Sustainable Research: Accentuating the Human Dimension, and Proposals for an Integrative Sustainable Development Implementation Framework

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Abstract—There is a tendency for sustainable development (SD) research, policies and programs to focus primarily on technological and economic growth strategies for achieving the intent and ideals of SD. Far reaching as the effects of such strategies are, this paper contends that there is a fundamental aspect of the sustainability challenge that is often underestimated in SD discourse or research and planning. This dimension is the human dimension. Put simply, the SD challenge is necessarily a human issue, and initiatives to address the world's SD challenge must factor in the human element at every stage and facet. This paper posits that two core issues of the human dimension are enlightenment and engagement. The former is the ability and capacity of stakeholders to grasp the SD challenge, its implications for their lives and their roles and responsibilities in addressing the challenge. The latter is meaningful involvement of all stakeholders in the process of addressing the SD challenge. Using Africa as an example, the paper argues that SD initiatives on the continent remain hampered by the gross 'ignorance' and non-involvement of the vast majority of stakeholders about and in local, national and international SD initiatives aimed at improving people's quality of life. The paper challenges the adequacy of the classical Brundtland Commission's 3-E principles of SD planning (environment, economy, equity) and proposes a more integrative planning framework, termed sustainability pentagon, which adds two E-principles (enlightenment and engagement) to the classical three. The essence of these two extra principles is that citizen awareness and participation must be integral components of any SD policy, program, technology or initiative that aims to be cost-effective. The paper concludes that, in Africa, most SD initiatives have failed and the way forward must shift the paradigmatic framework for SD planning and implementation. The sustainability pentagon is an example of a promising pragmatic and culturally relevant framework.

Keywords— Human dimension, integrative framework, sustainability pentagon, sustainability principles.

I. Introduction

THERE is hardly any rigorous analysis of sustainable development (SD) in Africa that does not begin by chronicling or lamenting the continent's myriad of economic, political, environmental and psycho-social problems and challenges (see, for example, [1], [2], [3]). From in-depth academic, professional and political analyses to casual conversations in social settings, all discussions tend to be punctuated or concluded by individual postulations on normative solutions to identified problems. This paper does not totally escape this 'lamentation-postulation' trap. However, the paper skips regurgitating the well-known deplorable statistics on Africa's development indicators and focuses on prescribing a SD planning and implementation framework, dubbed the sustainability pentagon, which is described later in the paper. The context of the prescribed framework is that, unlike most SD frameworks that hinge on, or prioritize technological, economic, institutional and global partnership-based solutions to Africa's SD problems, the pentagon framework places emphasis on, and accords preponderance to, the human dimension of any strategy. At the crux of this dimension are the enlightenment and engagement of the grassroots citizens, about and with extant SD processes and initiatives that are aimed at improving their lives and livelihoods. This paper affirms the view that SD in Africa is not only off course, but is doomed unless serious and genuine efforts are scaled up by key stakeholders in Africa to find pragmatic, feasible, cost-effective and culturally contextual strategies to address the SD challenge and its allied issues. First, the paper briefly describes, albeit subjectively, what it considers to be the SD challenge. Second, the paper describes the sustainability pentagon, which is anchored in five principles, namely, environment, economy, equity, enlightenment and engagement. The pentagon is prescribed for SD planning and implementation in Africa. Third, the paper briefly justifies the pentagon as a feasible alternative SD planning framework, and summarizes its advantages. The operational structure of the SD pentagon is presented. Fourth, the paper expatiates on the human dimension of the SD challenge, and the pertinence of the pentagon in addressing the dimension. Finally, the paper reiterates its case for SD research to focus more on the human dimension of SD, and concludes that the sustainability pentagon framework has the potential to be a win-win tool for the four key stakeholder sectors of society, viz, political, corporate, non-profit and grassroots sectors.

