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The Challenge of Managing Safety in Africa

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Abstract

The authors provided an empirical overview of the African regional and national socioeconomic influences on safety management and the leading causes of non-natural fatalities and injuries: Motor vehicle accidents and work accidents in both the formal and informal sectors. The authors point to three different theoretical approaches to African safety management that address the fact that the rate of motor vehicle deaths, for instance, was about 18 times higher than in the U.S. Recommendations for improving African safety management were also provided.

Keywords: African safety management

1. Introduction

While the Western nations of the G-20 are currently coping with the fallout from the Great Recession and financial solvency issues (Zakaria, 2011), the critical challenge of managing safety in Africa has been marginalized. It was, however, a more primary concern at the annual meeting of the leaders of the G-8 nations held in Gleneagles, Scotland on July 6 to 8, 2005. Former Prime Minister Tony Blair of the United Kingdom was the host of the meeting and had established the agenda, which was world poverty with an emphasis on Africa and the environment (Melloan, 2005). The second day of the meeting was interrupted by the terrorist bombing of the London subway that killed 52 people. A second but failed bombing occurred two weeks later. The sad irony of these events was that while the world leaders were meeting to discuss ways to reduce poverty in the world - particularly African poverty - terrorists, several from Africa, disrupted the meeting and diminished its results. Africa remains a continent with hope based upon vast natural resources and great human potential vastly outweighed by grinding poverty, unchecked disease, rampant government corruption and endless military/ethnic conflicts. This article provides an overview of the African population, economy and labor force and of the leading causes of non-natural fatalities and injuries, the formal and informal sectors, as well as recommendations for emerging African safety management.

2. Overview of the African Continent

The continent of Africa consists of close to one billion people, 54 countries and more than a 1,000 different language groups but it is the world's least developed continent on a per capita basis with 37 of the world's 50 least developed countries within its boundaries (Krabacher et al., 2011). Africa also has several vastly different geographic areas. The north-south orientation of the continent has created "zones differing greatly in climate, habitat, rainfall, day length and diseases of crops and livestock" (Diamond, 1997). The first of these zones, South Africa, is located in a temperate climate zone making it hospitable to Dutch and then English settlement, agricultural development, gold and diamond mining and industrial development. The nation of primarily black citizens has a population of 43 million, GDP of \$457 billion and a GDP per capita of \$10,600 similar to other second world countries in Eastern Europe and Southeast Asia as the Czech Republic and Malaysia. The coastal Mediterranean lands of the second zone, North Africa, are politically divided into the nations of Algeria, Egypt, Libya, Morocco and Tunisia. These nations have a combined population of 156 million people and GDP of \$720 billion or \$4,600 per capita.

The current dramatic military and political changes in Egypt, Tunisia and Libya related to the “Arab spring” have had immense safety impacts on those countries. Agriculture on limited but productive land sustains the economy while oil, gas and minerals increase national incomes. Similar second world countries are Bulgaria in Eastern Europe and the Philippines in Southeast Asia. Sub-Sahara Africa or SSA is the third major zone or subdivision. The tropical climate of central Africa is significantly different than either of the other two parts of the continent. SSA with 678 million people, a total GDP of \$746 or \$1,100 per person, remains mired in poverty with over 60% of its population subsisting on less than \$400 per year or \$1 per day and 90% of its population surviving on less than \$700 per day (Sachs, 2005). SSA has been politically subdivided into 42 independent nations; some like Nigeria, Sudan and Kenya are populous but desperately poor and others like Equatorial Guinea are both tiny and poverty stricken. The people subsist on low productivity agriculture and on minor cash crops that cannot compete in world markets. The continent also is made up of one large island, Madagascar, and also five tiny island nations with a total population of 250,000 and a GDP of \$3 billion or \$1,200 per person (Brunner, 2005). Tables 1A and 1B provide further economic and population data about Africa by nation.

