Teaching climate law and policy
Challenges facing a developing country: a view from South Africa

Introduction

From my perch, or should I say lectern, located at the southern tip of Africa I first became aware of the discipline of 'energy law' some two decades ago when I noticed that the law library at the University of Cape Town subscribed the Journal of Natural Resources Law and Energy Law. But it was only this year that I came across the notion of 'climate change law'. An initial question which accordingly should be considered in my view, is the meaning and scope of this relatively new discipline of 'climate change law', or 'global climate law', or variations of these expressions and its relationship to the linked but possibly distinct area of 'energy law'. I will refer to '(global) climate change law', which for the purposes of convenience subsumes but is broader than the more traditional and narrower subject of 'energy law' in my view.

A related question is whether from the point of view of a law teacher we should teach climate change law and energy law as two distinct subjects. My sense is that they should and could be separated as becomes evident in the outline of what makes up 'energy law' and 'climate change law', respectively, below. However circumstances may be such in a particular law school that the two should, at least at the outset be integrated as one subject, for example where resources are limited and the general teaching curriculum subjects does not accommodate a number of courses. If so some exploration of how the two could be integrated is carried out below.

So as a point of departure and for convenience when I refer to 'global climate change law' I subsume under this head both energy law and climate change law at least in the interim. I may well change my approach after listening to the deliberations at this gathering, what seems to me going to be an interesting and stimulating few days.

South African economic and energy context

South Africa has the strongest economy in Africa and is the economic and social driver for at least Sub-Saharan Africa. An assessment of the emissions produced in South Africa per unit of economic output places South Africa in the top 15 most

energy intensive economies in the world.[1] While it has five per cent of Africa's population it consumes about half the electricity produced in Africa.[2]

South Africa's high energy demand is dependent on the burning of coal which it has in abundant and cheap supply.[3] Statistics reveal that 75.4 per cent of the total energy consumed in South Africa in 2004 was produced from coal.[4] The country produces 330.34 metric tonnes of carbon dioxide ('Mt CO2') from fuel combustion alone.[5] This is significantly less than the emissions of other developing countries such as China and India, which produce 5059.87 Mt CO2[6] and 1147.46 Mt CO2[7] respectively. But from a per capita carbon dioxide emissions perspective South Africa's level of per capita emissions was 7.04 tonnes carbon dioxide per capita ('t CO2/capita') in 2005, while those of China and India were 3.88 and 1.05 respectively in that year.[8] The energy sector is thus the largest producer of greenhouse gas emissions in South Africa.[9] Apart from its reliance on coal in the energy sector other reasons for South Africa's high energy intensity are its heavy reliance on coal in industrial and mining sectors as well as inefficient use of energy.[10]

Du Toit has pointed out that government has taken steps to establish renewable sources of electricity such as wind, hydro and solar.[11] However, as of 2004 hydro and other renewable sources of energy produced only 0.1 per cent of the total energy consumed.[12] It was projected that 'coal will remain the major source of energy for the

---

[1] Department of Environmental Affairs and Tourism ('DEAT') *A National Climate Change Response Strategy for South Africa* (September 2004) available at http://unfccc.int/files/meetings/seminar/application/pdf/sem_sup3_south_africa.pdf [accessed 26 April 2008] 8.

[2] UNIDO Clean Development Mechanism (CDM) investor guide: South Africa SEE DUTOIT fn85

[3] In 1999, 91% of the electricity generated was derived from coal as was 75% of the fossil fuel based energy. (S2).

[4] Energy Information Administration *South Africa: Background* available at http://www.eia.doe.gov/emeu/cabs/South_Africa/Background.html [accessed 3 May 2008].

[5] International Energy Agency *Key World Energy Statistics* (2007) available at http://www.iea.org/textbase/nppdf/free/2007/key_stats_2007.pdf [accessed 3 May 2008] 56.

[6] Id 50.

[7] Id 52.

[8] Id 51and 53.

[9] UNIDO *Clean Development Mechanism (CDM) investor guide: South Africa* (n **Error! Bookmark not defined.**) 10; DEAT *A National Climate Change Response Strategy for South Africa* (n 1) 23.

[10] UNIDO *Clean Development Mechanism (CDM) investor guide: South Africa* (n **Error! Bookmark not defined.**) 9.

[11] L du Toit *Promoting Clean Development Mechanism Implementation in South Africa*, 2009 Public Law In Press

[12] Energy Information Administration *South Africa: Background* (n 4).

foreseeable future'.[13] In light of South Africa's continued heavy reliance on coal as an energy source, it is clear that this projection remains valid. This is partly due to the fact that coal is a cheap source of energy as opposed to renewable sources of energy, which have significant start-up costs. It should be noted however, that the cheap price of coal does not include environmental externalities and therefore does not take account of the overall financial impacts of coal production on society.[14]

Renewable energy in South Africa has great potential. The tourist brochures in South Africa welcome foreigners to 'sunny' South Africa and indeed South Africa enjoys abundant solar resources; also wind resources being located at the interface of two of the worlds great oceans and on the frontline of climate patterns generated form the Antarctic convergence. But surprisingly renewable energy sources remain largely unexplored and untapped and little interest is shown in developing these. This is despite of unprecedented power outages in the last year having a devastating effect on the economy. Despite renewable energy targets being set at international levels and endorsed by the national Minister of Environmental Affairs and Tourism, mainstream South Africa represented by the mining-industrial sector has relegated renewable energy development to the sidelines. Despite positive and exciting research emanating from certain universities and NGOs such as Sustainable Energy Africa, renewable energy remains a Cinderella subject. The Minister of Trade and Industry has endorsed nuclear as the way to go and the planning of new and further nuclear reactors for the country has been approved by cabinet and is well underway.