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II. THE SD CHALLENGE FOR AFRICA AND THE WORLD

Stripped of all the polemics, manipulations and colorations by scholars, professionals, politicians and activists, the SD challenge, viewed even most broadly in the context set by the Brundtland commission [4], is deemed strictly in this paper as bordering on the 'balancing act' of how humans can conduct their activities and meet their quality of life goals or needs without harming the integrity and health of the life support systems (LSS) that enable productivity and nurture life. SD is not anti growth, but prescribes sensible growth that respects the carrying capacity of the environment. LSS are also known variously as ecological resources, natural resources, environmental resources, etc., and they are, premierly, land, water, air, flora and fauna, albeit some would add underground mineral resources [5], [6]. Together, these resources produce the energy that sustains all life and life forms, and enables productivity in all aspects of life. Failure of the LSS, individually and collectively, to perform their roles in the dynamic process of energy production and exchange can and does have extreme implications (as extreme as life or death) for all life forms. Put bluntly, there will be no life or human activity without healthy ecological resources, while the LSS will exist healthily, through natural adaptive and adjustment mechanisms, without humans or human interference. All this lends credence to the essence or message of movements targeting critical environmental issues, such as biodiversity, climate change, deforestation, etc., regardless of the skepticism reflected by eternal optimists, such as the belief of the Judeo-Christian mentality [7], and the likes of the prolific writer and self-styled environmental skeptic, Bjorn Lomborg, Director of the Copenhagen Consensus Center.

III. AN OVERVIEW OF THE SUSTAINABILITY PENTAGON

The underlying concept of the sustainability pentagon evolved from over two decades of this author's direct work experience with, and observations of, programs that aim to empower people, especially low- and moderate-income people, in various parts of the world. The concept is analogous to the proverbial wisdom of teaching someone how to fish rather than giving the person fish, if he/she is to be self-reliant over the long-term. The pentagon consists of the classical three Es defined by the Brundtland Commission as Environment, Economy and Equity [4]. These are shown in Figure 1. The two additional Es of the pentagon are Enlightenment and Engagement, as illustrated in Figure 2.

The criticality and value-added advantages of the two additional E-principles of the sustainability pentagon for Africa are discussed in the next section of this paper. Suffice it to say at this juncture that, the three pillars or 3-E principles of the Brundtland Commission have been the framework for SD planning and implementation in Africa and the world over to date. Sadly, evidence abounds that the pillars, also known as the SD triple bottom line, are either not reflected in most SD plans and initiatives, or mere lip service is paid to them in plans and policy rhetoric without any concrete action to achieve them [1], [8]. This paper submits that the three pillars are
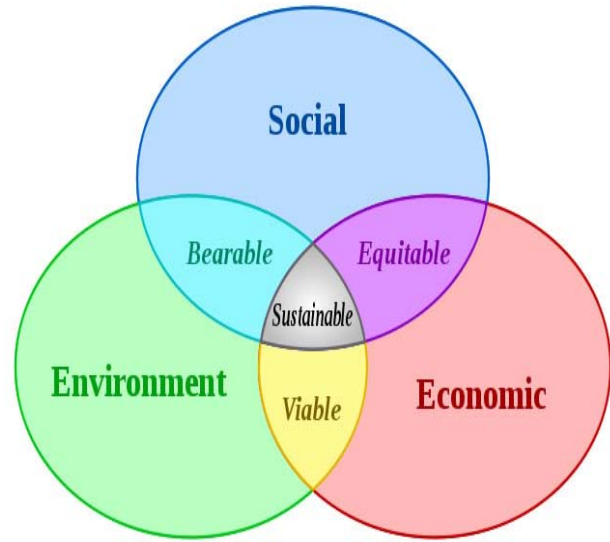

Figure 1: Sustainability Triple Bottom-Line [9]

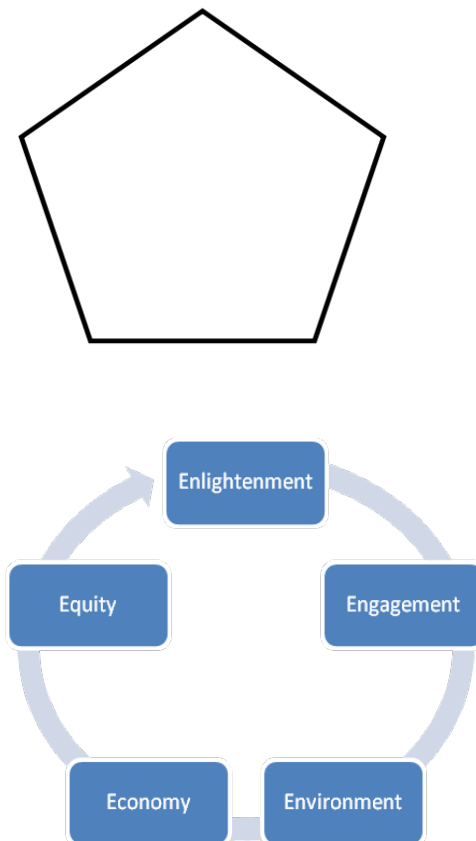--

Figure 2: Sustainability pentagon as an integrative framework for SD planning and implementation (Any side can represent any principle, but the key issue is the integrative relationship among the principles) [10]