3. Principal International Influences

Leaders of the G-8 nations meeting at Gleneagles, Scotland in July 2005 agreed to forgive \$50 billion of debt, mostly uncollectible, from the 18 designated Highly Indebted Poor Nations or HIPC's, including the greatest number (14) which are located in Africa. This is in addition to “the \$62.1 billion ...that U.S. foundations, corporations, nonprofits, educational institutions, religious groups and individuals gave to all developing countries...and \$51 billion (some to Africa) in private capital investment.” (Melloan, 2005). Following the meeting, Laura Bush, the wife of former President Bush traveled to South Africa, Tanzania, Zanzibar and Rwanda to show American support for the troubled continent (Kelley, 2004; Lipper, 2005). The United Nations provides leadership by means of their Millennium Development Programme and by the operation of the World Health Organization and the International Labour Office. Under the leadership of the former Secretary-General Kofi Annan, in 2000 the UN established eight world goals to be reached by 2015. These goals are to: Eradicate extreme poverty and hunger, achieve universal primary education, promote gender equality and empower women, reduce child mortality, improve maternal health, combat HIV/AIDS, malaria and other diseases, ensure environmental sustainability and develop a global partnership for development (Annan, 2003).

The World Health Organization in Geneva collects and disseminates statistics, organizes meetings, communicates and funnels monies in order to combat deaths, illnesses and injuries caused by both natural and non-natural or accidental means (World Health Organization, 2004). The International Labour Office, also located in Geneva, performs similar functions regarding the world labor force and provides useful data about workplace deaths and injuries (International Labour Office, 2010). The World Bank in Washington, D.C. makes development loans to nations but has concluded that Africa desperately needs “improved governance and conflict resolution, increased investments in people, increased competitiveness and diversified economies and reduced aid dependence and stronger partnerships” (Gelb, 2000). In addition to initiatives from the United Nations, global private sector initiatives that design and implement Occupational Health and Safety Management Systems (OHSMS) certified under OHSAS 18001 provide another international standard to measure an organization's systemic capacity to manage occupational health and safety risks (OHSAS, 2011). The National Safety Council in Itasca, Illinois publishes international statistics which include some African nations and was the host of the XVII World Congress on Safety and Health held in Orlando, Florida in 2005 (Hoskin, 1999; Parker, 2005).

4. Three Approaches to African Safety Management

Three authors provide three contrasting views about how to deal with the difficult safety management problems in Africa and the conditions that contribute to the problem. First, Jeffrey Sachs from Columbia University, writing in *The End of Poverty: Economic Possibilities for Our Time*, proposes that nations dedicate .7% of their GDP to foreign aid for the poor, the monies to be administered by a central planning agency administered by the United Nations (Sachs, 2005).

Second, George Ayittey from Ghana but teaching at the American University proposes a much different approach to the problems in Africa. In his book, *Africa Unchained: The Blueprint for Africa's Future*, George Ayittey writes that Africa rejected both colonialism and capitalism when nations achieved their independence following World War II and that this led to centralized planning and to corrupt governments.

Leaders of these governments proposed grandiose but unrealistic projects to industrialize and move their nations forward but ended by stealing monies from foreign trade and from tax revenues and moving these funds to their personal foreign bank accounts. George Ayittey asks for independent judiciaries, independent media and independent central banks and foreign support sent directly to regions and to villages in order to bypass the frequently corrupt national governments (Ayittey, 2005).

Third, Bjorn Lomborg, who is a Danish statistician and has established the Copenhagen Consensus, advocates an attempt by leading economists to set priorities for spending on Third World development using traditional cost-benefit analysis. His resultant book is entitled *Global Crises, Global Solutions*. The book concludes that the most cost effective ways to help the world's poor are to combat HIV/AIDS, provide micronutrients, liberalize trade and control malaria. Other approaches labeled good are to improve agricultural technology, improve individual water supplies, establish or improve community managed water supplies and sanitation, better utilize water in agriculture and lower the cost of starting a new business. Least effective approaches are support of guest worker programs for the unskilled, the Kyoto Protocol and taxes on carbon usage (Lomborg, 2004).

The selection and/or endorsement of one or more of these approaches directly influences African safety management analysis and resolutions. The tensions among these approaches have provided fodder for frequent criticism of international intervention into African safety management problems (Greene, 2005).

