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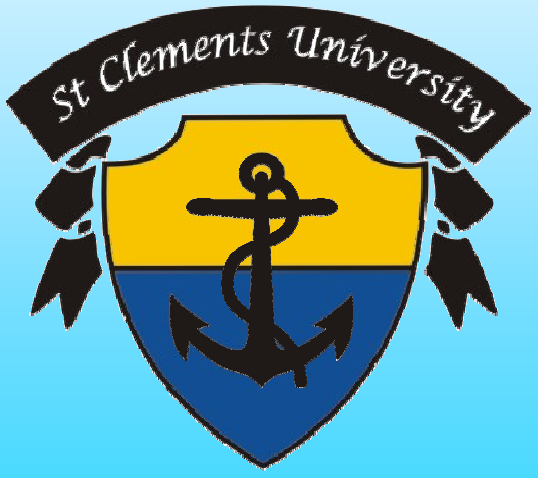

Promoting Renewable Energy in Sub-Saharan Africa

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*_Veritas_ is Latin for truth, reality.

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THE ACADEMIC JOURNAL OF ST CLEMENTS EDUCATION GROUP

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Bio-Fuel on the Slopes of Zomba Mountain, Malawi *Photo JSP*

IN THIS ISSUE

PROMOTING RENEWABLE ENERGY IN SUB-SAHARAN AFRICA

Nya Joe Jacob*

Woody biomass from forest management is a renewable, low-carbon feedstock that can substitute for fossil fuels in the production of energy and other products — a potentially important tool in the national strategy to reduce greenhouse gas emissions and resist global climate change. Markets for logging residues, small diameter trees, and other low-value forest products can add value to working forests, help provide financial alternatives to land clearing and development, and create incentives for investing in sustainable forest management. Forest thinning and removal of small-diameter, low value trees, are integral parts of forest management for a number of values and objectives including biodiversity conservation, ecological restoration, wildfire prevention, and timber stand improvement. There is also the potential for increased demand to drive unsustainable levels of harvesting, with negative consequences for biodiversity, soil, and water conservation.

Government policies should strive to ensure the sustainability of woody biomass harvesting; this will go a long towards winning the public trust that is so essential if bioenergy is to be become a trusted and utilized component of the national energy system. Today, concerns about the environmental impacts associated with fossil fuel use, particularly global climate change, have added new immediacy to the development of alternative energy systems. Biomass energy systems are among the alternative systems under development. There is enormous biomass potential in Africa that can be tapped by improving the utilization of existing sources, developing more efficient and advanced technologies to convert raw biomass into easy-to-use carriers (electricity, liquid or gaseous fuels, processed solid fuels) and by increasing plant productivity. Therefore, much more useful energy could be extracted from biomass than at present, bringing significant social and economic benefits to both rural and urban areas and to the environment.

BACKGROUND

Sub-Saharan Africa has 9% of the world's population, and is responsible for 2.5% of world economic activity measured by volume. It comprises 48 countries, most of which have a high percentage of low income and largely rural agrarian communities.

The region consumes 2.7% of world commercial primary energy. It has 2% of world proven oil reserves, 3% of world proven gas reserves and 6% of world proven coal reserves. There is a large hydropower potential, in excess of 1,383 GWh/a. Other energy resources include uranium deposits and a consistently high level of solar insulation. Despite these extensive primary energy resources, commercial energy use is the lowest in the world and the average per capita final commercial energy consumption is less than 300 kg of petrol equivalent per inhabitant/annum, compared with 7,905 kg in North America and the world average of 1,434 kg (World Bank Index 1996). The most optimistic estimates have the ratio of consumption between the North and South stagnating at 5.6:1 over the coming decades (6.5: 1 in 1985). In terms of electrical energy use, the gap is even more glaring - 40% of the population of the world (essentially in the third world) is completely excluded. This raises questions concerning under-consumption on the one hand and the 'quality' of energy consumed by Africans south of the Sahara on the other.

More than half the countries of the region spend 20 to 35% of their total export earnings on petroleum. The main forces driving the demand for energy are population growth and economic development. The exposure and vulnerability of sub-Saharan African economies contributed to the severe economic downturn during the period of high oil prices in the 1970s and early 1980s. The distribution of primary energy resources across the region is uneven. Nigeria and Angola have 32% of Africa's proven oil reserves while virtually the rest, 65%, is in North Africa. Nigeria has 33% of Africa's proven gas reserves, while North Africa has 56%. South Africa has 88% of Africa's proven coal reserves. Of the 308 GW of hydro-power potential, 64% is located in East and Central Africa and 34% in West Africa. Regional trade in both fuels and electricity is relatively low.

There are numerous difficulties associated with compiling information on the energy situation in sub-Saharan Africa. To begin with there is a paucity of data - there is no single work dealing with the entire situation in all its aspects in existence, though such a work is under production at present. This is partly due to the relatively recent acquisition, on the part of most states, of central institutions to deal specifically with this problem, and partly due to the unique context of the regional energy scene. An enormous section of the African economy is informal, and this applies particularly with regard to energy resources, the majority of which are produced and received utterly without reference to the commercial sector. Data must then be compiled from sources other than market tracking - surveys, and estimations of use of resources. Information coming from many different bodies, governmental, international or NGOs, is often out of synch, and frequently contradictory, depending not only on the source but also on the viewpoint of the researcher on the major problems to be addressed. In addition, many countries do not have sufficient tracking mechanisms of their energy resources and usage (22% of regional countries regard energy as a 'subordinate activity', according to the African Development Bank), suggesting that all projections concerning the region as a whole are merely approximate.

METHODOLOGY

The most striking feature of the African energy situation is over-consumption of low grade traditional energy sources such as fuel-wood, charcoal and non-woody biomass on the one hand, and under-consumption of high quality modern fuels like coal, Liquefied Petroleum Gas(LPG), natural gas and New and Renewable Source of Energy (NRSE) on the other. Large disparities exist among countries in sub-Saharan Africa, with only five countries accounting for 70% of total modern energy consumption for the region (Nigeria, RSA Cameroon, Botswana and Zimbabwe). National per capita energy consumption varies by a factor of more than 10 between the highest user and the lowest (World Bank, 1990). Enormous disparities also exist between urban poor and rural users and the higher income groups throughout the region.

Per capita energy consumption has been declining over the last 10 years and is set to decline even further as population continues to increase and electricity generation continues to show a downward trend. The generation of hydrogen-based electricity has dropped by more than 20 per cent in the past decade (US Department of Energy, 1991).

Traditional fuels account for over 60% of total energy consumption throughout sub-Saharan Africa (see Figure 1), and in certain regions, such as Burundi and Burkina Faso, the figure is as high as 90%. The oil producing countries do not show any major deviations from this situation. Since household energy use stands at about 68% of total energy consumption, and traditional fuels account for 77% of household consumption in the region as a whole, it is clear that the household is the major actor in energy matters, the major user of primary energy sources, and furthermore, the major decision-maker in terms of practicable energy policy throughout sub-Saharan Africa. Official spending on biomass, standing at about 2.2% of total allocation of energy funds (see Figure 2), is markedly disproportionate to the stature of this fuel source in the region.