necessary, but are insufficient for Africa to put herself back on the 'right' course toward SD. The African masses, who are always depicted through the startling statistics of underdevelopment, poverty and misery on the continent, need to be aware of the SD initiatives designed to improve their lives; the resources allocated for such initiatives; the processes for implementing, monitoring and evaluating the initiatives; and, their roles and responsibilities in achieving the initiatives. For them to be fully aware, they must necessarily be engaged in every facet of the initiatives, from beginning to end. These are the intentions of the two additional principles of the SD pentagon. Also, the claim made above to put Africa back on the path of SD is to remind those who may have forgotten, unaware or unconvinced that primordial beliefs and patterns of living in Africa always revered nature, hence, can be adjudged as sustainable. It is in this regard that some scholars noted that SD is not new to Africans, as societies practiced some form of SD prior to exposure to Western development ideologies, technologies and models that have proven to be wasteful and highly polluting in terms of attitudes of overproduction and overconsumption [11].

IV. JUSTIFICATION FOR THE SUSTAINABILITY PENTAGON

The sustainability pentagon can be justified on numerous grounds, hence, the five discussed here, in no order of importance, are examples and by no means exhaustive. First is that extant frameworks for SD planning and implementation in Africa are grossly ineffective and, in some cases, counterproductive for good governance and the rule of law. A good example of such cases is where international aid for SD is misappropriated, fuelling corruption by public officials and consultants. As in all cases of policy, program and project planning, when existing methods or strategies are ineffective, wisdom calls for new thoughts and methods that can address the weaknesses of ineffective ones. This is the essence of Kuhn's paradigm shift [12], and of other SD or environmental scholars. A good example is Carley and Christie [13], who took a broader view of the global environmental crisis, and suggested that:

> Constructive responses to environmental crisis are threefold. The first requirement is continuing philosophical and moral debate about the appropriate nature of sustainable development, North-South relations, and the need to empower local communities to manage their own futures. The second is for the development of human resources and organizational capacity for environmental management, linking governments, business and community groups in a sense of common purpose. The third requirement is for fundamental research and development, especially in … processes (p.viii-ix).

A second justification for the sustainability pentagon is that, unlike the three SD pillars of the Brundtland Commission, engagement and enlightenment are thrust to the fore, as prerequisites rather than appendages or afterthoughts, of the platform or framework of policy making, planning and implementation. The pentagon thus compels SD policy makers and technocrats to ponder and ask some poignant audit questions about the feasibility of each SD initiative, be it local, national or international. Examples of such questions are as follows, and all the questions are relevant and applicable to all SD initiatives.

1. Environment – What are the real and potential impacts of a SD initiative on society's natural resources or capital, and how are these impacts reflected in time, space and demographics?
2. Economy – How does a SD initiative address society's need for economic growth that respects the environment yet creates employment and entrepreneurial opportunities for citizens and a robust revenue base for the society at large?
3. Equity – Does a SD initiative make or contain realistic provisions for citizens to participate on a just and fair level in its implementation, and to access or enjoy the benefits accruing from their participation?
4. Enlightenment – Are there mechanisms in place to inform and educate all interested stakeholders, in a timely manner, about all aspects of a SD initiative?
5. Engagement - Does a SD initiative make practical arrangements for all interested stakeholders to participate in any and all aspects of the implementation process?

A third justification of the pentagon is simply that the awareness level of all stakeholders about a SD initiative, and their direct and active engagement in all facets of the implementation process, confer both the burden and right of responsibility, transparency and accountability on all parties. Currently, evidence shows that most African leaders and technocrats are irresponsible and unaccountable to citizens on matters of SD planning, funding and implementation. Processes are top-down and not transparent; and attitudes toward citizens are arrogant, nonchalant and insensitive, while the same officials display attitudes of inferiority, docility and begging before foreign or Western donors or partners. Foreign aid for SD in Africa mostly goes into sink holes that make nonsense of every modern audit or accounting system. This explains the so-called donor-fatigue in the West, as well as the lameness of the content of most African progress reports on SD, the Millennium Development Goals and other similar internationally endorsed and supported programs.