5. Regional and National Influences

Regional and national influences on accidental deaths and injuries in Africa are provided by governmental legislation including workers' compensation and safety regulations and penalties, by non-governmental organizations (NGOs) and by associations and employers. As expected there are wide variations in approaches to safety in Africa.

There have been many regional conferences, meetings and calls for action. The International Commission on Occupational Health (ICOH) and the WHO/ILO Joint Effort on Occupational Health in Africa have sponsored periodic meetings in Africa and elsewhere to focus attention on this problem (ICOH, 1995; Takala, 1999; WHO, 2003). The African Newsletter on Occupational Health and Safety, sponsored by the Finnish Institute of Occupational Health, has provided valuable information since 1990 (Rantanen, 2005). The African Development Report prepared by the African Development Bank summarized the economic performance of the continent but also emphasized the necessity of improving the health and longevity of the people in Africa as a prerequisite for improving economies (Kabbaj, 2001).

South Africa is both the wealthiest African nation and the most progressive with regard to safety and, consequently, can afford to provide the most detailed information. The country has progressive, up-to-date and relevant laws. Most important of these are: The Compensation for Occupational Injuries and Diseases Act (1993) and the Occupational Safety and Health Act (1993), which are administered by the Department of Labour and by the National Centre for Occupational Health (NCOH), which are headquartered in Johannesburg (South African Department of Labour, 2011). Motor vehicle safety activities are under the jurisdiction of another government department, the South African Transport Service, which mandates vehicle safety standards. However, lax enforcement characterizes this progressive legislation and this has led to substandard performance (Joubert, 2002). The National Business Initiative, the Association of Societies for Occupational Safety and Health (ASOSH) and the National Occupational Safety Association (NOSA) are the best known South African associations in this area. An exemplar of corporate communication in this area, Goldfields, Ltd, the South African based gold mining firm, includes safety in its annual report and fully measures and evaluates performance in this important area of human resource management (Gold Fields, Ltd 2004). Tables 3 and 1A provide quantitative information about the economy and the safety performance of South Africa.

Sub-Saharan African countries, for the most part, have significantly less successful economies and take a much different approach to the safety of their citizens. Ghana is such a country. This small West African coastal nation of 21 million people has a GDP of \$45 billion or \$2,200 per person and was a British colony until 1957 (Lomborg, 2004). Sixty percent of the workforce is engaged in subsistence agriculture typically growing food for the family on about four acres and a cash crop such as cocoa on another four acres of land (Ayittey, 2005; Central Intelligence Agency, 2005).

In 2002, the Ministry of Manpower Development and Employment called a meeting of government, labor and business stakeholders to discuss the establishment of a national policy and the updating of outdated, fragmented and unenforced 1970 legislation regarding occupational safety and health. Recommendations were made but no action has been taken (Tettey, 2003). The first step in control is the accurate reporting of work fatalities but Ghana has not yet taken this step. While the Department of Factories Inspectorate and the Ministry of Manpower Development and Employment reported that 2 work fatalities occurred in Ghana in 2003, the International Labor Organization reported that 1, 852 work fatalities occurred or 19 per 100,000 workers (WHO, 2003). In addition, 1,212 people were killed as the result of vehicle accidents or 73 per 10,000 motor vehicles. Both of these rates, while typical of Sub-Sahara Africa, are far greater than the rates in other countries (Department of Factories Inspectorate, 2005; Romania Factbook, 2005; Regoeng, 2003).

6. Causes of Death in Africa

Africa, with a population of 877 million people, experiences approximately 12.8 million deaths each year (Findley and Gorski, 2005). The leading causes of death in Africa are HIV/AIDS, 25%; malaria, 13% and respiratory infections and diarrheas primarily the result of malnutrition, 23%. Other major causes of death are prenatal conditions, measles, tuberculosis, cardiovascular and heart disease which together total 27% of all deaths. These and other less frequent types of death are labeled natural deaths and account for 91% of all deaths. The remaining 9% of all deaths are labeled non-natural deaths. The 296,000 deaths caused by motor vehicles, formal sector work deaths and informal sector work deaths are about one third of all such non-natural deaths and 2.3% of all deaths. However these accidental deaths are even more serious because they most frequently kill more productive individuals who are in the labor force. Therefore, in terms of disability-adjusted-life-years (DALY) they are disproportionately costly. The remaining causes of non-natural deaths are wars, interpersonal violence, drowning, fires and poisoning (Ezzati, 2002; Murray, 1997; WHO, 2000).