More generally global climate change has major implications globally as well as South Africa. Issues of particular concern to the country include: the effect of changing rainfall patterns on water resources, crop production and livestock; possible increases in insect-bearing diseases such as malaria; and reduced forestry plantations.[15] In the coastal context, sea level rise could pose a threat to coastal

---

[13] Department of Minerals and Energy ('DME') *White Paper on the Energy Policy of the Republic of South Africa* (December 1998) available at http://www.dme.gov.za/pdfs/energy/planning/wp_energy_policy_1998.pdf [accessed 4 May 2008] 77.

[14] DME *White Paper on Renewable Energy* (November 2003) at 27 available at http://www.dme.gov.za/pdfs/energy/renewable/white_paper_renewable_energy.pdf [accessed 15 May 2008].

[15] "Climate Change: A South African Policy Discussion Document" DEAT undated.

zones.[16] Similarly change in oceanic conditions may have significant implications for fisheries resources as well as for biodiversity.

South Africa and international climate change law

United Nations Framework Convention on Climate Change

South Africa signed the United Nations Framework Convention on Climate Change ('FCCC') convention in 1993 and ratified it in 1997.[17] Initially South Africa was categorised as a 'developed' country for the purpose of the convention but very soon it realized the implications thereof and had itself re-classified as a 'developing country'. Developed countries parties to the convention are listed in one or two annexes, depending on whether they are countries undergoing transition to a market economy, that is Annex 1 countries being mainly countries which formerly constituted part of the USSR other developed countries, being Annex 2 countries, with the notable exception of the USA. Parties to the FCCC which are not listed in Annex 1 or 2 are regarded as 'developing' countries and enjoy the benefits of the principle of common but differentiated responsibility which is a foundation stone of the convention from a developing country point of view as the obligations of the convention are less onerous to developing countries. The Kyoto Protocol, outlined below, refers to these Annex 1 and non-Annex 1 parties but also confusingly has its own Annex A and Annex B.

In teaching climate change law the 'ultimate objective' of the FCCC should be emphasized namely:

> . . . to achieve, in accordance with the relevant provisions of the Convention, stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system . . .[18]

As should five principles which underpin the convention and which are designed to achieve this objective, namely:

- Parties should protect the climatic system on an equitable basis, but allowing for different responsibilities depending on their individual capacities.[19] This is generally referred to as the principle of 'common but differentiated responsibility';

---

16 Glazewski and Sowman "Planning a Legal Response to Sea Level Rise in South Africa" (1990) 7 *South African Journal of Science* 294.

17 N 1676 in *Government Gazette* No. 18539 dated 19 December 1997.

18 Art 2.

19 This acknowledges different responsibilities for developed and developing countries, and allows for developed countries to take the lead as stipulated in Art 3(1).

- The specific needs and circumstances of developing countries are considered;[20]
- The precautionary principle is adhered to;[21]
- Sustainable development be promoted;[22]
- International trade is encouraged to promote economic growth of all parties.[23]

It goes without saying that at least the core elements of the FCCC need to imparted in teaching the subject whether in a developed or developing country context. This would include:

- The formal definition of 'climate change' would provide room for lively debate and discussion, namely:

  '. . . a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere, and which is in addition to natural climate variability observed over comparable time periods'.[24]

  As would the definition of 'adverse effects of climate change' as:

  '. . . changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare.[25]

  But also the broader scientific debates around and evidence of climate change as well as the various reports of the International Climate Panel Convention particularly its fourth report. This could lead to a discussion of other developing distinctive principles of law international environmental law such as the precautionary principle as well as the principle of equity and common but differentiated responsibility.

- the stated purpose of the FCCC, namely 'achieve . . . stabilisation of greenhouse gas concentrations in the atmosphere at concentrations at a level that would prevent dangerous anthropogenic interference with the climate

[20] Art 3(2). This will ensure that developing countries do not bear a disproportionate burden under the Convention.
[21] Art 3(3).
[22] Art 3(4). This emphasises the need for economic development to undertake the necessary measures to address climate change.
[23] Art 3(5). This acknowledges the link between the environment and sustainable economic growth and stipulates that measures to combat climate change should not impose restrictions on international trade.
[24] Art 1(2).
[25] Art 1(1).

system",[26] and to thereby prevent human-induced climate change by reducing the production of greenhouse gases.

- the definition of term 'greenhouse gases', namely 'those gaseous constituents of the atmosphere both natural and anthropogenic, that absorb and re-emit infrared radiation'.[27]

In short the above simple introductory points to the FCCC provide a logical entry point to other distinct areas of a broader course on international environmental law (IEL) such as the Biodiversity Convention, the role and function of protected areas as well as emerging distinctive principles of IEL; as well as international trade and the environment as is evident from the discussion on flexible mechanisms provided for under the Kyoto Protocol and discussed below.