A fourth justification is that the sustainability pentagon would compel governments to establish bottom-up or grassroots-oriented procedural or institutional frameworks for citizens to learn about, and participate in, SD initiatives. Currently, as UNECA [1] observed, there are virtually no such frameworks for citizen participation in Africa, except for the few centralized, top-down and heavily bureaucratic structures housed in national government ministries and in regional organizations, such as the African Union's New Partnership for African Development (NEPAD). A grassroots-oriented learning and participation framework would be a prerequisite for implementing the sustainability pentagon, since the imperatives of intra- and inter-stakeholder sector dialogue,

negotiation and collaboration cannot be avoided. The need for a participation framework was implicit in the observation by Coles [14], a 47-year veteran of development programming in Africa, "that ecologically friendly sustainable development in Africa is about decision making, trade-offs and the delicate balance of priorities. Like any change process, it requires participation and commitment from top to bottom – from government policies to individual behaviors." He further noted, on the issue of awareness, that:

> Through increased awareness, attitude re-orientation and the provision of alternatives, individual and communal action could be a vital force in the long run in achieving ecologically friendly sustainable development. At the community level, the message of environmental management ought to be re-packaged to reflect African values.

A fifth and final justification discussed here is the veiled superciliousness of Western and other foreign SD initiatives, compared to indigenous African initiatives. Current SD initiatives in Africa are mostly initiated, funded and hence foisted on countries where the average citizen is very ignorant about the initiatives, and not involved in the most remote way in the processes that led to the initiatives. This paper cannot fathom any justification for this disconnection between people and the policies and programs that are designed to improve their lives. This prodigal treatment of the African masses, especially by their own leaders, explains, to a great extent, why the messages of SD, the MDGs, climate change, deforestation and others alike are not getting through to the masses, who are often depicted by the shameful statistics in progress reports on these programs. Reconnecting people with SD policy and planning processes is critical for Africa to achieve the ideals of SD. This point resonates in the point made by Onuosa [15] that, in Africa:

> If sustainability is to be achieved, it requires the cooperation of the general public who must perceive themselves as part of the process and take necessary steps to achieve its objectives. This is only possible where public consultation and enlightenment is involved in the development of such policies (p.446).

Onuosa's view is substantiated by the view of Henrique Cardoso [16], who stated that SD must occur in the context of "progressive governance which emphasizes democratic processes and the participation of the population in decision-making processes," (p.6). Implicit in this view are the twin principles of engaged and informed citizens, as prescribed in this paper.

The enlightenment and engagement principles of the sustainability pentagon have the potential to allow technocrats to tap the experiential knowledge of grassroots Africans, thereby complementing and adding substantive value to Western ideas and practices on SD. Quite pertinent in this regard is the view by Stefanovic [17] that, "as we develop policies and plans for sustainable development, basic beliefs and value systems frame the very questions we ask in the first place," adding that "after all, environmental decision-making is first and foremost a process of thinking, as a condition for

enlightened action" (p.xvi). In a similar vein, Carley and Christie [13] opined that, with regard to SD, the:

> …commitment to dialogue also rules out simplistic ideological viewpoints from left or right and, of course, the authoritarianism that has been so prevalent and damaging in many non-Western countries. Rather the requirement is for intelligent debate, fully aware of the intellectual reasoning, and tensions which underpin the Western democratic ideas being exported worldwide (p.65).

From the foregoing analysis, the substantive advantages of the enlightenment and engagement principles of the sustainability pentagon are summarized in Table 1. Following the advantages is the structural process proposed for operationalizing or implementing the pentagon framework.

TABLE I
SUBSTANTIVE BENEFITS OF THE ENLIGHTENMENT
PRINCIPLE

Enlightenment/Awareness
1. Knowledge or awareness about the environment, its uniqueness and relationship to life and human activities
2. Sense of responsibility toward the environment
3. Accountability for one's actions to self and to society
4. Conviction and excitement about choices
5. Sense of empowerment (the truism that knowledge or information is power)
6. Knowledge or awareness of options, choices and implications of one's choices/actions (creating a win-win situation for humans and the environment)
7. Interest in, and awareness of, sustainability issues and practices elsewhere
8. Awareness of participation channels on SD initiatives
9. Keen sense and motivation to participate in SD initiatives locally and beyond

Source: [10]

TABLE II
SUBSTANTIVE BENEFITS OF THE ENGAGEMENT
PRINCIPLE

Engagement/Participation
1. Citizen buy-in into the SD policy, planning and implementation processes
2. Partnership and coalition building in the SD network
3. Sharing and learning about best practices in SD implementation
4. Collective sense of responsibility
5. Confidence in, and respect for, SD processes, institutions and policy makers
6. Infusion of experiential (culturally contextual) knowledge into SD processes
7. Incremental and pragmatic implementation of SD initiatives (healthy balance or mixture of indigenous and foreign SD practices)
8. Designation of roles and responsibilities based on competency, capacity and interests
9. Collaborative approach to sharing SD benefits and absorbing liabilities (we are in this together)

