Urban governance and the brown environmental problems in South Africa

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ABSTRACT

This article argues that brown environmental problems have been given scant attention in urban planning and governance in favour of profit-making and industrial development efforts in South Africa, at the expense of public health. Urban South Africa is plagued by mounting brown environmental problems that arose out of industrialisation and urbanisation. As a result, informal economic activities have mushroomed in urban spaces, which are now synonymous with air pollution, waste and squalid settlement environments. Often the informal economic activities are pigeonholed in high capital intensive industries, mining companies, manufacturing institutions as well as processing and heavy metal companies, amongst others. But the ubiquity of informal business establishments around public transit stations, pavement/walkways and adjacent formal businesses, notwithstanding a myriad of bylaws, have contributed significantly towards emissions of toxins, gases, fumes and liquids into the surroundings with deleterious repercussions on public health. The informal economy is characterised by congestion, street vending and littering, illegal disposal of contaminated liquids and refuse on pavements and sidewalks as well as a series of air polluting activities, which are seemingly ungovernable. This article explores various brown environmental problems that affect urban South Africa in order to highlight the deleterious consequences of lax in urban governance.

INTRODUCTION

The omnipresence of brown environmental problems in developing countries including South Africa are far from unobtrusive (Shen, Tam & Drew 2004; Yuan, Shen, Hao & Lu 2011;

Qui, Zhang & Liang 2013; Seth, Cobbina, Asare & Duwiejuah 2014). Whilst urban areas industrialise, profit making efforts of both the formal and informal economy mushroom. Economic expansionism becomes the hallmark of an ideal developmental state (Shen *et al.* 2004; Yuan *et al.* 2011; Qui *et al.* 2013; Seth *et al.* 2014). Private companies that are traceable through their obtrusive carbon footprint in their quest to actively participate in the production process, end up polluting the rivers, atmosphere, land and eventually the urban space which predominantly affect the urban poor who do not possess the economic resilience to achieve top-notch medical care (Qui *et al.* 2013; Seth *et al.* 2014). In a nut shell, the essence of this article is to highlight the developmental trajectory that South Africa has traversed, which is accountable for a number of health related illnesses, poor quality of life and death, all in the name of profit and economic expansionism (Shen *et al.* 2004; Yuan *et al.* 2011; Qui *et al.* 2013; Seth *et al.* 2014). It argues, conceptually, that brown environmental problems have been given scant attention in urban planning and governance over profit making and industrial development efforts of both the formal and informal economy in South Africa. This article concludes that laxity in urban governance, caused by the absence of a balance between industrial development efforts and socio-environmental considerations, has left cities in developing countries in virtual squalor.

BROWN ENVIRONMENTAL PROBLEMS AND LAXITY IN URBAN GOVERNANCE

The term *Brown Agenda* is used to contrast with *Green Agenda*. The latter refers to environmental problems associated with vegetation and wild life. Basically, green agenda relates to issues of biodiversity and deforestation. Nonetheless, the brown environmental agenda refers to environmental problems associated with urbanisation and industrialisation (Jin & Wang 2006; Oyoo, Leemans & Mol 2011; Liang, Zhang, Wang & Jia 2012; Lui, Wu, Tian & Gong 2015). Essentially, these problems are pollution, poor sanitation and waste disposal. Understandably, a plethora of migrants move from rural areas and economically less competitive neighbouring countries into South Africa in search of a variety of socio-economic opportunities (Oyyo *et al.* 2011; Liang *et al.* 2012; Lui *et al.* 2015). Their movement is predominantly precipitated by the mushrooming industrialisation of the formal economy and the ubiquity of its antithesis. That is, heavy metal industries, chemical engineering companies, mining companies, construction companies, oil and gas companies in the formal sector (Yuan *et al.* 2011; Qui *et al.* 2013; Seth *et al.* 2014). These aforementioned organisations through their relentless quest to make profit, assist in the perpetuation of air, water and land borne infections such as bilharzia, cholera and other related brown environmental problems. The urban informal economy is no exception, it is largely attributed to street vending, and general dealing *inter alia* that also contributes immensely to the brown environmental problems (Yuan *et al.* 2011; Qui *et al.* 2013; Seth *et al.* 2014).