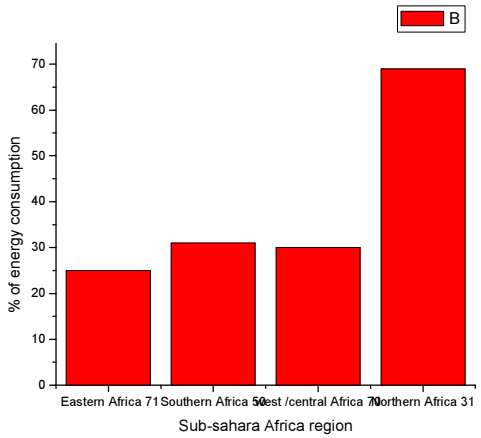


Fig. 1: Traditional Fuels - Share of Household Consumption of Energy by Sub-Region (%).

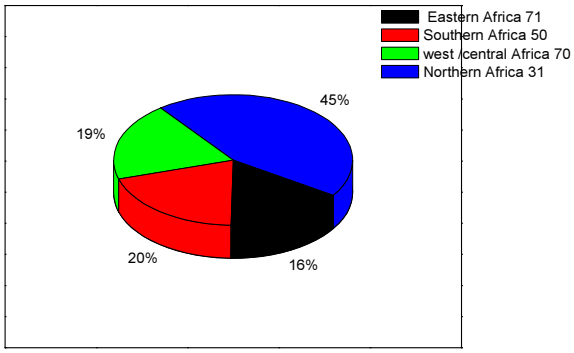


Fig 2: Household Consumption of Energy by Sub-Region

There is more variation in the reliance on traditional fuels in the East and Southern region than in West and Central Africa, ranging from 14% in RSA to 70% in Sudan. It is estimated that, on average, the Southern region, excluding RSA, relies on fuel-wood for 89% of its energy needs. With the inclusion of RSA this reliance declines to 58%, illustrating the difficulties of regional generalizing. In North Africa, biomass (largely residues) represents about 30% of the energy balance of a country such as Morocco.

The traditional energy sources are clearly not efficient enough to service energy intensive activities and therefore much of the debate surrounding energy resources in sub-Saharan Africa concerns the harnessing or importation of other fuel sources for the support of nascent industries and services. On the other hand there is also a question mark over the ability of woody biomass resources to cater for the majority of sub-Saharan African peoples who depend on it for their basic subsistence.

In spite of the enormous biomass potential in Africa, the very unequal distribution of resources is a major problem to sustainable supply and contributes to the deforestation of several zones in the sub-region. In Southern Africa, for example, the forest cover of Malawi is only 0.38% as against 53% for Swaziland.

Although biomass is a renewable resource, its over- or miss-use can lead quickly and easily to shortages as was witnessed in the 'fuel-wood crisis' in North Africa in the eighties. Despite many predictions that a similar crisis would overtake parts of sub-Saharan Africa, nothing on that scale has yet taken place. However in many areas wood-fuel resources are under severe pressure, a fact reflected in the growing use of inefficient and unhealthy non-woody biomass resources such as animal wastes and crop residues in some rural areas, and increasing prices for woody biomass in most urban centers. Land clearing in certain areas has meant a notable increase in actual labour consumed, especially in terms of distance travelled in order to secure a sufficient supply of fuel. The area of cleared land around Khartoum, for example, already stands at a 400 km radius and is expected to reach 600 km by 2005. Considering that at the same time real wages throughout the region have been steadily falling,

the question of fuel supply in sub-Saharan Africa requires urgent appraisal.

Many sub-Saharan African countries share the problem of over-exploitation of wooded lands. Vast areas that were once highly productive in terms of biomass yield have been completely depleted. Estimates indicate that over 11 million hectares of tropical forests are lost annually under excessive clearance and mismanagement. The African Savannahs (12.5 million km^2) are being cut down and depleted at an accelerated rate. In the Sudan 31 km^2 of the woodland Savannah are lost annually, while Ethiopia is left with only 3% of its total forest cover. In Nigeria, 12.5 million ha are subject to ecological degradation, while up to 2 million ha have been lost to date.

At the same time, information on the extent of the loss of biomass, often equated with deforestation, is highly inaccurate and sometimes contradictory. In countries like Mali, Burkina Faso and Kenya, recent studies tend to invalidate the trends forecast in the 1980's of a major depletion of supply and demand of traditional energy sources, and that this situation would become even more aggravated. In fact, it now seems that the productivity of forests and the number of trees might have actually increased, rendering the fuel-wood deficit uncertain and, in all instances, localized.

The African Development Bank notes that there is a fundamental flaw in the assumption on which analysis of energy supply and demand is founded, specifically that diminishing fuel-wood supplies are a result of inexorable growth in household consumption. There is, however, much evidence suggesting that the major cause of deforestation is not fuel-wood demand but land-clearing for agricultural production and human settlements.

Furthermore, the official and donor's conception of the problem has often been at odds with the perceptions of the populations concerned. Local people do not necessarily perceive fuel-wood in itself as a problem or even a priority, considering the range of difficulties they often face. Since wood is considered a free commodity in rural areas, fuel production appears to be economically unattractive to the individual smallholder. Woody biomass plays an important role in the entire agricultural production system on which people's subsistence depends. These needs include fodder, fertilizer, food, fruits, medicine, dyes, cultural/religious and environmental protection. Fuel-wood is therefore largely regarded as a by-product. Equally, therefore, the threat of extinction or significant reduction of woody biomass resources in a particular area is synonymous with a threat to the sustainability and well-being of African populations.

DISCUSSION

Throughout Sub-Saharan Africa the population continues to increase at a rate of 3% per annum. However the average age has decreased over the past three decades, and currently 45% of the population is aged less than 15 years. Due to the changing trends in the age structure, the equilibrium between the active population (15-60 years) and the dependent population (less than 15 years and over 60 years) will equally undergo some modification. It is also estimated that the urban-dwelling population will rise from 34.5% in 1990 to more than 50% by the year 2000. Rural areas tend to be almost exclusively consumers of wood while the urban centers prefer charcoal.

The literature on the fuel-wood question suggests that there are a host of complex sociological, economic and ecological factors which actively shape the nature and magnitude of the energy crisis confronting poor households in Africa. Reference is often made to scarcity of labour, transport difficulties, competing demands for wood products, land tenure systems and patterns of population settlements and movement. It has been stressed that there is a close link between energy, water and food, and that fuel scarcities, while serious, are only one of the numerous difficulties which threaten survival. Fuel-wood shortages are a symptom of widespread rural poverty and are linked to the more fundamental dimensions of survival, production and land management.

Commercial fuel consumption for this region is about the lowest in the world. This clearly reflects upon the low level of economic activity in the region. In the continent as a whole, access to electricity stands at about 20%. In rural areas it is generally below 5%. South Africa accounts for 75% of all commercial energy consumption in the region.

Commercial fuel supplies are used mainly in and around the mining and urban enclaves to satisfy the needs of transport, industry, services, households and a small amount for commercial agriculture. The commercial energy mix of countries within the region varies considerably, and is to a large extent dependent on the composition of energy resources. All the countries in the region rely on oil to a large extent. With the exceptions of South Africa and Zimbabwe, petroleum represents the largest source of commercial energy. In all cases, besides Angola, Cameroon, Nigeria and Gabon, the demand is met by imports. This causes a growing drain on the economies of many countries and uses up scarce foreign exchange earnings. In Tanzania, for example, although oil constitutes only 7% of total energy consumed, it costs the nation over 60% of its total export earnings in 1985 (WEC, 1992). The consumption of petroleum products also represents a key source of revenue for the region's governments through taxes and surcharges.