Source: [10]

Conceptually, operationalizing the sustainability pentagon draws from the two precepts of the pentagon itself, which are to raise awareness and to engage stakeholders meaningfully on all SD initiatives. The structural and procedural implications of these precepts, and of implementing the pentagon framework, are that:

1. Institutional mechanisms must be created at the local, regional and national levels to coordinate and oversee SD planning and implementation.
2. Concrete, actionable and culturally-contextual comprehensive SD plans must be produced at the grassroots level, jointly by all stakeholders from the local, regional, national and international levels.
3. Regional and national SD offices will serve merely as conduits for processing SD plans produced at the grassroots for funding at the national and international levels.
4. Regional, national and international SD officers will have more physical presence at the grassroots, where all practical actions occur, than at the regional and national levels.
5. Action on all aspects of any SD initiative must start at the grassroots, from planning through funding requests to implementation and reporting. All SD initiatives are vetted, approved or rejected at the grassroots. This ensures grassroots buy-in, legitimacy of initiatives, and a real sense of stakeholdership. It also promotes learning about SD, and helps to build community capacity for problem solving.
6. Grassroots processes feed into national and international processes, making the process bottom-up and mutually interactive. No SD action will be legitimate unless it emanates from the grassroots.

7. National and international initiatives are implemented, co-supervised, co-monitored and co-audited at the grassroots. This fosters a sense of true partnership, transparency and accountability. It also fosters confidence in SD governance.
8. The dividends of SD initiatives accrue directly at the grassroots.

The proposed institutional and procedural framework is simple, bottom-up and people-oriented. It puts the center of SD planning and implementation at the grassroots, thereby providing an opportunity for people to learn about SD initiatives and participate in SD processes. Ideally, it should replace the existing obscure, inept and corrupt National Centers for SD, which, according to UNECA [1], are misplaced in inappropriate governmental ministries. The framework will be managed transparently by technocrats in partnership with all other stakeholder representatives, rather than the current practice where bureaucrats from the national offices manage SD funds clandestinely.

V: THE HUMAN DIMENSION OF SD RESEARCH

The thrust of the human dimension of the SD challenge is people's core values and beliefs, reflected in their attitudes and behaviors toward the environment. The postulation in this paper is that SD research and discourse, especially in the post-industrial era, have largely overlooked or underestimated this dimension of the SD challenge, compared to research and development on technological and entrepreneurial solutions to the world's environmental problems. Consequently, in an effort to find solutions for the problems, more commonplace are massive investments by governments and corporations in space-based research, in constructing carbon-free cities, in inventing so-called green technologies, in developing carbon-trading credit programs, and in 'toothless' international environmental protocols and agreements, than in less capital-intensive educational, awareness and outreach programs that have the potency to alter people's environmental value systems, attitudes and behaviors.

The suggestion in this paper is that SD research must focus more in developing or designing programs and culturally contextual initiatives that enable societies to achieve the intent and purpose of SD individually and collectively, by informing, empowering and enabling people to develop the highest sense of environmental responsibility and ethics. The one-size-fits-all mentality behind many current SD programs needs to yield to pragmatic programs with local contents that are comprehensible for people, and with which people can indentify. SD research needs to strive more to develop programs that help to minimize the stress that human activities place on the LSS. Examples of such initiatives are the green development movement, which was popularized by the Rocky Mountain Institute's 1998 book titled 'Green Development;' the eco-municipality program, initiated by Swedish oncologist Karl-Henrik Robert, founder of The Natural Step (TNS) [5]; and, various environmental audit systems, such as Leadership

in Energy and Environmental Design (LEED), developed by the US Green Building Council (USGBC) and officially launched in 1998; the UK Building Research Establishment (BRE) Environmental Assessment Method (BREEAM), created in 1990 and used across the European Union; Hong Kong Building Environmental Assessment Method (HKBEAM), which has been in use primarily in Hong Kong, China and East Asia in general, since 1996; the Pearls system, was developed by the Abu Dhabi Urban Planning Council in 2009 for use in assessing new projects in the United Arab Emirates; the Green Star, which is the environmental design system most widely used by projects in Australia and South Africa since 2008; and France's High Quality Environmental standard or Haute Qualité Environnementale (HQE).