Brown environmental problems are vast throughout the globe and increasing (Choi 2014; Kinobe, Bosona, Gebresenbet, Niwagaba & Vinneras 2015). In the early 1900, about 14% of the world's population lived in cities and in 2000 about 50% of the world's population lived in cities (Choi 2014; Kinobe *et al.* 2015). Ninety (90%) percent of population growth occurs in cities and it is estimated that the urban population will increase to 5.2 billion by

2025 (77% of which would be in developing countries) (Choi 2014; Kinobe *et al.* 2015). Given these mounting statistics, it becomes almost impossible for the human settlements departments to offer low income houses and devise timely strategies that will curb the inward oriented pressure of predominantly indigent migrants into urban areas. That is why, it becomes crucial for urban government to develop strategies that are particularly aimed towards curbing brown environmental problems after all profit making and economic expansionism efforts have been met (Choi 2014; Kinobe *et al.* 2015; Challcharoenwattana & Pharino 2016). Continuingly, it is important to take into account that most pressing brown environmental issues affect the poorest urbanites who reside in squatter camps like the Alexandra Township adjacent Sandton City in Johannesburg and Winnie Mandela informal settlement to mention a few.

Clearly, a large number of people will increasingly be exposed to the risk of brown environmental problems such as contaminated drinking water (Choi 2014; Kinobe *et al.* 2015; Challcharoenwattana & Pharino 2016) and, in 1994, 220 million were reportedly without a source of potable drinking water near their homes which depicts the extent to which environmental problems have been mounting (Choi 2014; Kinobe *et al.* 2015; Challcharoenwattana & Pharino 2016). Furthermore, in 1993 alone, diarrhoea killed more than three million children and precipitated 1.8 episodes of illnesses on a yearly basis. However, the 1992 Rio Earth Summit discussions dwelled more on the green agenda (biodiversity, deforestation and climate change) (Oyyo *et al.* 2011; Liang *et al.* 2012; Lui *et al.* 2015). Evidently, there has been negligible attention paid to the brown environmental agenda in the global environmental debate. However, it has been argued that the neglect of the brown agenda is justified by the fact that environmentalism grew at the same time as a middle-class urban elite in the developing countries (Oyyo *et al.* 2011; Liang *et al.* 2012; Lui *et al.* 2015). This middle-class tended to focus attention on the Green concerns such as threats to wilderness and wild life. Besides, environmental policy in developing countries are principally formulated by international institutions in conjunction with the local elites (Apaydin & Gonullu 2008). Inasmuch as the local elites may share wilderness concerns, they may also be industry owners, likely to resist environmental regulations that may risk profits (Apaydin & Gonullu 2008; Choi 2014; Challcharoenwattana & Pharino 2016). Thus the article posits that the poorest people in developing countries are the ones who are most affected by brown environmental problems. These people, as the article asserts, could be shantytown or squatter settlement dwellers and migrant workers who have no verifiable/limited direct influence on the trajectory of environmental policy (Choi 2014; Challcharoenwattana & Pharino 2016). Thus, the significance of the brown agenda is, as a result, underestimated.

One important cause of death in the developing countries is indoor air pollution that result from the burning of dirty fuel sources such as animal dung, charcoal and paraffin. These indoor air polluting activities mainly affect those informal settlers who do not have access to electrification and safe drinking water (Addai & Danso-Abbeam 2014). Indoor pollution involves more serious risk than many outdoor and industrial pollutants. However, indoor pollution is difficult to monitor and, it is overlooked by environmental legislation. So, the incidence of these brown environmental issues proliferate with the growth of the cities or urbanisation (Oyyo *et al.* 2011; Liang *et al.* 2012; Lui *et al.* 2015). Importantly, as cities and pollution grows, authorities could be tempted to transport waste elsewhere through physically

removing it in containers and waste pipelines. Generally, waste dumps are located in areas inhabited by the poorest of the population, who are also politically powerless and voiceless (Oyyo *et al.* 2011; Liang *et al.* 2012; Lui *et al.* 2015). In addition, many city authorities in developing countries have continued to pump untreated waste water and sewage into lakes, rivers and coastal areas that are mostly accessed and utilised by the poor.

TWO STAGES OF ENVIRONMENTAL PROBLEMS IN CITIES

First, in the early stage of development of city, hazards include pathogens from human waste or bacteria- and insect-borne infections such as dysentery and cholera, caused by poor sanitation, over-crowding and inadequate water management (Oyyo *et al.* 2011; Liang *et al.* 2012; Addai & Danso-Abbeam 2014; Lui *et al.* 2015). Thus, as industrialisation, urbanisation and efforts that are directed towards economic expansionism remain crucial, it is important that decision makers re-shape the urban governance space towards creating a country that adheres to the triple bottom line sustainability notion of business that is conscious of people, planet and profit. A country that purports itself to be free should strike a balance between profit making and industrial development efforts (Oyyo *et al.* 2011; Liang *et al.* 2012; Addai & Danso-Abbeam 2014; Lui *et al.* 2015). Nevertheless, the second stage of development of a city unfolds from an industrialisation and technological advancement perspective.