7. Accidental Deaths in Africa

The three most frequent types of accidental deaths and serious injuries in Africa involve motor vehicles, formal sector work activities and informal sector work activities. The operation of the 31.5 million licensed motor vehicles in Africa results in 170,100 deaths and 6,117,000 injuries annually (Gaspers, 2004; Mojafi, 2004). The rate of motor vehicle deaths per 10,000 vehicles is 46, which is about 18 times higher than the rate in the USA. As expected motor vehicle accident rates are high in South Africa, higher in North Africa and unacceptably high in Sub-Sahara Africa. Vehicle death rates per 10,000 vehicles are 339 in the Central African Republic, 195 in Ethiopia, 193 in Malawi, and from 60 - 120 in most other Sub-Sahara African nations (Parker, 2005). These rates are far higher than those of any other country in the world (Romania Factbook, 2005; Safecarguide.com, 2005). All of this is in spite of the fact that there are only 31.5 million motor vehicles in Africa or 28 people per licensed vehicle compared to almost one vehicle per person in the USA and five people per vehicle in Mexico. The reported 6,117,000 injuries each year were 2,440 per 10,000 vehicles or almost one injury for every four vehicles (WHO, 2000). In order to deal with this great and increasing problem, effective registration of vehicles, licensing of drivers, improvement of vehicle integrity, installation and use of seat belts, increased vehicle insurance, objective accident investigation and uniformly assessed penalties for those responsible for accidents are the most obvious ways to deal with the epidemic of motor vehicle deaths and injuries. As countries become more prosperous and less corrupt, improvements in motor vehicle death and injury rates should decrease (Gaspers, 2004). Table 2 provides additional quantitative information comparing economic and accident data for the US, Mexico, and Africa.

The International Labor Organization reported that 63,600 work deaths occurred in the 54 African countries and that an estimated 7,560,000 disabling work injuries occurred (ILO, 2010). Reporting of work deaths continues to be a large problem in Africa (Ayittey, 2005). The South African government reported 581 deaths while the ILO calculated the number to be 2,643; Egypt reported 149 and the ILO 3,884 and Ghana reported 2 while the ILO reported 1,852 deaths. Disabling work injuries have been conservatively estimated to be 120 per fatality following international conventions. With a labor force of 323 million people, the work fatality rate is 19.6 per 100,000 workers and based upon these conservative estimates, the disabling work injury rate is 2.4 per 100 workers (Findley and Gorski, 2005). Because of a complete lack of data, estimates about the number and seriousness of occupational disease are almost impossible to make. Because of the increased risks of occupational diseases caused by dusts, mists, vibration, noise and other environmental risks in third world Africa, it has been estimated that 10% of work deaths and of disabling work injuries are of this type (Leigh, 1999).

Table 3 provides additional quantitative information on selected comparative economic and accident data from South Africa, North Africa and Sub-Sahara Africa.

8. Recommendations for Improvement

Recommended actions to reduce these accidents include: The establishing and properly administering workers' compensation laws which can encourage employers to better protect their employees, providing first aid training and facilities to properly treat those on-site who are injured at work, establishing policies and programs to encourage employee safety which emphasize the most cost effective activities such as complete records, new employee safety orientation and safety training.

In order to provide complete information about the number of fatal and disabling accidents in Africa, it is necessary to estimate the number of such occurrences in the informal labor sector of the economy. With low incomes and high unemployment in the formal sector, it is necessary for most family members to work in order to have enough to live on. Those who are not employed in the formal sector but work are in the informal work sector on family agricultural plots and in urban areas as street vendors, beach boys, door-to-door service providers, and other menial service providers. It is estimated that approximately 300 million people work in this informal sector and that fatality rates are 16 per 100,000 workers and that disabling injury rates are 8 per 100 workers. This would add about 63,000 work deaths and about 23 million disabling work injuries to the reported incidents involving motor vehicles and the formal work sector (Karanji et al., 2003; van Niftrik et al., 2002).