Among the obligations imposed by the FCCC is the maintenance of 'reservoirs' and the promotion of 'sinks'. A 'reservoir' is defined as '. . . a component or components of the climate system where a greenhouse gas or a precursor of a greenhouse gas is stored'.[28] The oceans, soils and forests are the main carbon reservoirs each of which South Africa is blessed with abundance. A 'sink' is '. . . any process, activity or mechanism which removes a greenhouse gas from the atmosphere'.[29] The process of absorption of carbon dioxide by trees in a forest is an example of a sink. The modalities and procedures for the use of sinks in the clean development mechanism (CDM), have been extensively debated by various Conferences of the Parties (COP) and were finally settled at COPs 9 and 10.

The various specific commitments under the FCCC lend themselves to enriching class discussions and academic research on the modalities of international environmental law and its domestic implementation. Parties to the Convention are committed to:

- Publishing inventories of anthropogenic emissions; formulating national and regional programmes to mitigate climate change; co-operating on the transfer of technologies and the promotion of the sustainable management of sinks and reservoirs of greenhouse gases; the development of plans for coastal management, water resources and agriculture; and conducting impact assessments, the promotion

[26] Art 2 Objective.
[27] Art 1(5).
[28] Art 1(7).
[29] Art 1(8).

of co-operation in scientific and technical research and public education and awareness.[30]

- Certain obligations on developing countries listed in Annex 1 and Annex 2.[31] Annex 1 Parties took on a non-legally binding commitment to reduce their emissions of greenhouse gases to their 1990 levels by the year 2000.[32] In retrospect this commitment was generally not complied with but will be high on the agenda in the future when Kyoto is re-negotiated. In any event it was recognised that non-legally binding commitments were insufficient and this recognition was the motivation for the beginning of negotiations on Kyoto discussed below.

- The communication of information. Parties are obligated to provide the Conference of the Parties with information regarding anthropogenic emissions and removals by sinks of those greenhouse gases not controlled by the Montreal Protocol, as well as the steps taken to implement the Convention and other relevant information.[33] Developed and developing countries have different obligations,[34] and these are known as "national communications". South Africa's initial national communication was produced in 2004.

- Acknowledging the special needs of small island countries, those with low-lying coastal areas or prone to natural disasters and others.[35] South Africa is party to UNEP's Regional Seas Convention on Protection and Management of Coastal and Marine Environment (the 'Nairobi Convention') which includes five island states. Scientific evidence suggests that not only these island states but also mainland parties including South Africa are prime candidates under the vulnerability criteria listed in Art 4(8), the adaptation commitments of the Parties and the assistance criteria in that article.[36] There is accordingly rich practical material from which to draw on in teaching the international climate law regime from a developing country perspective.

---

30 Art 4(1).
31 Art 4(2) and (3).
32 Under Art 4(2)(a) read with Art 4(2)(b).
33 Art 12.
34 Art 12(2)–(10).
35 Art 4(8).
36 See front page lead, Sunday Independent 6 February 2005.

The 1997 Kyoto Protocol to the FCCC

The FCCC is supplemented by the 1997 Kyoto Protocol ('Kyoto') negotiated at the third Conference of the Parties (COP 3) in Kyoto, Japan in December 1997.[37] At Kyoto and Bali parties to Annexure 1 of the Climate Change Convention (developed countries) agreed to reduce their overall emissions of six greenhouse gases by at least 5 percent below 1990 levels between 2008 and 2012.[38] Developing countries, including South Africa, do not have to make any comparable cuts unless they choose to.

Kyoto elaborates on the FCCC by placing more specific obligations on developed countries and Countries with Economies In Transition (CEITs).[39] More particularly Parties to Annex 1 (developed countries) of the FCCC are obliged to reduce their overall emissions of six greenhouse gases by at least 5 percent below 1990 levels between 2008 and 2012;[40] while non-Annex 1 Parties, developing countries, which includes South Africa, do not have to make any comparable cuts unless they choose to. However it is foreseeable that non-Annex 1 parties, not currently being subject to emissions reductions commitments, will in the future be obliged to include reduction commitments. This would include South Africa which is the largest emitter in Africa as mentioned above .[41]

Kyoto also established three so-called "flexible mechanisms" which Annex 1 parties may utilise in complying with part of their greenhouse gas emissions reduction commitments: emissions trading, 'joint implementation' (JI) between developed countries, and a "clean development mechanism" (CDM), which (among other things) seeks to encourage joint emissions reduction projects between Annex 1 (developed) countries and non-Annex 1" countries (developing) countries as elaborated on below.[42] South Africa's involvement in the CDM and it potential have been well described by Gilder as well as Du Toit.[43]

---

37 (1998) 37 *ILM* 22.
38 13 December (1997) 12 *Earth Negotiations Bulletin* 76.
39 Adopted at the third COP in Kyoto, Japan in 1997.
40 13 December (1997) 12 *Earth Negotiations Bulletin* 76.
41 South Africa's total greenhouse gas emissions in 1990 was 347 346 Gg C02 equivalents; and 379 842 Gg C02 equivalents for 1994 *South Africa's Initial National Communication under the United Nations Framework Convention on Climate Change* DEAT 2004 page v.
42 Fn 156. These are elaborated on in chapter 19.
43 Gilder *South Africa designated authority for CDM*, 1/2005 CDM Investment Newsletter, a Joint Initiative of BEA International, www.climatebusiness.net. See Du Toit fn XX

