
THE PROSPECTS AND CHALLENGES OF THE PROPOSED CARBON TAX REGIME IN SOUTH AFRICA: LESSONS FROM THE NIGERIAN EXPERIENCE

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ABSTRACT

One of the policy instruments canvassed for the reduction of greenhouse gases (GHGs) is carbon tax. Carbon tax- an economic instrument which levies taxes on the carbon content of goods and services, is increasingly getting popular among policy makers worldwide. South Africa is one of the countries with advanced plans to adopt carbon tax as a way of reducing and discouraging the emission of GHGs. This paper analyses the proposed carbon tax in the light of South Africa's commitment under the United Nations Framework Convention on Climate Change (UNFCCC). What lessons can South Africa learn from a similar environmental tax regime previously adopted in Nigeria?

Keywords: Carbon Tax, South Africa, Nigeria, GHGs, United Nations Framework Convention on Climate Change

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1. INTRODUCTION

Greenhouse gas (GHGs) emissions from developing countries will likely surpass those from developed countries within the first half of this century, highlighting the need for developing country efforts to reduce the risk of climate change. According to the Stern Review,¹ even if the developed world takes on responsibilities for absolute cuts in emissions of 60-80 per cent by 2050, developing countries must take significant action too, in order to avoid temperature increases above 2.0 °C. One of the policy instruments canvassed for the reduction of GHGs is the carbon tax. Simply put, carbon tax refers to a tax on activities or production processes that can give rise to GHGs emissions. The goal of carbon tax is to reduce environmentally harmful behaviour by ensuring that emitters of greenhouse gases bear the full costs of their actions.

South Africa is one of the very few countries in Africa that have developed concrete plans to implement the carbon tax system. The tentative date for the implementation of the policy is 2015. This paper seeks to examine the proposed carbon tax *vis-a-vis* South Africa's commitment under the United Nations Framework Convention on Climate Change (UNFCCC). What lessons can South Africa learn from previous tax regime in Nigeria if it decides to go ahead with the plan to implement a carbon tax system?

This paper is divided into five parts. After this introduction, part two discusses the meaning, theory and practice of a carbon tax system. Part three evaluates the proposed carbon tax regime in South Africa, its likely challenges and prospects. Part four highlights the practical lessons that South Africa can draw from the Nigerian experience. The paper concludes in part five.

2. THE CARBON TAX SYSTEM: THEORY AND PRACTICE

Economists regard pollution as a negative externality. Externalities refer to a situation where effects of production or consumption are borne by others but cannot be traced to the originator². The main indicia of an externality is the separation between the affected individual and the source

1 Nicholas Stern, *Economics of Climate Change the Stern Review* (Cambridge University Press, 2007)

2 International Institute for Sustainable Development, "Market Failures Leading to Environmental Degradation" <<http://www.iisd.org/greenbud/market.htm>> accessed 20 May 2014

of the effects. Externality is not reflected in the price of goods and services.³ Thus, goods and services are underpriced because the total cost of production (pecuniary and non-pecuniary) are not reflected in the purchase price. This is a market failure that has to be addressed through government intervention. When faced with a negative externality such as pollution, the solution should be to impose a per unit tax on the emissions from a polluting activity.⁴ The tax rate would be equal to the marginal external social damage caused by the last unit of pollution, at the efficient allocation. Faced with this tax on emissions, firms would “internalize” the externality. By minimizing their private costs, firms would simultaneously minimize the costs to society as a whole.⁵ The carbon tax system is anchored on the Polluter Pays principle. The Polluter Pays principle states that:

National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.⁶

A carbon tax is attractive because it creates a stable price for emissions and a stable price for emissions is important for firms making long term decisions about investment and innovation in low emission technologies.⁷ Carbon taxes automatically transfer funds from emitting industries to the public revenue. The revenue may be used to enhance the revenue base; limit the overall tax burden on the industry affected through revenue recycling; reduce taxes elsewhere in the economy. Revenue recycling to the industry can encourage emitters to reduce GHG emissions, without increasing their overall tax burden relative to other parts of the economy. The advantage of this approach is that it can ease the initial impact of the scheme for those industries facing the greatest increase in costs, and therefore ease the transition where carbon taxes are introduced.⁸

3 Ibid.

4 TH Tietenberg, *Emissions Trading: Principles and Practice* (Washington, D.C.: RFF Press, 2006) at 2.

5 Ibid

6 *Rio Declaration on Environment and Development*, 13 June 1992, UN Doc. A/CONF.151/26 (vol. I); Principle 16, 31 ILM 874 (1992).

7 IMF ‘Climate Change and the Global Economy’ (IMF 2008) 23, <<http://www.imf.org/external/pubs/ft/weo/2008/01/pdf/c4.pdf>> accessed May 23 2014

8 Stern(n 2) 318-319

Norway like other Scandinavian countries introduced carbon tax in the 1990s. The revenue generated from environment taxes was aimed at reducing labour taxes in the economy.⁹ The tax initially covered sixty percent of all Norwegian energy related CO₂ emissions. The tax generated substantial revenues; in 1993 the tax represented 0.7 percent of total revenue, which in year 2001 had increased to 1.7 percent. The tax is estimated to have reduced CO₂ emissions by approximately 2.3 per cent between 1990 and 1999. Overall in Norway, between 1990-1999 GDP grew by approximately 23 percent, yet emissions only grew by roughly 4 percent over the same period, indicating a decoupling of emissions growth from economic growth.¹⁰ It has been argued that the tax helped to provide incentives for technological innovation.¹¹

3 PROPOSED CARBON TAX IN SOUTH AFRICA: PROSPECTS AND CHALLENGES

A few background facts about the country, South Africa, are apposite here. South Africa is a middle-income developing country whose economy is built on the wealth of its mineral resources and its primary sectors;¹² its population was estimated to be roughly 50 million in 2010.¹³ South Africa is the most industrialised country in Africa with well-developed mining, transport, energy, manufacturing, tourism, agriculture, and services sectors. The South African economy is powered by coal¹⁴ and its contribution to the global pool of greenhouse gases is 1.8 percent.¹⁵ Its total emissions in 2000 were estimated to be 461 million tonnes of carbon dioxide equivalents (CO₂e).¹⁶ Eighty-three percent of emissions are derived from energy supply and consumption, 7 percent from industrial processes, 8 percent from agriculture, and 2 percent from the waste sector.¹⁷

9 Ibid 339

10 Ibid.

11 Ibid.

12 *South Africa's Second National Communication under the United Nations Framework Convention on Climate Change* (Department of Environmental Affairs 2011) 8 <<http://unfccc.int/resource/docs/natc/zafnc02.pdf>>.

13 Statistics SA cited in *South Africa's Second National Communication* (n 13) 3.

14 Patrick Bond, "Privatization of the Air Turns Lethal: Pay to Pollute Kills South African Activist Sajida Khan", 18 *CNS*(2007) 4, 19.

15 Ibid. South Africa is the 17th largest emitter of greenhouse gases in the world. See 'Climate Analysis Indicators Tool CAIT Version 5.0' (Washington DC World Resources Institute 2008).

16 *South Africa's Second National Communication* (n 13), ix.