The transport sector consumes a large section of the commercial energy supply, and passenger transport by car absorbs the vast majority of the energy use in the transport sector. The number of cars per 1000

	Industry	Transport	Residential	Total
Solid fuel	3.8	0.2	1.2	5.2
Petroleum products	12.5	21.1	11.9	45.5
Gas	4.7	-	0.02	4.7
Electricity	1.9	-	1.3	3.2
Total conventional energy	22.9	21.3	14.5	58.7
Biomass	3	-	93	96
Total	25.9	21.3	107.5	154.7

Source: ADB, Energy Sector Policy 1994.

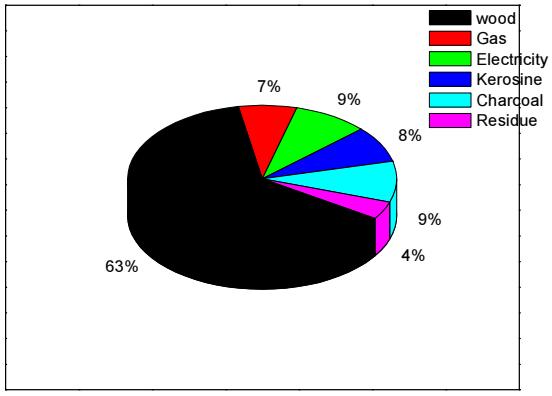
Table 1: Energy Consumption in Sub-Saharan Africa (Million TOE)

the region varies from 4 in Sierra Leone to 17 in Cote d'Ivoire. The average for Africa is about 7, which is high compared with other developing countries (Korea: 6; India: 2; Bangladesh: 0.3).

Mining and non-energy intensive industries dominate the industrial sectors. There are, however, a few energy intensive industries, such as VALCO, a trans-national aluminium production company in Ghana, petroleum refining companies in many countries, and fertilizer companies and steel and cement plants in Nigeria.

While commercial energy accounts for most of the demand of industry, transport and agriculture (see Table 1), the vast majority of energy use remains centered on the household where non-commercial fuels pre-dominate, thereby skewing the data of energy use patterns in sub-Saharan Africa to some extent. The predominance of household energy use in the region, and of wood and charcoal in the household has recently been given some of the attention it clearly deserves, particularly by the African Development Bank (ADB) That said, data collection, which relies more on survey than national statistics, does not encompass all nations equally as of yet.

The energy consumption of the household (defined as a group of individuals with or without family ties, taking their meals together, pooling their financial resources, acting under the same authority) in sub-Saharan Africa has preponderance over the total demand of all other sectors put together and relies overwhelmingly on traditional fuels. Biomass supply for household energy consumption in Africa exceeds current demand, and the supply structures to fuel-wood buyers in urban and rural areas are currently quite adequate. However, this overall picture fails to depict the acute shortage in selected pockets in each African country**.** Added to the growing demand for traditional fuels, particularly charcoal, this means that the sustainability of supply of these fuels in some countries, in the near future, will be contingent upon practices of land use management and 'popular' approaches to afforestation and reforestation.

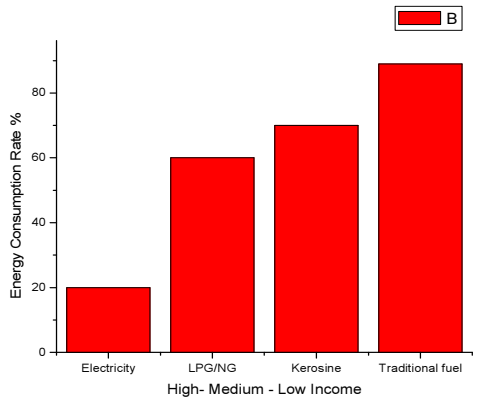


Source: Household Energy Consumption Patterns in Africa, 1996

Fig 3: Domestic Energy Demand in 13 SSA Countries in 1994.

Despite its dominance, wood is not the only fuel used in the sub-Saharan African household (Figure 4). A number of factors influence what sort of energy source is used, the most significant being household income; in general the higher the income and levels of education the more likely it is that a household will use alternative fuels like LPG and electricity. This correlation largely manifests in urban areas. In rural areas the same trend can be discerned, although blurred by the degree of social homogeneity, the non-diversification of energy uses, the inaccessibility alternative energies and the unchallenged dominance of fuel-wood.

The ADB study further reveals that lower income households are the least consumers of energy and that total energy consumption increases with income. Despite the fact the primary fuel (wood) is commonly free in rural areas, energy consumption is markedly less than in the industrial countries, a far higher proportion of the household income is allocated to energy in Sub-Saharan Africa than in the West (see Table 2), varying from 9.5% in Burundi up to 22.3% in Equatorial Guinea.



Source; ADB op cit.

Fig. 4: Share of Modern and Traditional Energies per Income category of 13 Countries in Africa (%).

Sub-region	Energy expenditure (% of income)
East Africa	12.7
Southern Africa	11.9
West/Central Africa	14.1
North Africa	7.9

Table 2: Household Energy Expenditure (% of Income) per Sub-Region

Other fuels used in households are LPG and Natural Gas (mainly in urban areas), electricity and kerosene - these last two being used mainly for lighting in both urban and rural areas. Various residues are used as energy in rural areas which have experienced severe shortages of woody biomass. There is a certain amount of use of New and Renewable Sources of Energy (NRSE), but their level of use remains insignificant.

If current consumption patterns are maintained, the average growth rate of household energy consumption will be in the order of 4% per annum. Stimulated by a galloping demographic growth rate, this increase in energy consumption largely remains a function of biomass, whose trends of conservation will have equal or more of a share in shaping the household energy balance in the coming years.

The ADB report (1994), drawing on the close correlation between income levels and energy-demand structures asserts 'the preponderance of fuel-wood as an indicator of the poverty of households', and that 'fuel-wood is the fuel of the poor'. Thus despite many side efforts to reduce the demand for wood, its share of total energy consumption has been maintained at a very high level. This, the ADB points out, is explained by the fact that most users of wood-energy are poor and cannot afford to choose their fuel. Fuel-wood remains relatively cheap, while top-down international economic programs have ensured that other types of fuel cannot be subsidized.

For the great majority of African households, wood and its derivatives will constitute to be the only energy source for cooking for a long time to come. For this majority the availability of fuel-wood is a question of survival.

ENERGY SOURCES AND SUPPLY CONSTRAINTS

In general, sub-Saharan Africa uses low quality, inefficient sources of energy, which appear to be becoming more difficult to produce and renew, while at the same time producing high-quality, efficient fuels which are largely exported - petrol, natural gas and uranium. This is due partly to there not being a large domestic market for these fuels, partly that their export serves to service debts, and partly to the fact that control of these products is largely in the hands of international corporate bodies. While the supply of biomass fuels appears to be threatened, that of conventional fuels (petrol, gas and hydroelectricity) is actually growing, albeit irregularly, and driven more by expanding demand outside of the continent, than that inside. In 1986, for example, total production of petrol and natural gas in Africa was in the region of 30 million tonnes greater than that of Europe, while final consumption of the same fuels was six times less. By comparison, practically equivalent production in East and South East Asia (including China) stands at a ratio of 3:1 greater than consumption. However there is much intra-regional trade in Asia (40%) in comparison with Africa, where intra-regional trade accounts for only 6% of total trade. The reasons for this remain under-analyzed.