Draft rules relating to the establishment of a designated national authority for the clean development mechanism were published in the *Government Gazette* in December 2004.[44]

A controversial issue, opposed by China and a Group of 77 developing countries during negotiations on the Protocol, was emissions trading. This allows an Annex 1 Party with an emission reduction commitment to "buy" part of the emissions budget of another Annex 1 Party rather than undertaking the potentially more costly reduction itself, domestically. However, it was supported by developed countries including CEITs, who considered this to be a cost-effective way of achieving the required emission reductions.[45]

As a result it was agreed that Annex 1 Parties could participate in emissions trading, but that ". . . such trading shall be supplemental to domestic actions" and that ". . . the relevant principles, modalities, rules and guidelines, in particular for verification reporting and accountability for emissions trading . . ." are to be defined by the COP.[46]

The concept of "joint implementation" whereby countries implement the policies and measures required to mitigate climate change with other Parties, is authorised by the Protocol, but has also proved difficult to reach precise agreement on.[47] To meet its commitments any Annex 1 Party may transfer to, or acquire from, any other Annex 1 Party ". . . emission reduction units resulting from projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in any sector of the economy".

The Protocol also allows for the transfer of financial and technological resources from Annex 2 to Annex 1 countries via the Global Environmental Facility (GEF). A system of so-called "carbon credits", whereby developed countries who assist developing countries in reducing greenhouse gases emissions are permitted lower reductions, may be initiated.[48]The Protocol was open for signature until March 1999 and came into force in February 2005 after receipt of 55 ratifications, representing 55 percent of the world's emissions.

---

[44] Proc R63 in *Government Gazette* No. 27142 dated 24 December 2004.
[45] Many developed countries (e.g. the USA) and CEITs supported emissions trading.
[46] Art 16*bis*.
[47] Art 6.
[48] Van der Lugt *Blue Skies* fn 9 1997 at 97.

The above is generally well known but is outlined to illustrate that there is great scope and challenges for law teachers to integrate the flexible mechanism under Kyoto with the teaching of International Trade Law.

Policy Documents

Before outlining South Africa's domestic climate change law particularly developments in its energy law, it is necessary to briefly outline the main policy documents which have been published in the recent past.

White Paper on Energy Policy of the Republic of South Africa[49]

The White Paper on Energy Policy, published in 1998 relatively soon after the transformation to democracy in 1994, is an overarching document which set out the government's official policy on the supply and consumption of energy for the next decade which significantly ends this year. It represented for the first time an official and general holistic comprehensive perspective of South Africa's official overall energy needs and included for the first time a position on renewable energy. This is based on the integrated resource planning principle of 'ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options'.[50] This has subsequently been elaborated by the White Paper on Renewable Energy discussed below.

One of the main goals of the White Paper is to create energy security by diversifying the energy supply and energy carriers. Currently, much of South Africa's energy is derived from expensive imported fuels and coal-powered energy generation, which could be threatened by climate change response measures of developed countries. In response the Government has initiated certain activities in this regard. For example, the Integrated Electrification Plan which aims to provide solar power to rural areas..

White Paper on the Renewable Energy Policy of the Republic of South Africa

The White Paper on Renewable Energy ("Renewable Energy White Paper"), published in 2004, [51] complements the White Paper on Energy Policy, by pledging "Government support for the development, demonstration and implementation of

[49] Department of Minerals and Energy, N3007/1998, *Government Gazette* 19606 dated 17 December 1998.
[50] Energy White Paper at p X.
[51] Department of Minerals and Energy, N513/2004, *Government Gazette* 26169 dated 14 May 2004.

renewable energy sources for both small and large-scale applications".[52] Its sets out the policy principles, goals and objectives to achieve:

> An energy economy in which modern renewable energy increases its share of energy consumed and provides affordable access to energy throughout South Africa, thus contributing to sustainable development and environmental conservation.[53]

As mentioned above South Africa currently relies heavily on coal to meet its energy needs.[54] It is a relatively low-cost means of supplying electricity to many residential, commercial and institutional consumers. However, conscious of the concerns around the use of fossil fuels and global warming, the need to utilise renewable energy resources more has been recognised. The Department of Minerals and Energy has thus embarked on an Integrated Energy Plan (IEP) to develop the renewable energy resources, while taking safety, health and the environment into consideration. Thus in 2004 the government set the target of:

> 10 000 GWh (0.8 Mtoe) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, solar and small-scale hydro. The renewable energy is to be utilised for power generation and non-electric technologies such as solar water eating and bio-fuels.[55]

Because the renewable energy industry is still relatively underdeveloped and demands significant capital outlay, a phased and innovative approach is required if it is to become a sustainable alternative to fossil fuels and attract investors.

The Renewable Energy White Paper identifies four strategic areas that need to be addressed, to create the appropriate enabling environment for the promotion of renewable energy. These include: financial instruments, legal instruments, technology development, and awareness raising, capacity building and education. Goals and objectives have been set out for each of these.[56] A Strategy on Renewable Energy has been developed to provide a practical plan for achieving the policy's goals and objectives and is outlined below.[57] Progress of the policy will be evaluated after five years to see if it is on track in meeting its aims and to determine if the policy direction is still appropriate.