17 Ibid.

In 2011, South Africa formally published its National Climate Change Response Policy. The Policy has two objectives:

- i. Effectively manage inevitable climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response capacity.
- ii. Make a fair contribution to the global effort to stabilise greenhouse gas (GHG) concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a time-frame that enables economic, social and environmental development to proceed in a sustainable manner.¹⁸

South Africa has also developed what is called Long Term Mitigation Scenarios (LTMS). The idea behind the LTMS was to develop broad and sound mitigation scenarios that will form the basis of a long-term climate policy.¹⁹ LTMS is a detailed study of South Africa's mitigation potential. Acting on the LTMS, South Africa announced at COP15 (the 2009 climate change conference in Copenhagen Denmark) that its emissions should peak in the period from 2020 to 2025, remain stable for around a decade, and decline thereafter in absolute terms.²⁰

As part of its international commitment to fight climate change, South Africa is considering the use of a carbon tax to reduce its emissions; South Africa National Treasury started experimenting with environmental taxes in 2006. In 2010, it published a Discussion Paper on various designs of a carbon tax. The proposed tax would cover all direct, stationary sources, and process emissions. The tax would apply to methane, carbon dioxide, and nitrous oxide.²¹ The implementation was meant to start in October 2014 in two phases: the first running to 2019, and the second to 2025; but it has now been shifted to 2015. The initial proposed rate is ZAR 120 per tCO₂e, applying above a certain threshold of a firm's emissions, and would increase 10 percent annually until 2019-20.²² In the first phase, the tax would

18 South Africa "National Climate Change Response White Paper" (2011) 5, <<http://www.info.gov.za/view/DownloadFileAction?id=152834>>.

19 Harold Winker, "Long Term Mitigation Scenario Project Report" 1, <http://www.erc.uct.ac.za/Research/LTMS/LTMS_project_report.pdf>.

20 National Climate Change Response (n19) 27.

21 Sara Moarif & Namrata Rastogi, "Market Based Climate Mitigation Policies in Emerging Economies" (2012), Center for Climate and Energy Solutions Publications ,21.

22 Ibid.

only apply to 40 percent of total emissions (basic threshold at 60 percent). Trade-exposed sectors with competitiveness concerns and process emissions would receive an additional exemption of 10 percent each. An offset mechanism is also envisaged to offset carbon tax liability up to a maximum of 5 or 10 percent. Revenue would not be earmarked, but consideration given to environmental issues when determining revenue use, particularly to energy efficiency and assistance to low-income households.²³

The proposed tax is not the first tax targeted at greenhouse gas emissions in South Africa. There is already in place a levy of ZAR 3.5c/ kWh on electricity generated from fossil fuel.²⁴ There is also a tax on new vehicles in place;²⁵ new passenger cars are taxed on carbon dioxide emissions above 120 g/km at a fixed rate of ZAR 75 per g/km. For example, if a new passenger car emits 200 g/km of carbon dioxide, it will be taxed on the 80 g/km emitted above the 120 g/km threshold. At the suggested flat rate of ZAR 75 per g/km, such a vehicle will attract a carbon tax of ZAR 6,000.²⁶ This particular tax seeks to reduce emissions from the transport sector; it is targeted at the manufacturers as well as buyers of vehicles that are not environmentally friendly. The proposed tax differs from the already implemented taxes because it is a universal carbon tax.

Ideally, for a tax to be environmentally effective, the tax rate should equal the social marginal damages from producing an additional unit of emissions or, more or less equivalently, the social marginal benefit from abating a unit of emissions.²⁷

Thus, the optimal tax rate would be where the marginal benefit of abatement equals the marginal cost of abatement.²⁸ To arrive at the optimal rate, the government would need to estimate both the marginal abatement cost curve and the marginal abatement benefit curve. Estimating the marginal abatement cost curve and the marginal benefit curve is an uncertain science. Climate change as a global problem means that damage costs have to be assessed globally. Asking local polluters to pay the global damage costs seems unfair. Such a system would probably succeed if there were an international carbon tax. The National Treasury of South Africa seems to appreciate this fact when it said thus:

23 Ibid.

24 Ibid.

25 South Africa's Second National Communication (n 13),185.

26 Anja Finnern, "Carbon Tax", (*Accountancy SA* ,December 2010) : <<http://www.accountancysa.org.za/resources/ShowItemArticle.asp?ArticleId=2092&Issue=1099> > accessed April 2013

27 Arthur Pigou, *The Economics of Welfare* 192-93, (4th ed Transaction Publishers 2002) cited in Gilbert Metcalf & David Weisback , "The Design of a Carbon Tax" 33, *HarvLR* (2009)499.