Oil and Petroleum Products and Natural Gas

Proven oil reserves at the end of the 1980s were estimated at 8 billion tonnes. Thus, on the basis of current production rates, known reserves are sufficient to cover 25 years of oil production. Exploration activities are not particularly well sustained in Africa. Numerous sedimentary basins on the coast and in the interior, where new discoveries are probable, are prospected little or not at all. The oil companies are reluctant to take up costly drilling programs which cannot be funded by their national companies. Gabon and Nigeria, however, are intensively engaged in prospecting in order to refurbish their known reserves.

Africa exports about 80% of its oil production. This is about 16% of the global total while consumption represents only 3% of the global total. At the same time, 40 of the countries are net importer of oil and petroleum products. Other than Nigeria and Angola, which have by far the largest oil reserves in sub-Saharan Africa (89%), oil production throughout the sub-continent is in the hands of foreign companies, nine of whom (Elf, Chevron, Shell, Amoco, Marathon, Exxon, Sun, Conoco, Total) control the mining rights to 75% of the mining territories of 28 countries. National societies, particularly Nigerian National Petroleum Corporation (NNPC) in Nigeria and Sonangol in Angola, are still responsible for half of the total oil production (338 million tonnes in 1992). Clearly this has an impact on the direction of revenue from oil exportation.

Proven natural gas reserves are estimated at about 9,771 billion cubic metres at the end of 1991, about 6.6% of the global total, 56% of which is located in North Africa. The remainder is divided among 16 Sub-Saharan countries and Nigeria (33%). In 1991, 4.75 billion cubic metres of gas in Nigeria was commercialised from a brute production of 28.9 billion, 2.4 billion cubic metres was re-injected, and the rest was burnt off, representing a loss of 18 million tonnes of Oil Equivalent. In 1988, Africa represented 1.5% of global gas consumption despite having 10% of world population.

The oil industry in the region is, except when controlled by foreign interests, heavily regulated by

governments through the determination and control of prices and, in many countries, direct involvement and monopolistic control of procurement, refining and distribution activities. Governments are often major shareholders in oil companies and refineries. Besides the well-developed South African market, the market for petroleum products lacks adequate institutional infrastructure, is disjointed and characterized by inefficient and inadequate transport and distribution systems. The inadequacy of the transport sector is especially detrimental to land-locked countries.

The current state of the petroleum products industry in the region (excluding South Africa) is poor and the cost of supply and distribution excessively high. This represents a fundamental obstacle to the economic development of the region. Much scope exists for a rationalized system which would enable large savings. It has been estimated that rationalization could enable a saving of US$ 270 million for the Eastern African region, with Tanzania and Zambia showing the largest potential for improvement. However, the major problems are procurement, refining and distribution inefficiencies. Difficulties with procuring oil are due to the lack of foreign exchange reserves, lack of proper purchasing skills or proper bidding procedures, and the concentration of procurement activities in the hands of the entities with little or no incentives to minimize actual costs. The region's refineries generally suffer from poor outdated technical structures, are small in scale, lack appropriate maintenance and repair (due to the lack of foreign exchange), have low utilization rates, and operate in a small market. Distribution is rendered problematic due to the poor state of storage and transportation infrastructures, the operation of which is affected by the lack of appropriate skills in the areas of logistics and service management.

	Oil and its derivatives	Natural gas	Coal	Hydro-electricity	Total
North Africa	163	53	0.3	0.7	217
SSA	140	3.5	4.5	3.9	152
Total	303	56.5	4.8	4.6	369

Table 3: Primary Energy Production in SSA (Million TOE)

	Country	Oil	Coal	Gas	Biomass	Hydro
	Nigeria	27	0.4	12.6	59	1
	Ghana	21	-	-	69	10
	Kenya	21	1	-	70	8
	Ethiopia	8	-	-	90	2
	Zimbabwe	10	50	-	25	15
	Botswana	17	-	-	73	4
	Cameroon	19	-	-	67	14
	Chad	33	-	-	77	-
	Average	19.5			66.25	

Table 4: Estimate of Primary Energy Supplies (%) in Representative Countries of Each Sub-Region.

Hydropower

Two large areas of sub-Saharan Africa are particularly rich in resources for the generation of hydroelectricity: the axis of the great African lakes from Kenya to Zambia, and the Atlantic coastline from Guinea to Angola. Zaire, straddling these two zones, possesses nearly 60% of total African hydroelectric resources. These resources are estimated at 1,383 GWh/year, with a little under a half (46%) considered technically exploitable, and about one quarter (27%) economically exploitable. Technically exploitable resources represent about 5% of the corresponding world total. Only 7% (43 GWh/ year) of technically exploitable resources (12% of economically exploitable resources) have been developed to date. Production has dropped sharply from a level of 60 GWh in 1980, principally due to cessation of production at the Cahora Bassa dam in Mozambique. In 1989 hydroelectricity covered 45% of Africa demand (119 GWh).

Electricity

Electrification is at an embryonic stage throughout the continent, and particularly in the countries south of the Sahara. Only six countries in sub-Saharan Africa have an installed capacity exceeding 1GW. The largest energy market in the region is ESKOM's Southern African Electricity grid, which links South Africa and many of its neighbouring states. This grid, which has an installed capacity of some 36 000 MW, that supplies Botswana, Lesotho, Mozambique, Namibia and Swaziland as well as RSA. It is also indirectly linked to Zambia and Zimbabwe. The latter two countries have interconnecting grids, and Zambia also has links with Zaire. Kenya has a link with Uganda.

The electric power supply industry in the region is almost invariably government owned, highly centralized and politically regulated. Although the region has no shortage of the resource base for economic power generation and supply, there has been deterioration in the performance of the electric power utilities, and a depression of the electricity markets of the region in the 1980s.

Total installed capacity in the region amounts to some 55,000 MW with South Africa alone having some 36,000 MW. With the exception of South Africa, infrastructure is still largely characterized by:

- Isolated networks with little or no interconnection between countries
- Low fuel use efficiency
- Low capacity factors, and high distribution and transmission losses

Apart from these inefficiencies, the reliability and availability of existing installed electricity systems is low. In Nigeria, for example, there has been such a

serious problem with power reliability over the years that most industrial establishments and upper income households install expensive electric power generating sets. These amount to over half of total installed grid capacity. In some countries isolated sub-national grids are still to be found. The cost of electricity is high by the standards of developed countries, and this provides a serious obstacle to the expansion of electrification.

Wood and Peat - Constraints

The potential of natural forest resources in sub-Saharan Africa is impressive. Forest covers 22.2% of a total land area of 477 million hectares. Biomass resources are estimated at about 82 billion tonnes, with an annual average growth of 1.7 billion m^3. This is a potential of 168.2 tonnes per capita. Productivity, at 3.9m^3 (2.7 tonnes) per capita, is more than sufficient to cover the annual per capita demand for fuel which is about one tonne. However these aggregates conceal the considerable differences in terms of resource distribution and production fluctuation that exist between the sub-regions of the continent and within the countries themselves.

Efforts to address the energy situation in sub-Saharan Africa have had to meet a number of constraints. Substitution of fuels has been difficult due not least to the prohibitive price from the point of view of most consumers. But added to this are inter-related problems associated with the land tenure laws throughout the region, with the legacy of previous government policies combined with confusion as to how best to formulate more effective energy policies, and with public awareness of the existing problems.