---

52 White Paper on the Energy Policy of the Republic of South Africa (Department of Minerals and Energy, 1998).
53 Vision. S1.1.
54 In 1999, 91% of the electricity generated was derived from coal as was 75% of the fossil fuel based energy. (S2).
55 S5. This is about 4% of the estimated electricity demand for 2013.
56 S8.
57 S11.

Energy Efficiency Strategy[58]

The Energy Efficiency Strategy (the Strategy) aims to assist in providing energy for all residents of South Africa, by reducing energy consumption through efficient practices and sustainable energy development. This will also assist in reducing the effects of energy usage on human health and the environment.

A target to improve national energy efficiency by 12 % by 2014 has been set. To achieve this enabling instruments and interventions must be established. These include: financial and legal instruments, efficiency labels and performance standards, energy management activities and energy audits.

The Strategy involves all energy-using sectors and will be implemented through Sectoral Implementation Plans. Government also recently released a Energy Security Masterplan for Liquid Fuels and the Energy Security Masterplan for Electricty.

Domestic legislation

National Energy Bill, 2008

Significantly at time of writing South Africa does not have in place dedicated climate change or energy legislation. Given the fact that the mainstay of the South African economy has historically been mining it is not surprising that historically energy law is peripheral and ancillary to mining legislation although both topics fall under the purview of one Ministry, the Department of Minerals and Energy. However given the global energy crisis and disastrous series of power outages in the recent past in the country, the need to revisit South Africa's disparate and fractured energy legislation outline below has been recognised.

To this end the Department of Minerals and Energy published for public comment a draft National Energy Bill during October 2004 (the '2004 Bill') to give legislative effect to the Energy White Paper discussed above as well as to some extent to the White Paper on Renewable Energy approved by cabinet during 2004.[59] After various consultations and further policy developments, in particular the energy security masterplans for liquid fuels and electricity referred to above, the Bill was overtaken and replaced by a further National Energy Bill during June 2008, where more

[58] Energy Efficiency Strategy of the Republic of South Africa. Department of Minerals and Energy, Mrch 2005.

[59] N 2151/2004 in Government Gazette no 26848 dated 8 October 2004

emphasis is given to the notion of energy security (the '2008 Bill').[60] Its eventual enactment into law will undoubtedly still take some partly due to the fact that the legislature is at time of writing going into 'election mode' in anticipation of the 2009 five year election. Whenever it is enacted the draft Bill gives opportunity for policy assessment and analysis as well as the opportunity for constructive comment in anticipation of the new legislation. Whenever it is enacted it will be the central legislation regulating the energy sector in South Africa if not the broader notion of global climate change law in the sense that this phrase is used in this paper.

The 2008 Bill provides an overarching framework for a number of existing sectoral energy statutes including the Electricity Act 41 of 1987, Nuclear Energy Act 46 of 1999, National Nuclear Regulator Act 47 of 1999, Gas Act 48 of 2001, Gas Regulator Levies Act 75 of 2002 and others dealt with below.

The Bill sets out its objectives in section 2 which broadly aim to optimise energy supply and utilization; more specifically the stated objectives of the Bill as stated in section 2 are set out in the Table 1 below:

[60] N 710 of 2008 Government Gazette no 31124 dated 3 June 2008

Table 1
Section 2 of the Energy Bill
Objectives of the Act

2. The objects of this Act are to-

(a) ensure uninterrupted supply of energy to the Republic;
(b) promote diversity of supply of energy and its sources;
(c) facilitate effective management of energy demand and its conservation;
(d) promote energy research;
(e) promote appropriate standards and specifications for the equipment, systems an processes used for producing, supplying and consuming energy;
(f) ensure collection of data and information relating to energy supply, transportation and demand;
(g) promote evidence-driven energy and related sectors' policy formulation;
(h) provide for optimal supply, transformation, transportation, storage and demand of energy that is planned, organised and implemented in accordance with a balanced consideration of security of supply, economics, consumer protection and a sustainable development;
(i) provide for safety, health and environment mattes that pertain to energy;
(j) facilitate improvement of the quality of life of the people of Republic;
(k) commercialise energy related technologies;
(l) ensure effective planning for energy supply, transportation and consumption;
(m) promote sustainable development of South Africa's economy; an
(n) ensure the fulfilment of international commitments and obligations pertaining to energy

It should be noted that paragraph 2(m) refers to the promotion of 'sustainable development of South Africa's economy'. The notion of sustainable development underpins South African environmental laws and appears in the environmental right contained in section 24 of the Bill of Rights as well as in the country's flagship environmental legislation the National Environmental Management Act, 73 of 1989, (NEMA) outlined below.

The point is simply that in teaching global climate change law much discussion and academic debate can be generated from considering the relationship between the topical notion of energy security and climate change on the one hand and sustainable development on the other.

The Energy Bill goes on to provide for 'Safety Health and Environment' in section 4. This provides that:

(1) the Minister may, in consultation with the Minster of Trade and Industry and the Minister of Environmental Affairs and Tourism, establish a programme or programmes, not contemplated in other legislation, to minimize the negative safety, health and environmental impact of energy carriers.