All the initiatives listed above combine innovative and cost-effective technologies and practices with attitudinal and behavioral changes on the parts of policy makers, technocrats, entrepreneurs and consumers. Through effective value-altering programs, humans would learn, as advocated by Naish [18], to say enough and break free from the consumerism that drives them to want more in the face of abundance. Consumerism is marked by 'greedy' tendencies that lead industries to exploit more natural resources to satisfy the voracity of the market.

Value, attitudinal and behavioral changes are most effective if targeted at the individual. Awareness through education, and civic participation, are two powerful factors that empower and enable individuals to make informed lifestyle choices, and the sustainability pentagon has the potential, especially if applied in Africa's rural communities, to enlighten and engage citizens for purposes of SD planning and implementation. This has been the case in terms of family planning, HIV/AIDs prevention, education of young girls, and other SD programs. In his popular book on sustainability planning, for example, Wheeler [19] discussed several 'tools for sustainability planning," among them Geographic Information Systems and mapping, environmental impact reporting, development path analysis, ecological and footprint analysis. Yet, he emphasized that, "among the most important tools for long-term change are strategies of education, communication, and consensus building," adding that "one common denominator behind such strategies is the recognition that for political or social change to occur people's beliefs, knowledge, values, and paradigms of thought must also change," (p.100).

VI. CONCLUSION

The paper reiterates its case for SD research to focus more on the human dimension of SD, hand-in-hand with research in technological and entrepreneurial solutions for the world's worsening environmental problems. Outside the context of human goals, needs and activities, SD is a non-issue. SD discourse is contextual only in terms of people's desires for a 'good' quality of life, for productivity and for entrepreneurship. All these are possible only through the quality and quantity (health, integrity and capacity) of each of the LSS listed earlier, and through people's use or exploitation of the resources. From the most primitive to the most advanced civilizations

ever witnessed in human history, these resources have been the basis of all life forms and their activities. Over time, the use of resources has intensified, going from basic or modest to egregious, due to factors, such as population, technology, consumerism and the SD perception. Research into how to preserve or ensure the health and integrity of the LSS has focused primarily on technological responses or solutions to the resource depletion and abuse problems. From the search for alternative energy to the development of green technologies, efforts and initiatives to safeguard the environment have underestimated or overlooked people's values, attitudes and behaviors toward the environment. Unfortunately, unlike technologies and programs, human values and attitudes are the most difficult to alter, yet they are the fundamental causes of the SD issues and problems the world has always faced.

Based on the predicate in this paper that the human element is the main cause of the world's SD problems, the paper contends that any and all solutions to the problems must necessarily factor in changing people's values, attitudes and behaviors, primarily through enlightenment and engagement. The sustainability pentagon prescribed in this paper in anchored in these the principles of enlightenment and engagement, in addition to those prescribed by the Brundtland Commission as environment, economy and equity.

Focusing specifically on Africa, this paper opines that the most formidable obstacle facing SD planning and implementation is ignorance or unawareness and disengagement at the grassroots level. Statistics on literacy and civic/political participation levels across Africa attest to this paper's contention African masses are clueless, are in the 'dark', and are not involved when it comes to SD planning and implementation. Consequently, not only is progress retarded on most SD initiatives, but the well-meaning support and financial contributions of international donors are wasted by the shameless corruption of public officials, technocrats and consultants.

The sustainability pentagon prescribed in this paper has the potential, if appropriately implemented, to address the complex and intertwined problems of SD planning and implementation in Africa. In this light, the pentagon would be a win-win framework for the key stakeholder sectors of society, namely, the private, corporate, non-profit and grassroots sectors.

It is crucial to state that, the potentials and advantages of the sustainability pentagon do not make its implementation any easy in the 'real' world of political intricacies. As Porter [20] cautioned, "translating the lofty ideals of sustainability into the rough-and-tumble world of everyday development can be a daunting task" (p.2). Yet, this task can be handled efficaciously if all societal stakeholders work collaboratively together on all aspects of SD planning and implementation. Such collaboration would result in a win-win situation for all stakeholder sectors, namely, the public, corporate, non-profit and grassroots sectors. The extant top-down, elitist approach to SD planning

and implementation in Africa has been ineffective in securing the buy-in and shared responsibility required of all societal stakeholders. Thus, the way forward must shift [19] the paradigmatic framework for SD planning and implementation, and SD research must lead the way in searching for feasible frameworks. This is what was intended and achieved in this paper.

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