LAW

With regard to land tenure law, the trajectory of practically all sub-Saharan countries shares a combination of three major factors:

- Pre-colonial laws or customs which in general held the land in high esteem
- Colonial regulations, designed for the most part to keep the populations away from land resources
- Post-independence legal structures.

Following the independence of most African states in the 1960s, some of them adopted new legal systems and others maintained the inherited structures, including an impressive number of all kinds of subjects and sectors with the ad hoc additions deemed necessary. To date, by and large, we can distinguish two typical situations in respect of the legal structures of African countries. On the one hand there are countries with a modem "framework" law, usually of a recent date. These laws are normally rather complete as regards principles followed and objectives stated. The general guidelines included in these laws have, with some exceptions, only rarely been turned into effective and applicable regulations, mechanisms or by-laws. Frequently these laws do not address the energy sector directly which makes it difficult to deal with complex inter-sectorial issues.

On the other hand a group of African countries have maintained former colonial law on a range of subjects and sectors. Colonial land tenure laws and regulations remain marked by the concern to keep the forests away from the populations and their activities (wood-cutting, poaching, bush-fires, pastureland and agriculture, etc.). This trend that prevailed almost everywhere was to reinforce restrictions and impose rigid control that should prevent people from the illegal exploitation of forestry resources. In the transition to independence, much of the control of forested territories was left in the hands of forestry departments, who apply a similar approach to this day, often with antagonistic results. But coercive measures have not been able to stop forest degradation, or even prevent the population from continuing to exploit the forests illegally. This degradation was aggravated by the adoption of land laws which did not take due consideration of community traditions regarding management practices.

These collections of laws often lack harmony and coherence; sometimes provisions are even contradictory. They fail to address important and complex aspects, such as the delineation of national versus local responsibilities, the responsibilities of the specific governmental and non-governmental institutions, the issue of reparation versus prevention of environmental damage, the relation with jurisdiction on other subjects, etc. In respect of energy, the division of legal aspect to cover mining, forestry, and industry, development or financial law apparently strongly affects the required coherence of policy making. Consequently the effect of these laws is marginal.

Apart from the evolution of formal legal structures, however, parts of the traditional community laws of the African continent play a considerable role. To a certain extent these laws have survived because of the physical inability of some states to exercise a complete jurisdiction over their territory, due to lack of facilities or sheer size. Another important reason, undoubtedly, is the modest legitimacy of a number of regimes in areas outside their direct control. The co-existence between customary law and modern regulations has often resulted in antagonisms leading to a number of conflicts between the government and local populations living around state-developed centres, on the one hand, and the local populations and new private occupants on the other, as populations claim their right to collective ownership over newly developed laws.

The excessive centralization of state administration has been a deterrent to the active participation of the populations in land and forestry management. The almost exclusive and repressive character of governments' intervention to protect the environment was not conducive to the popular participation of grassroots communities in development activities (afforestation, bush-fire control, soil erosion control, etc.). (In Sudan, a land law dated 1925, ratified in 1970

and updated in 1989 stipulates 'that all virgin lands and forests as well as free unoccupied zones shall remain the property of the State unless proof to the contrary is produced').

POLICY

Clearly the formation of energy policy has been hampered with problems related to these legal structures. Energy departments as specialized bodies were only created towards the end of the 1970s and early 1980s, in response to the oil crises. In most countries, energy structures were established within central Ministries. These entities were charged with the responsibility for policy formation, planning and the development and use of the country's energy resources. However, Energy Ministries exist side by side with a multitude of institutions dealing with one or other among energy issues. These are usually a Forestry Department, Ministry of Agriculture, Ministries of Environment and Natural Resources, Ministry of Local Government, Ministry of Commerce and Industry. Energy research is carried out in universities and other higher educational institutes. The problem is that these institutions don't always work in concert. This could be attributable to weak lateral linkages, coordination and communication between the various institutions. The output of research institutions is hampered by a lack of strategic research programs, poor co-ordination and the absence of adequate funding and care on the part of the government. Driven by the need for effective communication, some countries have created National Energy Commissions/Boards to deal with the problem. Senegal, Ghana and Burkina Faso are cases in point.

In addition, many decisions at governmental level have exacerbated the problem of biomass supply with development policies. The post-independence era has witnessed a very slight deviation from the inherited colonial development policies. The agricultural sector remained dominant, export-orientated, neither intensified nor diversified and with minimum alternatives for the vast majority of rural populations. Common features of the broad developmental policy frameworks for the majority of sub-Saharan countries can be summarized as follows:

- Increase agricultural production of exportable crops
- Increase agricultural production of domestic staple food
- Encourage development of agro-industries
- Increase job opportunities for rural population.

In the implementation process of these policies more land has been cleared and put under irrational agricultural production to simultaneously meet the food demands of the constantly growing population and the pressing demands of the commodity market. However, governments tended to give top priority to commodity crop production over food crops. Under these policies pressures on land and natural resources increased, and deforestation and environmental degradation continued at an unbridled pace.

Policy issues related to bioenergy sub-systems have invariably stressed the preventive approach and focused simply on supply/sustainability of fuel-wood and biomass through conservational measures, and to a lesser extent on energy demand at the point of end-use. Fuel-wood is often considered in the context of environmental protection rather than in its real economic perspective. As a result neither incentives and financial structures nor legislation and enforcement measures are geared properly to serve these traditional fuels and other bioenergy sub-systems.

POPULAR PARTICIPATION

Considering that pressure on energy resources is currently highly localized, it should come as no surprise that people living in wood deficit zones have a greater awareness of the problem. A survey carried out in Senegal and Gambia commented: 'People are aware of the environmental implications of exploiting the biomass resources for firewood and charcoal and they fear that a bio-mass energy crisis may occur in future if conservation measures are not embarked on. People emphasize the need to plant trees and control the rate of exploitation of biomass resources for firewood/charcoal. They also ask the government to subsidize the cost of LPG and electricity so that they will depend less on firewood/charcoal for their domestic cooking needs', (UNEP/ UCAD, 1996).

However government action does not always take place at the precise location where it is felt necessary. On the whole, given that reforestation operations were often carried out on contract, the interest of local populations concerned has been low. On the other hand, small operations referred to as "village woodlots" have enjoyed the full support of the populations and produced better results. But even where States have undertaken some activities in the area of environmental protection and energy management, the results expected have rarely been achieved. In the opinion of those interviewed (community leaders and professional associations) the populations are often not consulted and so do not feel concerned by the projects, particularly the forestry ones initiated. Besides, the programs do not always correspond to a need felt by local populations. In Botswana for example, only 25% of respondents happen to be aware of reforestation activities going on in their region. The large majority feel that such programs would be better managed by local communities and less than 16% of the populace have confidence in the State (ADB 1994 - Households).

In the African context, instruments for public information dissemination include the press, radio, television, schools universities and NGOs. Often it is stated that the absence of "modern" means of communication and illiteracy are major impediments to addressing the general public. Experience with the

successful marketing of commercial products such as baby milk and pain relievers suggest that this is not necessarily the case.

THE ENVIRONMENT

The current state of land and environmental degradation in the Sub-Saharan African countries mostly results from the structure, functions and objectives of policies related to natural resource use. It can be said with reasonable certainty that the colonial policy which was motivated and governed by the world commodity markets (Redclift, 1989) has taken its toll on the environment. The split of the legal/institutional and environmental framework among several actors, often with divergent interests further creates high and permanent risk of degradation and depletion of natural resources. The conditions for the sustainable development of African countries are thus jeopardized. Exploitation of bio-mass for bio-energy purposes is considered as a major contributing factor to land/soil degradation in sub-Saharan Africa (World Bank 1992). Annual soil loss due to erosion is reported to be 290 metric tonne/hectare for steep slopes in Ethiopia, and between 10 to 20 metric tonnes/hectare in West African gentle slopes (World Bank, 1989). These figures are very much higher than the acceptable rates of soil erosion in a relatively stable ecosystem. They are frequently put down to growing household energy needs.