(2) The Minister may, in consultation with the Minister of Trade and Industry and the Minister of Environmental Affairs and Tourism, for the purposes of ensuring safe, healthy and environmentally sensible use of energy, prescribe standards and specifications, not elsewhere legislated or regulated, for –
   (a) the composition, colouring, labelling and form of energy carriers;
   (b) the transport of energy carriers;
   (c) the storage and packaging of energy carriers;
   (d) low-smoke fuels;
   (e) the prohibition of the sale or combustion of polluting fuels in specified areas;
   (f) electromagnetic radiation;
   (g) cooking, heating, lighting and other energy consuming household appliances; and
   (h) any other energy consuming appliance in all sectors of the economy.

The term 'energy carriers' in (1) is defined as 'a substance or system that moves or carries energy in a usable form from one place to another'. Other relevant definitions in the Bill include:

'Renewable energy' which means:

> 'energy generated from natural non depleting resources including solar energy, wind energy, biomass energy, biological waste energy, hydro energy, geothermal energy, ocean and tidal energy'; and

'energy security' which means:

'availability of diverse energy resources, in sustainable quantities and at affordable prices, to the South African economy in support of economic growth and poverty alleviation, whilst taking into account environmental management requirements, international commitments and interactions among economic sectors;

The key chapter 4 headed Integrated Energy Planning provides for the Minister of Minerals and Energy to develop an Integrated Energy Masterplan on an annual basis which must deal with issues relating to the supply, transformation, transport, storage, and demand of energy in a way that accounts for a number of factors including: a balanced consideration of security and supply; affordability; accessibility; social equity; employment; the environment; international commitments; and consumer protection.[61]

---

[61] Sect 16

Two core institutions are established by the Bill in chapters 3 and 5 respectively: firstly a National Energy Modelling and Information Agency,[62] and secondly a South African Energy Development Institute ('SAEDI') which will seemingly subsume the current functions and personnel of the Central Energy Fund (Pty) Ltd Created by the Central Energy Fund Act.

The National Energy Modelling and Information Agency has as its central function the collection, collation, analysis, management and related aspects of energy-related information.[63] This will allow for the mandatory collection of energy data, rather than on a voluntary basis as it has been until now.

The second main institution, the South African Energy Development Institute ('SAEDI') will seemingly subsume the current functions and personnel of the Central Energy Fund (Pty) Ltd Created by the Central Energy Fund Act. But also the Bill stipulates the following further functions:

- to undertake the functions of the Renewable Energy Division which is another new institution contemplated by the Bill;

- similarly to undertake the functions of the Energy Efficiency Division which is also a new institution contemplated by the Bill;

- finally to undertake the functions of the Energy Research and Development Division which is also a new institution contemplated by the Bill.

It is apparent that the 2008 Bill omits a number of positive provisions which appeared in the 2004 Bill, for example on integrated energy planning. It is not altogether clear to the writer why this is the case.

Existing legislation

The central legislation administered by the Ministry of Minerals and Energy is the Minerals and Petroleum Resources Development Act, 28 of 2002 (MPRDA) encapsulates not only "minerals", the primary sources of energy but also "petroleum",

[62] Sect 7 to 15
[63] Sect 7 to 15

and has a specific chapter dedicated to "Petroleum exploration and production".[64] The term 'petroleum' includes hydrocarbons and gases being defined as meaning:

> any liquid, solid hydrocarbon or combustible gas existing in a natural condition in the earth's crust and includes any such liquid or solid hydrocarbon or combustible gas, which gas has in any manner been returned to such natural condition, but does not include coal, bituminous shale or other stratified deposits from which oil can be obtained by destructive distillation of gas arising from a marsh or other surface deposit.[65]

It is apparent from this definition that the MPRDA is relevant to energy law but only peripherally. The MPRDA is accordingly not elaborated on here. However the environmental regulation sections of chapter 4 of the MPRDA, specifically those sections dealing with environmental management principles, environmental management programmes, plans, remediation and closure are made applicable to "petroleum" and could provide a model for the equivalent requirement for other energy sectors including renewable energy.[66]

Electricity Act, 41 of 1987

The objective of the Electricity Act, 41 of 1987, is to provide for the continued existence of the National Electricity Regulator and the control of the generation and supply of electricity and related matters.[67] As such it takes over the functions of the previous Electricity Control Board and has as its objects, "…to exercise control over the electricity supply industry so as to ensure order in the generation and sufficient supply of electricity…".[68]

The functions of the Regulator include the issuing of licenses, determination of process, settling disputes, collecting information and related matters.[69]

The Act does not pay particular heed to sustainable development or environmental considerations except for one section, which deals with the impact of electricity generation on public streams.[70] It provides:

> Notwithstanding anything to the contrary contained in the Water Act 1956 (Act No. 54 of 1956), an undertaker, whether or not he is a riparian owner as defined in that Act, may apply to a water court established by Chapter IV of that Act for permission –
> (a) to use a defined quantity of the normal flow of a public stream; or
> (b) to abstract or to impound or to store a definite quantity of the surplus water or a public stream within or outside the channel of the stream,

---

[64] Chapter 6 SS 69 to 90.
[65] S 1 Definitions.
[66] S 69 (2).
[67] Long title.
[68] S. 3
[69] S 4(1).
[70] S 18.

for the generation of steam or electricity or any other form of energy, condensing, cooling or incidental purposes, in any catchment area.

