiva, V. 1993. *Ecofeminism*. London: Zed Books.

WCED (World Commission on Environment & D evelopment). 1987. *Our Common Future*. Geneva: WCED.

Page, S. & Page, E. 1991. Western hegemony over African agriculture in Southern Rhodesia and its continuing threat to food security in independent Zimbabwe. *Agriculture and Human Values*, Fall, 3 – 18.

Potter, J. & Wetherel, M. 1987. *Discourse and Social Psychology: Beyond Attitudes and Behaviour.* London: Sage.

Sachs, W. 1999. *Planet Dialectics: Explorations in Environment and Developments*. London: Zed Books.

Sauve, L. 1999. Environmental education between modernity and postmodernity: searching for an integrating educational framework. *Canadian Journal of Environmental Education*, 4, Summer, 9 - 35.

Sparks, J.D. (2002, April 8 – April 15). Beyond oil: transforming global energy. *Newsweek*, 42 - 43.

UNEP. (2002) 10 Years after Rio: the UNEP Assessment. Extended executive summary.

http://www.uneptie.org/outreach/wssd/publications/publications.htm