The second and later stage of city development is characterised by hazards that results from industrialisation and technological advancement. These are issues that relate to traffic fumes, heavy metal poisoning (for example, lead and cadmium), and toxic fluids and solvent poisoning inside factories (Oyyo *et al.* 2011; Liang *et al.* 2012; Addai & Danso-Abbeam 2014; Lui *et al.* 2015). These issues arise after a city has graduated into its developed stages where economic activities, trade, consumption and production are growing. Whereas employment opportunities would have been created, which could provide migrant workers the opportunity to alleviate poverty. It is still crucial that business through its quest to grow the economy and contribute towards the gross domestic product (GDP), be conscious of the environmental problems that affect the indigent inhabitants of urban spaces who resides in the periphery of the cities (Oyyo *et al.* 2011; Liang *et al.* 2012; Addai & Danso-Abbeam 2014; Lui *et al.* 2015).

Fathomably, industrialists' efforts which merely creates job opportunities for the poor people to work as underpaid and overworked labourers in the industrial space is inadequate in that it strengthens poverty amongst the workers in the formal sector thereby creating an opportunity for the informal economy to become an attractive space within which poor, seemingly exploited industrial workers *inter alia* could inhabit (Oyyo *et al.* 2011; Liang *et al.* 2012; Lui *et al.* 2015). The urban informal economy, notwithstanding its ability to absorb a large number of the unemployed and unskilled labour force in South Africa is no exception, it is also largely responsible for urban pollution in all its facets, through unrelenting micro-trades that pollute the urban atmosphere, inundate urban pedestrian, public transit stations and intersections (Oyyo *et al.* 2011; Liang *et al.* 2012; Lui *et al.* 2015). Furthermore, the unregulated nature of the urban second economy of South Africa precipitates freedom of entry into and exit from the market, thereby creating a space for land pollution which affects the informal traders themselves and consequently the commuters and urban inhabitants.

Furthermore, pollution in the urban space not only affects the urban setting and its inhabitants – it also discourages investment in urban areas as it would be attractive for investment in the formal occupational sector.

INFORMAL ECONOMY AND WASTE MANAGEMENT ALTERNATIVES IN SOUTH AFRICA

The urban informal economy in South Africa appears to be mostly responsibly for land pollution which eventually creates a waste disposal crisis to urban governance and its constituencies (Addai & Danso-Abbeam 2014). The National Waste Management Strategy (NWMS) of the Department of Environmental Affairs which was published in 2011 in South Africa, records that few waste management treatment options are available and that they are more expensive than landfill costs (Department of Environmental Affairs 2011). This suggest that waste management in South Africa, has not received much attention through allocating sufficient funds in the budget and personnel to deal with the waste disposal and management crises. Thus, poor people in the informal settlements become affected in that their children become exposed to health related problems of being in contact with waste that is inadequately managed by urban government and administrative arrangements. Consequently, given the fact that the urban indigents do not have a verifiable economic resilience and reliable medical care, they become susceptible to *inter alia* water borne and land borne infections such as cholera, bilharzia and pneumonia.

The NWMS is structured within a framework of eight goals which are listed below and should be achieved by 2016:

- promote Waste minimising, reuse, recycling and recovery of waste;
- ensure the effective and efficient delivery of waste services;
- grow the contribution of the waste sector to the green economy;
- ensure that people are aware of the impact of waste on their health and well-being;
- achieve integrated waste management planning;
- ensure sound budgeting and financial management for waste services;
- provide measures to remediate contaminated land; and,
- establish effective compliance with and enforcement of the waste legislation.