Gas Act, 48 of 2001

The long title of Gas Act, 48 of 2001, states its objectives as being "to promote the orderly development of the piped gas industry; to establish a national regulatory framework; to establish a National Gas Regulator as the custodian and enforcer of the national gas regulatory framework; and for matters in connection therewith".

The Act defines "gas" to mean:

"…all hydrocarbon gases transported by pipeline, including natural gas, artificial gas, hydrogen rich gas, methane rich gas, synthetic gas, coal bed methane gas, liquefied natural gas, compressed natural gas, re-gasified liquefied natural gas, liquefied petroleum gas, or any combinations thereof…".[71]

The objects of the Act are stipulated to be:

(a) Promote the efficient, effective, sustainable and orderly development and operation of gas transmission, storage, distribution, liquefaction and re-gasification facilities and the provision of efficient, effective and sustainable gas transmission, storage, distribution, liquefaction and re-gasification and trading services;
(b) Facilitate investment in the gas industry;
(c) Insure the safe, efficient, economic and environmentally responsible transmission, distribution, storage, liquefaction and re-gasification of gas;
(d) Promote companies in the gas industry that are owned or controlled by historically disadvantaged South Africans by means of licence conditions so as to enable them to become competitive;
(e) Ensure that gas transmission, storage, distribution….are provided on an equitable basis…;
(f) Promote skills among employees in the gas industry;
(g) Promote employment equity in the gas industry;
(h) Promote the development of competitive markets for gas and gas services;
(i) Facilitate gas trade…;
(j) Promote access to gas in an affordable and safe manner.[72]

The Act establishes a National Gas Regulator;[73] and set out its functions to include: matters such as the issuing of licences, gathering of information, consultation with other government departments, undertaking investigations and enquiries, as well as related mattes.[74] Curiously no mention is made of environmental considerations and these could have been included in the Energy Bill discussed above. A further section

[71] Sect 1 Defintions
[72] S2(a) – (j).
[73] S 4
[74] S 4.

lays down various details and conditions which an application for a gas licence must comply with but once again no reference is made to environmental considerations.[75]

Gas Regulator Levies Act, 75 of 2002

The Gas Regulator Levies Act 75 of 2002, complements the Gas Act by empowering the National Gas Regulator, to impose levies to meet its administrative and functional costs.[76]

National Energy Regulator Act 40 of 2004

The National Energy Regulator Act aims to consolidate and regulate the electricity, piped gas and petroleum pipeline industries under a single regulator, the National Energy Regulator (NER). Again it is not applicable to renewable energy but its provisions could be adapted in the Energy Bill.

Environmental statutes

Environment Conservation Act, 73 of 1989 (ECA)

Central to any form of energy generation whether renewable or not is the environmental assessment (EA) process. The legal basis for environmental assessment in South Africa is currently the ECA; regulations made under this Act lay down the trigger as to when EA is required and the processes to be followed.[77] This regime is however about to be replaced by a recent set of amendments to the National Environmental Management Act, 107 of 1998, (NEMA) and draft regulations published for public comment in January 2005.

The current EA regime is dictated by Part V of the 1989 Act entitled, "Control of Activities which may have a Detrimental Effect on the Environment",[78] as well as Part VI which provides for regulations to be made in this regard.[79] Part V provides that the Minister [of Environment] may declare activities which require EA and then an environmental authorisation in the form of ". . . reports concerning the impacts of

75 S 16
76 S 2.
77 R1197 discussed in X below
78 Ss 21–23.
79 Sect 26.

activities on the environment".[80] A series of comprehensive regulations comprsing of three sets of separate regulations was promulgated under section 21 in 1997. [81]

The first set of the regulations comprises of two schedules, the first of which identifies activities under section 21 of the Environment Conservation Act. The very first item is pertinent here in that it provides that EA must be carried out in respect of:

1. The construction or upgrading of –
   (a) facilities for commercial electricity generation and supply;

The second set, headed "Regulations regarding activities identified under section 21(1)", provides the substantive set of rules regarding these listed activities.[82] The third set of regulations is an administrative measure which provides that the competent authority to implement the regulations is the province concerned.[83]

National Environmental Management Act 107 of 1998 (NEMA)

The NEMA includes a definition of sustainable development referred to in 2 above as: "the integration of social, economic and environmental factors into planning, implementation, and decision-making so as to ensure that development serves present and future generations".[84] It goes on to flesh out what is meant by the notion by stipulating a number of provisions the following being relevant to renewable energy:

> [s]ustainable development requires the consideration of all relevant factors including the following: (i) – (v)
> (v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;
> (vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;
> (vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and
> (viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied. (sect 4(a)).

National Water Act 36 of 1998

---

[80] S 22(2).
[81] R1182 The Identification under s 21 of Activities which may have a Substantial Detrimental Effect on the Environment; R1183 Regulations Regarding Activities Identified under s 21(1); R1184 Designation of the Competent Authority who may issue Authorisation of the Undertaking of Identified Activities in *Government Gazette* No. 18261 dated 5 September 1997.
[82] R1183.
[83] R1184.
[84] Sect 1(1)(xxix).

Although hydro-electric power is not harnessed in South Africa in any significant way it is pertinent to refer to the National Water Act controls "use of water" as provided for in Chapter 4 of the Act. All water use is subject to a license regime and the phrase "water use" is widely defined to include a broad range of activities which includes the following:

> For the purpose of the Act water use includes –
> (a) taking water from a water resource;
> (b) storing water;
> (c) impeding or diverting the flow of water in a watercourse;
> (d) – (k).