28 Gilbert Metcalf & David Weisback, *ibid* at 511.

The tax rate should, over time, be equivalent to the marginal external damage costs of GHGs to affect appropriate incentives. However, in the absence of an international climate change agreement and therefore a global emissions pricing system, a partial, rather than full, internalisation of the externality will be considered as an interim measure.²⁹ Even if a uniform tax is adopted, the end result is that polluters would undertake to implement those emission reductions that are cheaper than paying the tax, because each emitter weighs the cost of emissions control against the cost of emitting and paying the tax.³⁰ It does not offer an incentive to polluters that want to make aggressive cuts in emissions.

Another thing that emerges from the literature on environmental taxes is that environmental taxes cannot guarantee environmental certainty. This is due to the fact that, at the time of setting the tax, policy makers do not have all the required information regarding technological progress and price sensitivities,³¹ so, setting the tax at the required level to meet the emission target becomes difficult. New entrants into the polluting industry can also upset the whole arrangement, in that their activities could lead to increased emissions.³² To ensure that the environmental goal is not diluted by reason of new polluting sources, the tax level has to be adjusted.

Environmental certainty is important when considering South Africa's LTMS target, which anticipates a peak, a plateau, and a decline. A peak by 2020 or 2025 and a decline thereafter mean that the environmental outcome must be certain as of 2015, when tax is meant to be introduced until 2020 or 2025. The policy makers in South Africa are well aware of this point. In the National Climate Response White Paper, the government said:

Although a carbon tax does not set a fixed quantitative limit on GHG emissions over the short-term, such a tax—at an appropriate level and phased in over a period to the “correct” level—will provide a strong price signal to both producers and consumers to change their behaviour over the medium- to long-term. The National Treasury's carbon tax policy will seek to primarily stimulate behaviour change through the

29 National Climate Change Response (n 19) 41.

30 Gupta S *et al* “Policies, Instruments and Cooperative Arrangements” in Metz, Davidson, Bosch, Dave, LA Meyer, eds, *Climate Change 2007- Mitigation of Climate Change* (Cambridge University Press 2007) 745 at 755.

31 *Tools of the Trade :A Guide to Designing and Operating a Cap and Trade Program* (United States Environmental Protection Agency 2003), 2-6.

32 Ibid.

price mechanism, and as a secondary benefit, generate a revenue stream that may allow fiscal decisions over time that support climate change policy and broader sustainable development objectives.³³

The revenue to be generated from the tax is estimated to be between R8 billion and R30 billion a year.³⁴ Whether the tax will instil a behavioural change remains to be seen. This claim can only be satisfactorily investigated *ex post*, but if Nigeria's experience with the use of pollution charges reveals anything, it is that taxes or pollution charges by themselves are not enough to instil behavioural change.

4. IMPLEMENTING A CARBON TAX REGIME: PRACTICAL LESSONS FROM NIGERIA

Environmental taxation has, from the onset, been an integral part of the gas flaring legal regime in Nigeria, and has been one of their government's frontline policies in seeking to eliminate flaring. This section highlights the practical lessons that South Africa can draw from the implementation of an environmental tax system in Nigeria.

In principle, Section 3 of the *Associated Gas Reinjection Act* outlaws gas flaring, but allows polluters to continue to flare on payment of a fine. The Section provides as follows:

Subject to subsection (2) of this section, no company engaged in the production of oil or gas shall after 1 January, 1984 flare gas produced in association with oil without the permission in writing of the Minister [1985 No.7.]