In the current economy, which is largely pigeonholed by privatisation, capitalism and wealth accumulation, the waste management strategy comes across as equivocal in as far as is who, when, how and what actions would be taken in order to deal with the issue of waste management in South Africa by 2016. However, commendation is given to the intervention which intends to remedy the issue of waste management in South Africa. Though a number of unsubstantiated achievements have been reported, with a purported 69 000 new jobs created in the waste management sector (Department of Environmental Affairs 2011). The question remains, what kind of jobs are they, are the jobs sustainable? Do they enable quality skills transfer to allow for capacity building? Do the jobs remunerate the employees in a manner that would reduce their income poverty? All these eight goals seem to provide an overarching plan to the inadequate waste management issue which contributes to brown environmental problems. Currently, many communities are still confronted with

the scourge of waste management amidst the seemingly all-embracing objectives of the NWMS that were published by the Department of Environmental Affairs (Meso, Manamela & Maake 2016).

Unfortunately, the public space appears to be attributed by a multiplicity of red-tapes, top-down bureaucracies, political interferences and local government institutions which present themselves as proverbial cash cows that have a possibility of hindering the achievement of the waste management strategy (Meso *et al.* 2016). The eight goals of the NWMS appear to be vague in that they do not provide the specific details of who will execute specific functions, the timeframe and expected milestones for the implementation of the programme including the detailed budget and how it will be distributed across all functions and scope of the project.

Conversely, the informal economy and its unregulated nature is largely responsible for creating a conducive environment that is prone to pollution and illegal waste disposal which eventually contribute to the inadequate national waste management system (Meso *et al*. 2016). Therefore, it is crucial for urban governance to devise strategies and methods that would ensure that the informal sector be managed in a manner that pollution becomes minimised. The aforesaid action would require creativity through joint efforts by municipalities in partnership with the private sector and the participants of the informal economy to devise measures that could minimise poor waste disposal (Choi 2014; Kinobe *et al*. 2015; Challcharoenwattana & Pharino 2016; Meso *et al.* 2016). Perhaps recycling initiative that create lucrative market opportunities could be a starting point towards creating a potential economic benefit that would allure the participants of the informal economy to consider minimising the environmental impact which is predominantly caused by their participation in the informal sector. Thus, it also becomes the duty of the urban citizens themselves to take responsibility of their actions and contribute towards crafting cities that are clean, thereby allowing for a healthy environment and the attraction of potential investors who would create job opportunities for the indigent urban dwellers.

SOCIO-ENVIRONMENTAL COST OF URBANISATION AND INDUSTRIALISATION IN SOUTH AFRICA

South Africa's economy is dualistically structured, with urban areas including their cities and towns being perceived as panacea for socio-economic opportunity over rural settings (Choi 2014; Kinobe *et al*. 2015; Challcharoenwattana & Pharino 2016; Meso *et al*. 2016). The aforesaid circumstances gave birth to excessive reverence being paid to industrialisation in different cities and towns of South Africa. Government expenditure seemed to prioritise economic growth initiatives which predominantly included the privatisation, capitalism and neo-libertarianism efforts post 1994 national elections (Kepe 2012). Little or no consideration was paid to environmental concerns that are precipitated by urbanisation and industrialisation. A series of national policies where formulated in South Africa including the *Reconstruction and Development Programme* (RDP), *Growth, Employment and Redistribution* (GEAR) *Accelerated and Shared Growth Initiative of South Africa* (ASGISA), *New Growth Path and the recent topical National Development Plan Vison 2030* (NDP) (Kepe 2012; Meso *et al.* 2016). All these policies are predominantly conceived out of the principle of

developmentalism which are Western by nature. Furthermore, the aforesaid policies are largely developmentalist efforts which advocate for urbanisation and industrialisation *inter alia* with scant attention paid to the socio-environmental impacts (Meso *et al.* 2016).

Understandably, the rural subsistent agricultural sector and its inhabitants become compromised given the fact that people move towards urban city centres and surrounding townships in search of Socio-economic opportunities (Christiaensen, Weerdt & Todo 2013; Meso *et al*. 2016). In continuation, the formal and informal economy in urban areas become responsible for the livelihoods and social well-being of its inhabitants. Importantly, given the fact that the cities in South Africa are inherently industrial, several brown environmental problems begin to inundate the urban space in its quest to grow the economy, contribute to the Gross Domestic Product (GDP) and Gross National Product (GNP) *inter alia* (Christiaensen *et al.* 2013; Meso *et al.* 2016). Mining companies, industries and heavy metal institutions in the formal sector are responsible for emitting toxins, gases and fossil fumes that have a direct impact on agriculture, global warming and brown environmental problems. These aforementioned circumstances directly affect the poor people who reside in polluted cities, informal settlements and townships (Choi 2014; Kinobe *et al*. 2015; Challcharoenwattana & Pharino 2016).