From the above it is evident that a hydro-electric power plant would be regarded as a "water use" and the requisite licence would have to obtained from the relevant authority.

Governance

From the above survey it is evident that the law relating to energy and the broader notion of climate change law is contained in a wide variety of statues. What is needed is to create some cohesion and integration in the administrations of these various statutes. It is debatable whether the position will change significantly if the Energy Bill described above is enacted into law.

Chapter 3 of the South African Constitution, titled Co-operative Government, sets out a set of eight "Principles of co-operative government and intergovernmental relations".[85] Of relevance to climate change law is that the three spheres of government (national, provincial and local) must "exercise their powers and perform their functions in a manner that does not encroach on the geographical, functional or institutional integrity of government in another sphere…".[86] Laudable as this sounds it brings with a host of challenges concerning integration of energy and climate change issues.

As regards governance a number of government and semi-government institutions are readily identifiable. These include government departments such as the Department of Minerals & Energy which among other things houses the designated national

---

[85] Section 41(1). See generally B. de Villiers, "Intergovernmental Relations in South Africa" (1997) 12 *SA Public Law* 197

[86] Section 41(1)(g)

authority (DNA); the Department of Environmental Affairs and Tourism which among other things regulates air quality including atmospheric emissions under the National Environmental Management: Air Quality Act 39 of 2004, along with the nine provinces, and which convened a National Committee on Climate Change (the NCCC) shortly after South Africa ratified the FCCC, an advisory body to the department. Significantly this was not located in the Department of Minerals and Energy which illustrates the lack of a central government departments which champions climate change issues.

In addition mention must be made of para-statals such as ESCOM, the Central Energy Fund company, NERSA (the National Energy Regulatory Authority) and others.

Conclusion

Climate law and policy is not taught as a distinct subject in South African law schools. An informal survey among the relatively small number of law schools in the country reveals however that the related subject, Environmental Law, is taught in over half of the law schools in the country, typically as an option in the graduate (LL.B) level and also at the postgraduate level where the subject would typically be one of many offered in a coursework masters degree. Most of these courses would include a component on international environmental law which in turn would include a component in the UNFCCC and the Kyoto Protocol. One law school, the University of Witwatersrand ('Wits'), includes a course at postgraduate level (coursework masters) on the subject of Energy Law.

The academic climate is accordingly appropriate to examine what role law teachers can play not only in teaching climate change law whatever is content may be - an aspect which is examined below – but also to play a educative role to nudge policy and decision makers towards a less carbon dependant economy.

In formulating the title of this paper earlier this year I rather naively added the phrase '… a developing country perspective', ambitiously believing that I would be able build on the old Roman adage of *ex Africa semper aliquid novum.* But my subsequent thinking, reading and incorporation of global climate change law in my own postgraduate teaching has not really revealed any fundamental difference, I

believe, in the challenges facing teachers of climate change law whether they are located in developed or developing countries.

Differences of course could be placed on the substantive emphasis placed on the subject given the fact that the FCCC is built on the foundation-stone of common but differentiated responsibilities and that international environmental law worldwide rests on the building block of sustainability and equity. The differences in teaching the subject in developing and developed countries are not, I would suggest, unique to the teaching of climate change law but common to all graduate teaching of international law subject of this nature.

However I would suggest that there are common challenges for law teachers in developed and developing countries. These would include:

- crafting the substantive content and scope of the subject in particular the relationship between climate change law and energy law raised in my introduction;
- developing and nurturing distinctive emerging distinctive principles of international environmental law in the specific context of climate change such as the precautionary principle, the principle of equity, environmental assessment and common but differentiated responsibilities mentioned above;
- the domestication of the above principles in national laws;
- challenges around governance whether at international, regional or national level; this is so given the pervasive nature of the subject which effects virtually each and every human activity and thus law, ranging from human rights law to building standard regulations.

The challenges thus facing a semi-developed country like South Africa are numerous and include:

- the need to mainstream not only subjects like environmental law but also climate change law into the curricula of the basic law degree;
- the need to delineate between climate law and energy law but at the same time integrate these two interconnected subjects;

- the need to integrate climate change consequences into mainstream law subjects for example insurance law and property law, particularly as regards coastal properties;
- the need to build capacity in the first instance of the teachers of (environmental) law as these tend not to have a starting block to ascertain what the substantive content of such a subject should be.

As such it is argued that climate law must in a developing country be inherently linked and integrated with energy law. The country is currently experiencing an energy crisis the extent of which has not ever been experienced in the country's history. Renewable energy sources and other innovative techniques are at last being seriously examined. Law teachers should thus use energy law as a springboard to develop the wider category of climate change and energy law. They should not however confine themselves to teaching black letter law but also to research and involve themselves in key policy issues in particular to assist both developing and developed countries to move to a less carbon based economy given their its obligations under the Framework Climate Change Convention and Kyoto Protocol as well as their imminent successors.

(Prof) Jan Glazewski
Institute of Marine & Environmental Law,
University of Cape Town
Private Bag X1
Rondebosch
South Africa
Jan.Glazewski@uct.ac.za

Key Words: climate law; climate change; energy law; environmental law; developing country; capacity; law teaching