(2) Where the Minister is satisfied after 1 January 1984 that utilisation or re-injection of the produced gas is not appropriate or feasible in a particular field or fields, he may issue a certificate in that respect to a company engaged in the production of oil or gas-

(a) Specifying such terms and conditions, as he may at his discretion choose to impose, for the continued flaring of gas in the particular field or fields; or

33 National Climate Change Response(n19) 41.

34 Phinehas Machingan, "SA Government to boost Revenue through Carbon Tax"(ESI AFRICA, April 16 2013):<<http://www.esi-africa.com/sa-government-to-boost-revenues-through-carbon-tax/>>

(b) Permitting the company to continue to flare gas in the particular field or fields if the company pays such sum as the Minister may from time to time prescribe for every 28.317 standard cubic metre (SCM) of gas flared:

Provided that, any payment due under this paragraph shall be made in the same manner and be subject to the same procedure as for the payment of royalties to the Federal Government by companies engaged in the production of oil.³⁵

The penalty was initially fixed at 2 kobo (equivalent to US\$0.0009 in 1985) against the oil companies for each 1,000 standard cubic feet (scf) of gas flared. In 1990, the penalty was increased to 50 kobo/10,000 scf. This was further raised to 10 naira/1000 scf in 1998. In 2008, the penalty was raised to US\$3.50 (equivalent to 560 naira today) for every 1,000 scf of gas flared. Nigeria is also planning to raise the penalty to the international market value of the tax flared.³⁶ In 2012, the Nigerian National Petroleum Corporation (NNPC) confirmed that flare is only down by 15 percent, which means 85 percent of Nigerian gas is still being flared.³⁷ The negligible rate of reduction rate in flaring in Nigeria after many years of implementing this tax system raises questions on whether environmental taxes significantly discourage pollution. It also raises questions on the effectiveness of the monitoring and reporting system put in place to ensure that reduction rates are proactively disclosed and verified.

The Nigerian situation is relevant to the South African situation because the enactment of the tax in Nigeria followed the “slow ramp-up” approach, which is what the National Treasury of South Africa wants to use as well. In a “slow ramp-up” approach,³⁸ the tax is introduced gradually over time, starting with a low initial rate or a narrow initial base and

35 Associated Gas Re-injection Act 1985 (Nig), Section 3.

36 Petroleum Industry Bill, An Act to Provide for the Establishment of a Legal, Fiscal and Regulatory Framework For the Petroleum Industry in Nigeria and Other Related Matters, 7th National Assembly, 2012, Section 277(3).

37 Adeola Yusuf, “FG Confirms 85 percent flaring by IOCs” *Daily Independent Newspaper* <dailyindependentnig.com/2012/12/fg-confirms-85-gas-flaring-by-iocs/> daily independent newspaper>.

38 The other approaches for the introduction of an environmental tax are the grandfathering approach and the cold-turkey approach. Grandfathering would exempt from taxation a baseline level of emissions, such as an amount equal to emissions in a reference year. A cold-turkey approach would simply introduce the tax without any special provision for transition. For further reading see Gilbert Metcalf & David Weisback, “The Design of a Carbon Tax” (n 28) 516.

then increasing the rate or base at a pre-announced schedule in order to reach the desired system. Setting the tax at the desired rate is complicated; this is evident in the proposed plan by Nigeria to set the flare penalty to the international market value of the gas flared. The market value of gas varies across continents.³⁹

Another factor that weakened the flare penalty regime in Nigeria is weak enforcement. It was recently reported that, in 2012, none of the oil firms in Nigeria paid the new gas flare penalty of \$3.50 per standard cubic foot because they disagreed with the penalty. The Department of Petroleum Resources, charged with the task of enforcing the flare penalty, failed to enforce the penalty on oil companies.⁴⁰ \$3.9 billion is the expected damage/penalty on gas flaring by local and international oil companies between August 2011 and November 2012.⁴¹ Weak enforcement has been the bane of the environmental tax regime in Nigeria. The following observation was made in the report of the Nigerian Extractive Industries Transparency Initiative:

We observed that the volume of Gas produced were not declared before flaring. The figures in this section are calculated by the company and forwarded to the DPR after the gas must have been flared. This is a serious control and monitoring weakness on the part of DPR whose responsibility is to ensure that JV companies provide it with accurate and reliable information. This should be addressed by the Federal Government to ensure that DPR is able to carry out its oversight function of monitoring the upstream sector of Oil and Gas industry in Nigeria.⁴²

The Report concluded thus:

We recommend that there should be greater control over the computation and payment of Gas Flared Penalty. DPR officials should monitor the daily production and quantity of Gas Flared by an operator and a certificate issued accordingly. At the end of each

39 Gas trades for about \$16 in Japan and between about \$8.80 and \$12 in Europe. See Carrie Tait, 'Natural gas glut seeps into high price market' *Globe and Mail* (April 12 2012)

40 Soni Daniel, "Oil Firms Shun Gas Flare Penalty Payment for 2012" *Vanguard* (7 November 2012), online: <<http://www.vanguardngr.com/2012/11/oil-firms-shun-gas-flare-penalty-payment-for-2012/>>.

41 Adeola Yusuf, 'DPR,IOCs rip-off \$3.9 billion from FG' *New Telegraph*(19 May 2014), online:<http://newtelegraphonline.com/dpr-iocs-rip-3-9bn-fg/>

42 Report on the Financial Audit 1999-2004 Appendix 3: Gas Flare Penalty (2006)

month, a bill for Gas Flared Penalty should be sent to the operator for settlement. There is need to obtain independent confirmation of the quantity of Gas Flared.⁴³

It is clear from the above that lack of legislative framework for greenhouse gas reporting undermines the tax regime in Nigeria. Environmental accountability would be built into the tax regime if there is mandatory reporting of GHG emissions and verification of reported data by the companies. What currently goes under the tax regime in Nigeria is voluntary reporting. The risk with voluntary reporting is under reporting and under reporting means less revenue. It will ultimately lessen the effect of the tax to induce behavioural change.

5 CONCLUSION

This paper has provided some reflections on the desirability of the proposed carbon tax system in South Africa. A carbon tax system is arguably suitable for South Africa because almost 90 percent of its emissions is from the energy sector. However, competitive concerns could weaken the effectiveness of the proposed tax in that trade exposed sectors will seek to be exempted from the tax. There is no danger of this in a cap and trade program because of the opportunity offered by linking the program with other cap and trade programs. Carbon tax and a cap and trade program are not mutually exclusive. They can complement each other. Carbon tax can be used for certain sectors of the economy, while a tradable permit scheme can cover the rest. This way the country will profit from the unique benefits of both policies.

What is more, a carbon tax is likely going to be regressive. This could aggravate the social inequality in South Africa. As stated in its national communication to the UNFCCC, there is high social inequality in a population of about 50 million people, revealed by a Gini coefficient of between 0.66 and 0.69, several poverty and human development indices emphasise this.⁴⁴ Thus, to create meaningful impacts on the average citizen, the revenue to be generated from the carbon tax has to go towards addressing the social inequality in South Africa, and not only to carbon mitigation measures. Ultimately, the effect of the proposed tax in South Africa can only be satis-

43 Ibid.

44 South Africa Second National Communication (n 13),viii.

factorily assessed after its implementation, which will start in 2015. This is meant to give companies time to adjust to the new fiscal regime on climate change.⁴⁵

Furthermore, as shown in the Nigerian situation, there has to be a legislative framework for the mandatory reporting of emissions if the carbon tax system is to achieve the desired objectives. The carbon tax system must be backed with a robust enforcement regime to ensure its transparency and effectiveness.

45 Mike Cohen, 'South Africa Delays Implementation of Carbon Tax Until 2015' *Bloomberg* (27 February 2013).