While it is more difficult to reduce and control such incidents, recommended positive steps include: Increased awareness of fatal and disabling accident risks through more accurate measurement and reporting of such incidents, support for the survivors of those killed, provision of satisfactory on-site medical care to those hurt, improved first aid and medical facilities and public media encouragement of safe practices by peers and local leaders.

9. Conclusions

The purpose of this article is to provide an overview of the challenges of managing safety in Africa. The broad subject of the article has required that an overview be provided in order to place the subject of safety in a continental setting. This strength is also a weakness because it has required that the complex issues, which set the continent of Africa apart from the rest of the world, be briefly summarized and simplified. Also, accurate information about safety in Africa has been difficult to almost impossible to obtain. It is hoped that this article will provide some new insights into the subject, spotlight and prioritize African safety management issues and stimulate further research interest in this important topic. The people of Africa cry out for our improvements in safety management.

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Table 1A. Select economic and population data for Africa by nation

Nation	GDP in \$ billions	Population in millions	GDP per capita	Labor force in millions	Unemployment	Life Expectancy
S. Africa	\$505	49	\$10,300	17.38	24 %	49 years
<i>North Africa</i>						
Algeria	\$241	34	\$7,100	9.74	10%	76 years
Egypt	\$470	80	\$6,000	25.40	9%	72 years
Libya	\$85	6	\$13,400	1.69	30 %	77 years
Morocco	\$91	32	\$4,700	11.46	9%	76 years
Tunisia	\$86	11	\$8,200	3.74	15%	76 years
<i>Sub-Sahara Africa</i>						
Angola	\$107	13	\$8,400	7.77	N/A	38 years
Botswana	\$25	2	\$12,800	0.68	8%	61 years
Burundi	\$3	10	\$300	4.25	N/A	58 years
Cent. Africa	\$3	5	\$700	1.93	8%	50 years
Congo	\$16	4	\$3,900	1.51	N/A	55 years
Dem.Rep. Congo	\$22	70	\$300	23.53	N/A	55 years
Cote d'Ivoire	\$36	21	\$1,700	7.44	N/A	56 years
Djibouti	\$2	0.74	\$2,700	0.52	59 urban 83 rural	61 years
Eritrea	\$4	6	\$700	1.94	N/A	62 years
Gabon	\$21	2	\$14,000	0.63	21%	53 years
Guinea	\$10	10	\$1,000	4.40	N/A	58 years
Kenya	\$63	40	\$1,600	17.47	40%	59 years
Liberia	\$2	4	\$400	1.37	85%	57 years
Malawi	\$13	15	\$800	5.75	N/A	51 years
Namibia	\$14	2	\$6,600	0.71	51%	52 years
Nigeria	\$339	152	\$2,300	47.33	4.9%	47 years
Sierra Leone	\$5	5	\$900	2.21	N/A	56 years
Somalia	\$6	10	\$600	3.45	N/A	50 years
Sudan	\$93	44	\$2,300	11.92	18%	54 years
Zambia	\$18	13	\$1,600	5.40	50	53 years
Zimbabwe	\$98	12	\$100	3.84	95%	48 years

Source: Editors (2010). *World Factbook* (Washington, D.C., CIA).