AFTERMATH OF INDUSTRIALISATION BEYOND BROWN ENVIRONMENTAL PROBLEMS

There is a universal conceptual notion that the aftermath's of excessive industrialisation which is exhibited through the release of fossil fumes, toxins and gases into the environment have a direct negative impact on the climate, agricultural sector and subsequently national food production which affects the competitiveness of South Africa's economy in the global village *inter alia* (Oyyo *et al*. 2011; Liang *et al*. 2012; Choi 2014; Lui *et al.* 2015; Kinobe *et al*. 2015; Challcharoenwattana & Pharino 2016). Evidently, the toxins that are emitted from industries and mining companies affect the environment which consequently contributes to climatic changes which affect the poor people, agricultural sector and national food production thereby deepening the poverty trap in the name of urbanisation and industrialists' efforts. Whereas orthodox developmentalists who support the construction of phrases like *green development, eco-development, green business* and *green economics* continue to encourage development which on the facades, appears to be environmentally conscious – the reality on the ground suggests a different trajectory given that business continues to affect the environment and consequently the destitute inhabitants of South Africa (Choi 2014; Kinobe *et al.* 2015; Challcharoenwattana & Pharino 2016).

When toxins, fossil fumes and harmful gases are released in the environment, the o-zone layer becomes deteriorated thus creating room for excessive sunlight to penetrate the earth thereby giving rise to a plethora of challenges that impinge on policy making, the national budget and the overall draconian scourge of poverty and inequality. From an environmentalist perspective, the o-zone layer should play a protective role for the earth and its inhabitants from direct excessive sunlight (Choi 2014; Kinobe *et al*. 2015; Challcharoenwattana & Pharino 2016). However, given the speed of transformation in the private sector, particularly mining companies and other privately owned enterprises which are obsessed with the accumulation

of wealth and profit making with little or no socio-environmental consideration give rise to a multiplicity of issues that affect South Africa. The repercussions of industrialisation go beyond brown environmental problems and affect the poor urbanites disproportionately. The consequences of industrialisation affect the climate which is responsible for nurturing the agricultural sector which account for a large amount of employment national GDP (Meso *et al.* 2016).

Acid rain which is engendered by fossil fumes, harmful gases, air and water pollution directly affects the agricultural sector, the arability of the soil thereby contributing negatively on national food production (Meso *et al.* 2016). Therefore, when the soil is contaminated – agricultural products and produce will be affected, suggesting the productivity and production in the commercial agricultural sector will be affected. In continuation, the speed of production would decrease given the fact that the soil is no longer able to allow for the production of the expected quantity of produce that should be supplied to the multinational corporations (MNC) (Choi 2014; Kinobe *et al.* 2015; Challcharoenwattana & Pharino 2016). Understandably, when the aforesaid takes pragmatic effect – a multiplicity of economic related complexities begin to materialise. When the quantity of goods and produce supplied to the national foods market decreases, the prices of those goods would become expensive and inaccessible for the income poor individuals (Meso *et al.* 2016). Furthermore, not only does the aftermaths of industrialisation hit directly to the pockets of the poor, it also forces national government to devise firefighting policies and programmes that intend on remedying the situations which are caused by industrialisation.

The green revolution is a perfect example of such policies which is highly capital intensive through the use of machinery, high yielding varieties and genetically modified foods that predominantly aim to accelerate the speed of production (Addai & Danso-Abbeam 2014; Choi 2014; Kinobe *et al.* 2015; Challcharoenwattana & Pharino 2016). The green revolution intervention to solve the food crisis and speed of production amongst other issues became heavily criticised mostly by afro-centric scholars who are against the modernist perspective of emulating the development path that has been traversed by first world countries. *Firstly,* the utilisation of pesticides affect the environment and the health of the workers themselves thereby threatening the sustainability of the agricultural sector. *Secondly,* the utilisation of high yielding varieties and genetically modified foods has long term health impacts in that chemicals where used to augment the growth of certain livestock including chicken. Evidently, over and above brown environmental problems, the repercussions of industrialisation, profit making and economic expansion directly affects the poor people and consequently government expenditure on policies which do not render the South African destitute effective.