However studies have found that other modes of land-use have a more compromising impact on the ecosystem. These essentially are agricultural expansion and human settlement. The adverse consequences of traditional energy use on the environment are mitigated by the fact that rural households secure their household energy provisions from dead wood, wood residues, branches and other bio-mass collected on the farm.

Countries	Total amount of lost soil/yr (mt)	Rate of erosion/ hec/yr (mt)
Ethiopia	500 million	290
Kenya	--	138
Nigeria	13 million	14.4
Zimbabwe	15 million	50

Source: World Resources 1989

Table 5: Rates of Soil Degradation in Some SSA Countries

Desertification as defined in the Rio Convention refers to soil degradation as a result of human activity. It is worth taking account of other contributing factors to this activity however. Barrow (1991) proposed that some environments are more vulnerable to degradation than others. These susceptible environments can be grouped as follows:

- Areas with high slope values (Montane Highlands)
- Easily damaged soils (soils under rainforests
- Fast draining areas (dry lands)
- Coastal lowlands
- Areas with torrential/ intense rainfall (Guinea/ Sudan Savannah)
- Areas with high drought frequency (Sahel Savannah)
- Areas with violent climates (rainforests/ Guinea Savannah)
- Areas subject to locust invasion (Sudan Savannah)

All these vulnerable environments are found with varying extent in Sub-Saharan Africa. In fact the major ecological zones in the region are naturally susceptible to soil/land degradation. As an essential soil binding/ protecting agent, bio-mass removal or weakening may interact with the environment by triggering off a series of degradation events that ultimately culminate in erosion and complete loss of top soil.

Fuel-wood collection is more likely to contribute to this problem in drier environments and uplands than in other relatively stable ecosystems. In the dry Savannahs (Sudan/Sahel) the rate of bio-mass depletion is higher in the extreme than both the regenerative abilities of the land and annual forest plantations. In the highlands of Ethiopia forests have been reduced from 16% to only 3% over the last 20 years.

FUEL SUBSTITUTION

Fuel-wood substitution and fuel switching seem to be closely linked with household incomes and accessibility more than anything else. Cost is the major reason which forces households to stay with fuel-wood as the primary base fuel. It is also noticeable that households go down the energy ladder when a higher grade fuel is not available on the market or when they have experienced a decline in their incomes. It appears that the present landscape of energy use will remain unless there is a significant improvement in the income base of African households, particularly in the rural areas. Looking at end-uses, LPG seems to be the fuel with a promising future for cooking in urban areas. It is also in urban centres that access to electricity has the best opportunity of being improved, but at a pace which could be slowed down by the high urban growth-rate in most African countries.

In Ghana 10% of households in the high-potential zone use LPG as compared to 5.3% only five years ago. In Egypt, users of LPG have increased from 60% to 69% over the last five years. While the proportion of households using kerosene has declined over the same period from 3% to 2% and from 70% to 57% in Ghana and Egypt respectively.

The development of New and Renewable Sources of Energy (NRSE) has been advocated as a policy option, but in spite of the experimentation with some NRSEs being conducted in a number of countries, the enthusiastic call for their large scale application has remained largely rhetorical, and little has been

achieved on the ground, rendering insignificant the impact of these sources on energy provision, at least for the foreseeable future. Although the use of solar energy is familiar in countries of the Sahel it is still marginal. Many households have not heard about it, neither do they know how the equipment functions nor the advantages they could derive from it.

The development of NRSE has not taken off mainly due to constraints of high initial capital and production costs and lack of established performance standards for design and installation. In Burundi where the promise of developing biogas technology is enormous, relevant programs were stifled due to lack of funding. In view of the cost of diffusion, governments offer initiation costs for some NRSE industries, play a role in co-ordination and monitoring and make provision for Research and Development and related activities of pilot projects, as well as seeking support from donors to overcome the investment cost involved in the application of development of these technologies. In Zambia, for instance, the government has removed sales taxes on photovoltaic systems and is proposing to offer guarantees to banks willing to lend income generating NRSE technologies. In the Sudan, the policy stipulates the establishment of renewable energy credit facility programs for manufacturers, users and importers. In Zimbabwe and Sudan, the policy considers the exemption of renewable systems from import duties and production taxes.

Many rural households in areas hard hit by bio-mass loss have turned to the use of crop residues and animal wastes as an energy source, the ramifications of which are dubious in terms of health. Energy substitution could also be achieved by making use of local resources such as these if appropriate technologies were introduced. The development of such technologies is still at an experimental stage, be it biogas in Burundi and Burkina Faso, peat in Senegal and Burundi or coal in Southern Africa. Equally, renewable energy technologies have not yet achieved the mature status of being successfully marketed independent of government or other subsidies. In terms of energy substitutes, Africa has an enormous potential which needs to be explored and exploited.

SOCIO-ECONOMIC AND ENVIRONMENTAL IMPLICATIONS

The local production and use of bio-mass resources as substitute for fossil-based fuels offers many attractive benefits for the African continent; however, they could also have negative effects if not managed properly. The following socio-economic and environmental implications should form the basis of a more detailed study on the impact of biomass resource development to guide appropriate national policies and measures.

Socio-Economic Implications

The global quest for alternative sources of energy, especially in the area of transportation fuels, presents an opportunity for local and foreign investments in Sub-Sahara Africa, as well as increased export earnings. Pursuing Africa's biomass potential would have a domino effect: it would boost agricultural development, boost technological advancement, and bring job opportunities, thereby improving quality of life. Because bio-mass resources can be converted to liquid and gaseous fuels**,** electricity, and heat, they can increase access to modern forms of energy for the Sub-Sahara African population. Moreover, producing bio-mass resources domestically reduces the continent's dependence on foreign energy sources and vulnerability to supply disruptions.

Bio-mass resource cultivation, harvesting, and processing could have a direct impact on rural development and poverty reduction. It could improve rural livelihoods by providing new income opportunities to families and communities growing biomass, or through direct employment. Using biomass resources in stand-alone power generation units could insulate poor rural households from energy price fluctuations, allowing for an independent electricity source.

The expansion of biomass resource development could also have some negative socio-economic effects on rural communities. A study by the World Watch Institute points out that in the biofuels industry, most jobs are found at plantations where wages and working conditions can be very poor. Further, companies can make false promises about jobs for local communities. The study found that small farms could be more effective in job development than large scale plantations, stating that small farming systems in Gambia provide livelihoods for 260 times as many people per hectare of land as oil palm plantations. Depopulation of regions could also be associated with large-scale monoculture plantations due to depletion of traditional wood and food resources.

Environmental Implications

The local production and use of bio-mass resources offers many benefits to the environment, including offsetting greenhouse gas (GHG) emissions associated with burning fossil fuels, waste utilization, and erosion control among others. Clearly biomass technology directly benefits the environment while helping solve pressing environmental problems.