Table 1B. Select economic and population data for Africa by nation

Nation	GDP in \$ billions	Population in millions	GDP per capita	Labor force in millions	Unemployment	Life Expectancy
<i>Sub-Sahara Africa With Debt Relief</i>						
Benin	\$14	9	\$1,500	3.66	N/A	59 years
Burkina-Faso	\$19	16	\$1,200	6.67	77%	53 years
Chad	\$19	11	\$1,900	4.29	N/A	48 years
Cameroon	\$43	19	\$2,300	7.28	30%	54 years
Ethiopia	\$77	88	\$900	37.90	N/A	56 years
Ghana	\$36	24	\$1,500	10.33	11%	61 years
Madagascar	\$20	21	\$1,000	9.50	N/A	63 years
Mali	\$16	14	\$1,200	3.24	30%	52 years
Mauritania	\$6	3	\$2,000	1.32	30%	61 years
Mozambique	\$22	22	\$900	9.77	21%	41 years
Niger	\$10	16	\$700	4.69	N/A	53 years
Rwanda	\$11	11	\$1,000	4.47	N/A	57 years
Senegal	\$22	13	\$1,600	5.58	48%	59 years
Tanzania	\$58	42	\$1,400	21.23	N/A	52 years
Uganda	\$38	34	\$1,200	15.01	N/A	53 years
<i>Sub-Sahara Africa Smallest</i>						
Cape Verde	\$2	0.51	\$3,600	0.20	21%	70 years
Comoros	\$0.77	0.77	\$1,000	0.27	20%	64 years
Equatorial Guinea	\$24	0.65	\$37,500	0.20	30%	62 years
The Gambia	\$2	2	\$1,400	0.78	N/A	54 years
Guinea-Bissau	\$2	2	\$1,100	0.63	N/A	48 years
Lesotho	\$3	2	\$1,600	0.85	45%	51 years
Mauritius	\$17	1	\$13,000	0.59	7.3%	74 years
Sao Tome	\$0.30	0.20	\$1,700	N/A	N/A	63 years
Seychelles	\$2	0.09	\$20,800	0.04	2%	73 years
Swaziland	\$6	1	\$4,400	0.46	N/A	48 years
Togo	\$6	7	\$900	2.60	N/A	62 years
Western Sahara	\$0.90	0.49	\$2,500	0.01	N/A	61 years

Source: Editors (2010). *World Factbook* (Washington, D.C., CIA).

Table 2. Comparisons of selected economic and accident data for the USA, Mexico and Africa

Country	USA	Mexico	Africa
Population	310 million	112 million	877 million
Gross Domestic Product	\$14.14 trillion	\$1.46 trillion	\$1923 billion
GDP per Capita	\$46,000	\$13,200	\$2,200
Total annual deaths	23,000,000	430,000	12,800,000
Accidental deaths	93,000	35,000	500,000*
Accidental death rate per 100,000 people	35	39	103
Motor vehicle deaths	42,300	13,500	170,100
Motor vehicle deaths per 10,000 vehicles	1.8	14	68
Annual work deaths	4,900	1,200	63,600
Work deaths per 100,000 Workers	3.6	9.0	19.6
Disabling work injuries	3,700,000	441,000	25,200,000*
Annual disabling work injuries per 100 workers	2.7	2.5	7.8

* estimated figure

Sources: Editors (2010). *The International Factbook* (Washington, D.C., Government Printing Office); Hoskin, A. (2009). *International Accident Facts* (Itasca, IL, National Safety Council); www.safecarguide.com, International Injury and Fatality Statistics, 2010; www.corporateaccountability.org/international/deaths, Number of Worker Deaths in Countries in Africa, 2010.

Table 3. Selected economic and accident data South Africa, North Africa and Sub-Sahara Africa

Subject	South Africa	North Africa	Sub-Sahara Africa
Population	49 million	156 million	678 million
Gross Domestic Product	\$505 billion	\$720 billion	\$746 billion
GDP per capita	\$10,300	\$4,600	\$1,100
Unemployment	24%	27%	31%
Average life expectancy	49 years	73 years	43 years
Motor vehicle deaths	11,400	19,800	138,900
Motor vehicle deaths Per 100,000 people	26	13	21
Motor vehicle deaths Per 10,000 vehicles	17	23	112
Work deaths	2,643	8,931	52,063
Work deaths per 100,000 workers	16	19	20
Disabling work injuries	7,012	1,200,000*	6,000,000*
Disabling work injuries Per 100 workers	.04	3*	3*

* Estimates based upon reported work deaths

Sources: Editors (2010). *International Factbook* (Washington, D.C., Government Printing Office); www.safecarguide.com, International Injury and Fatality Statistics, 2010; www.corporateaccountability.org/international/deaths, Number of Worker Deaths in Countries in Africa, 2010; www.labour.gov.za, Useful Documents, South African Department of Labour, 2010.