Thus, the adoption policies such as the green revolution has negative implications on employment opportunities in the agricultural sector in that the introduction of machinery, technology and capital intensive strategies reduces the changes of job security amongst destitute labours in the agricultural sector (Addai & Danso-Abbeam 2014; Choi 2014; Kinobe *et al.* 2015; Challcharoenwattana & Pharino 2016; Meso *et al.* 2016). Not only is the green revolution strategy inadequate for national socio-economic and socio-environmental transformation – it is exclusionary by nature in that it creates an opportunity space for affluent farmers to dominate the industry and become competitive over budding poor farmers who are disproportionately affected by such policies which are exclusionary, biased and unjust.

Therefore, it is evident that at first glance, industrialist, developmentalist and profit making efforts appear to be contributing to the gross domestic product in South Africa (Meso *et al.* 2016). However, such efforts are exclusionary in that they benefit the elite few who have economic resilience, capital political and business connections that appear to work in their favour. Whereas at the grass-root level, not only does industrialist efforts create brown environmental problems which affect the poor. Agriculture, climate and food production become affected which consequently affect the poor people who do not possess the economic muscle to enable competitiveness (Choi 2014; Challcharoenwattana & Pharino 2016). Vexed questions need to be asked; to what extent is urbanisation and industrialisation benefiting the poor people of South Africa? To what extent is urban governance in South Africa willing to revisit its economic growth policies in a manner that it could create an enabling environment for the poor to benefit economically while ensuring that the environment which should sustain the country in the future is not compromised? Answers to these question require a collaborative effort from urban governance, private sector, NGOs, political movements and the communities at large to converge and devise strategies that will ensure that poor people are integrated into the mainstream economy.

WAY FORWARD ON GOVERNANCE OF BROWN ENVIRONMENTAL PROBLEMS IN URBAN SOUTH AFRICA

Brown environmental problems affect the poorest of the poor people in urban areas particularly on the periphery of cities amongst informal settlers. This article takes cognisance that the brown environmental problems can be sector specific and unique in their own respect, these are brown problems emanating from construction projects, heavy metal companies, mining, industrial firms and waste around informal settlements (Choi 2014; Kinobe *et al.* 2015; Challcharoenwattana & Pharino 2016). This article recognises all these sector-specific brown environmental problems affect the urbanites. It posits that the root cause of the problem is the root cause of the problem is urbanisation and industrialisation and profit making efforts in the urban space which lead to a continuous inflow of migrants in search of economic opportunities (Choi 2014; Kinobe *et al.* 2015; Challcharoenwattana & Pharino 2016). Most of these migrants are often regarded as redundant labour in rural areas who do not possess any formal qualification but rather rely on indigenous resources for survival (Addai & Danso-Abbeam 2014).

The article suggests that companies that leave a carbon footprint in the urban space be more proactive rather than reactive to issues of environmental destruction. The *polluter pays* principle has received heavy criticisms from scholars in that it allows for the commercialisation of pollution by both the government and private sector (Choi 2014; Kinobe *et al.* 2015; Challcharoenwattana & Pharino 2016). Thus, it is important that private sector take a socio-environmental responsibility and move towards contributing to crafting a sustainable urban environment while striving for production and economic expansionism (Addai & Danso-Abbeam 2014). It is also crucial for the urban municipalities to better govern their waste disposal systems into places that are far from the vulnerable poor urbanites. Better yet, recycling strategies could be devised in conjunction with municipalities, indigent urbanites and a variety of other stakeholders in order that they can partner and can create

job opportunities with their neglected resources (Addai & Danso-Abbeam 2014; Choi 2014; Kinobe *et al.* 2015; Challcharoenwattana & Pharino 2016).

CONCLUSION

The mushrooming of brown environmental problems out of control in developing countries' cities arouse from the laxity in the enforcement of bylaws, coupled with urban attractions that could not provide for participation in the formal economic sector and regimes that had reverence for popular policies. The article recommends that urban government and administration should place concerted efforts towards striking a balance between industrial development efforts and socio-environmental consideration. Public and private sector should be more proactive in dealing with issues that precipitate brown environmental problems rather that employing a fire fighting approach. The article asserts that poverty and the overpopulation of the cities should by themselves provide productive solutions to curbing brown environmental problems in cities. More than enforcing bylaws, there is an opportunity to use brown environmental problems to create jobs for the poor people who are most likely unable to find employment in the formal economy. The example of illegal miners dying in the old mine dumps demonstrates the productive potential that remains, which scores of poor unemployed youthful men risk their lives. Profitability of the mine dumps can be recognised through the informal market that are used to sell their diamonds and gold. The same logic can be exploited for the brown environmental problems in the cities themselves; and, such interventions would require appropriate institutions of governance.

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