Using bio-mass to produce energy is carbon neutral because it releases roughly as much carbon dioxide (CO_2) as it takes in. For every MWh of bio-mass power, approximately 1.6 tonnes of CO_2 are avoided (Morris 2008). This figure includes 0.8 tons/MWh from avoided fossil fuel use and 0.8 tons/MWh avoided from bio-mass decomposition or open burning. The use of biomass resources, managed in a sustainable way, would reduce CO_2 emissions and help tackle global warming.

While CO_2 is the principal GHG, methane is a close second. According to the Intergovernmental Panel on Climate Change, methane is about 21 times as effective as CO_2 at trapping heat in the atmosphere. Therefore, reducing 1 tonne of methane has the same positive effect as reducing 21 tonnes of CO_2. Methane is the principal component in biogas, and as described earlier, it is produced by anaerobic digestion or fermentation of biodegradable materials such as manure, sewage, and Municipal solid waste (MSW). Biogas capture and utilization presents an attractive opportunity for waste management in Sub-Sahara Africa because it is a valuable renewable energy source that can be used to provide electricity while reducing methane emissions. This technology could be particularly effective in handling rubber wastewater, which is otherwise dumped in rivers, creating serious pollution problems. The green by-product from biogas digesters are rich in nutrients and could be reapplied to rubber plantations. As Africa plans to further develop the palm oil industry, biogas to-electricity technology could be used to handle the industry's waste. Another waste management problem with environmental and human health implications in Sub-Sahara Africa that could be tackled with bio-mass technology is the disposal of MSW. The use of waste as an energy source provides two important benefits: environmentally safe waste management and disposal, as well as clean electric power generation. Waste-to-energy combustion reduces the volume of trash by about 90%, decreasing the amount of land required for garbage disposal by 90%.

Bio-mass resource development, under proper management, could be beneficial in managing soil erosion. Afforestation and reforestation activities could prevent the soils from being washed or blown away, and residues from production and harvesting could provide additional soil protection as well as nutrient supply and moisture retention.

Some of the negative environmental impacts associated with the production and use of bio-mass resources include deforestation, increased GHG emissions, loss of biodiversity, and soil erosion. Deforestation is caused primarily by shifting cultivation (land clearing for crop production) and excessive logging. This could have reverse GHG effects: (1) clearing is often done by burning, which releases CO_2; and (2) once removed, the trees no longer contribute to carbon storage. Africa's population relies almost entirely on biomass resources (firewood and charcoal) for its energy needs; therefore, using alternative sources is critical to forest sustainability. Charcoal, for example, is produced mainly from trees, so using alternative sources like coconut husks and banana peels would relieve the pressure on native forests. Deforestation also leads to soil erosion and decline in biodiversity. Additionally, loss of biodiversity could result from an increase in monoculture crops and plantations. A study by the Integrated Framework in 2008 stated that where forest has been replaced by oil palm or rubber trees, up to 80% of reptile, mammal, and bird species previously found cannot be supported by the new environment. The use of pesticides and herbicides also devastates fauna and flora. The study also points out that the palm oil and rubber industries are rife with unsustainable environmental practices. As Africa plans to revive and expand these industries, proper planning and management will be required to ensure protection of its rich biodiversity.

CONCLUSIONS

This paper estimates the bio-mass resources currently and potentially available in Sub-Saharan Africa and evaluates their power generation and transportation fuels production potential. A variety of bio-mass resources exist in the continent with large quantities and opportunities for expansion. These resources are more than enough to cover the continent's annual electricity consumption of 297GWh (CIA 2005) and oil consumption of 206 Dam (Index Mundi 2005). While the contribution of food crop residues, animal manure, and MSW is small in comparison to other resources at a national level, they could play a valuable role in stand-alone electricity applications and be particularly effective for households in remote rural areas. On the other hand, cash crop and forest residues, from medium and large enterprises, provide opportunities for large-scale centralized power generation.

Considering the potential biomass resources or the expansion of key existing resources such as oil palm, coconut, and sugarcane, the paper evaluates their fuel and power production potential on available cropland. It is estimated that of the total cropland in Africa, only 6% is currently cultivated and that the remaining cropland amounts to some 3 million hectares. It is unrealistic to assume that all of this land would go under cash crop cultivation, a portion of it may go under afforestation to maintain forest ecosystems and their unique biodiversity, or be used for food crops production and other agricultural activities, or be converted to urban land. If cash crop production was expanded to 30% of arable land, it could double the bio-power and biofuels production potential. The local production and use of bio-mass resources as substitute for fossil-based fuels offers many attractive benefits for Africa. The socio-economic benefits include attracting investment opportunities, job creation, rural development, and poverty reduction. Benefits to the environment include offsetting the GHG emissions associated with burning fossil fuels, waste utilization, and erosion control.

However, if not managed properly, bio-mass resource development could have negative environmental impacts such as deforestation, increased GHG emissions, loss of biodiversity, and soil erosion. The socio-economic and environmental implications briefly described in this paper should form the basis of a more detailed study on the impact of bio-mass resource development in order to guide appropriate national policies and measures.

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DISASTER RISK AND CLIMATE CHANGE IN THE MIDDLE EAST

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In this paper I trace the origins of environmental concerns and review possible approaches that will aid in solving complex pest control problems. Recognition is given to the need for utilizing existing information on biological control, improving the effectiveness of agricultural chemicals, developing new approaches and improving existing methods of biological pest control, and integrating all components into systems for individual crops and cropping systems.

Reducing losses to weather-related disasters, meeting the Millennium Development Goals and wider human development objectives, and implementing a successful response to climate change are aims that can only be accomplished if they are undertaken in an integrated manner. Current policy responses that address each of these independently may be redundant or, at worst, conflicting.

This conflict can be attributed primarily to a lack of interaction and institutional overlapping amongst the three communities of practice. Differences in language, method and political relevance may also contribute to the intellectual divide. Thus, this paper seeks to review the theoretical and policy linkages among disaster risk reduction, climate change and development. It finds that not only does action within one realm affect capacity for action in the others, but that there is much that can be learnt and shared between realms in order to ensure a move towards a path of integrated and sustainable development.

DIASTER RISK REDUCTION

Disaster Risk Reduction (DRR) is a term used for techniques that focus on preventing or minimizing the effects of disasters. For instance, certain areas of a city that are prone to flooding may have restrictions on development and an area subject to earthquakes may have building codes that ensure that buildings are protected up to a specified level of shaking. The term has been adopted by the United Nations which has developed an international strategy on promoting disaster risk reduction as it has been shown to be very cost effective.

Initiatives that are focused on disaster risk reduction will either seek to reduce the likelihood of a disaster occurring (flood protection works, such as dykes, levees and stopbanks) or enhance the community's ability to respond to an emergency (ensuring three days food and water, etc.). As a disaster is a product of a severe event and people, changing either will have an effect on any disaster that occurs. Further examples of initiatives include increasing knowledge and creating legal and policy frameworks.

Closely linked is the issue of post-disaster long term recovery. The International Recovery Platform functions as a knowledge hub to disseminate best practices and lessons from recovery efforts. The platform advocates that the recovery process is utilized as an opportunity for "build back better", to reduce risks inherent before disasters occur.

Building the capacity of local institutions to introduce good practice is the key to sustaining disaster risk reduction and demonstrates the immediate value of gaining local and national political commitment to DRR. Increasing collaboration between local and national governments, civil society organizations and international agencies is another worthwhile initiative.

Over the past ten years, earthquakes have been the deadliest natural hazard. According to figures released by The Center for Research on Epidemiology of Disasters (CRED) in Geneva, 3,852 disasters killed more than 780,000 people over the past ten years, affected more than two billion others and cost a minimum of 960 billion US$. In terms of human loss, Asia is the continent that has been struck the most during the last decade, accounting for 85% of all fatalities.

Earthquakes remain a serious threat for millions of people worldwide; eight out of the ten most populous cities in the world are on earthquake fault-lines. Margareta Wahlström, UN Special Representative of the Secretary-General for Disaster Risk Reduction has argued that 'disaster risk reduction is an indispensable investment for each earthquake-prone city and each community'. Seismic risk is a permanent risk. Earthquakes can happen anywhere at any time.

After earthquakes, storms (22%) and extreme temperatures (11%) were the most deadly disasters between 2000 and 2009. The most deadly were the Indian Ocean Tsunami, which hit several countries in Asia (2004) leaving 226 408 dead; Cyclone Nargis, which killed 138 366 people in Myanmar (2008); and the Sichuan earthquake in China (2008) which caused the death of 87 476 people. Over 73 000 people were also killed in the earthquake in Pakistan (2005) and 72 210 in heat waves in Europe (2003).

While earthquakes have been the deadliest events, floods and drought have affected by far the most people. The annual average death toll for the 2000 decade due to floods and droughts was 78 000, which is considerably higher than the 43 000 of the 1990s. In the 1980s, the annual average of persons killed was 75 000 due to major droughts and famines in Ethiopia and Sudan. The average number of natural hazard events per annum in 2000-2009 was 385 compared to the annual average of 258 for the decade 1990s and 165 for the 1980s. In cost terms, the annual average of $US 96 billion in the first decade in the 21st century was more than twice as high as the respective figure for the 1980s ($US 39 billion) and slightly below the $US 99 billion in the 1990s.

In 2009, the total number of people killed and affected by disasters was lower than in 2008, as no major disaster occurred: 327 events killed 10 416 people, affected 113 million others and caused a total of $US 34.9 billion in economic damages. The 2009 figures also remain well below the 2000-2008 annual averages, which were 85 535 (deaths), 229 792 397 (total affected) and $US 102.7 billion US$ (economic damages). The disaster with the highest death toll in 2009 was the 7.6 magnitude earthquake in Sumatra, Indonesia on 30 September, which killed over 1100. Typhoons Morakot, Ketsana and Parma and floods caused many deaths in Asia, rendering the continent once again the most affected region. Six of the top 10 countries with the highest number of disaster-related deaths were in Asia.

Forced Migration

The study of forced migration is multidisciplinary, international and multisectoral, incorporating academic, practitioner, agency and local perspectives. Forced Migration Online (FMO) focuses on three separate, although sometimes simultaneous and inter-related, types of forced migration. These may be classified according to causal factors:

- Conflict,
- Development policies and projects,
- Disasters.

These categories of forced migration tend to be studied by different academic communities, the causes addressed by different policy-makers, donors and agencies and the consequences addressed by different governmental, inter-governmental and non-governmental agencies, donors and organizations. FMO seeks to bring these various groups together in one place to address approaches to all forms of forced migration.

Conflict-Induced Displacement

People may be forced to flee their homes for one or more of the following reasons when the local authorities are unable or unwilling to protect them:

- Armed conflict including civil war
- Generalized violence
- Persecution on the grounds of nationality, race, religion, political opinion or social group

A large proportion of these displaced people will flee across international borders in search of refuge. Some of them may seek asylum under international law, while others may prefer to remain anonymous, perhaps fearing that they may not be granted asylum and will be returned to the country from whence they fled. Since the end of the Cold War, there has been an escalation in the number of armed conflicts around the world. Many of the more recent conflicts have been internal, based on national, ethnic or religious separatist struggles.

There has been a large increase in the number of refugees during this period as displacement has increasingly become a strategic tactic used by all sides in the conflict. Since the end of the Cold War there has also been an even more dramatic increase in the number of internally displaced persons (IDPs); they currently far outnumber the world‘s refugee population. At the end of 2004, there were some 11.5 million refugees and asylum seekers and a further 21 million IDPs worldwide.

The most important international organization with responsibility for refugees is the United Nations High Commissioner for Refugees (UNHCR). Under the 1951 UN Refugee Convention, UNHCR is mandated to provide protection and assistance to refugees. However, one group of refugees does not come under the mandate of UNHCR. These are Palestinian refugees in the Middle East, who come under the mandate of the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA). Several new programs have recently been introduced to support and to heighten awareness of the issues faced by refugees around the world. These two new programs are a product of the benchmarks set out by the United Nations Millenium Developments Goals in which it continues.

Disaster-Induced Displacement

This category includes people displaced as a result of natural disasters (floods, volcanoes, landslides, earthquakes), environmental change (deforestation, desertification, land degradation, global warming) and human-made disasters (industrial accidents, radioactivity). Clearly, there is a good deal of overlap between these different types of disaster-induced displacement. For example, the impact of floods and landslides can be greatly exacerbated by deforestation and agricultural activities.

Estimating trends and global figures on people displaced by disaster is even more disputed and problematic than for the other two categories. But there are certainly many millions of people displaced by such disasters every year. Several international organizations provide assistance to those affected by disasters, including the International Federation of the Red Cross and Red Crescent Societies, and the World Food Programme. Many NGOs (international and local) also provide assistance to affected people.

Environmental and disaster displacees are sometimes referred to ‘environmental refugees’ or ‘disaster refugees’ In fact most of those displaced by environmental factors or disasters do not leave the borders of their homeland. This category includes people displaced as a result of natural disasters (floods, volcanoes, landslides, earthquakes), environmental change (deforestation, desertification, land degradation, global warming) and human-made disasters (industrial accidents, radioactivity, etc.).

Risk Assessment

Several studies have been carried out in Istanbul that provide estimated parameters of the risk posed by disasters on the population, buildings, transportation systems and lifelines as well as to the potential impact on essential facilities, services and emergency response. For this investigation the earthquake hazard was expresses in terms of deterministic (e.g. Mw 7.5 earthquake on the Main Marmara Fault) and the 50% probability of exceedance in 50 years. Inventory data on urban elements at risk from relevant institutions, private companies, specific studies and satellite imagery, have been used in the following projects:

1. Disaster Prevention/Mitigation Basic Plan in Istanbul including Seismic Microzonation in the Republic of Turkey (JICA – IMM).

2. Earthquake Risk Assessment for Istanbul Metropolitan Area – Bogazici University (the American Red Cross) (BU – ARC).

3. Earthquake Risk Assessment for Industrial Facilities in Istanbul, Bogazici University (supported by Munich-Re Group).

4. Turkish Improvement of Natural Hazard Insurance and Disaster Funding Strategy (TEFER) Project – Turkish Treasury (supported by the World Bank and conducted by Cordis-Willis with the assistance of CAR and Bogazici University).

According to the different scenarios developed, the estimated human and physical losses for Istanbul could be the following:

- Death Toll: 40 000 persons
- Number of injured requiring hospitalization : 200 000
- About 400 000 households would require shelter
- A total of about 40,000 buildings would be completely damaged or suffer total collapse. Five to six thousand could produce a "pancake type failure"
- About 70 000 buildings would suffer extensive damage and some 200 000 would have moderate damage
- Monetary losses due to building damage would add up to $US 11billion

Detailed studies conducted for the Zeytinburnu renovation project show that 2 395 buildings out of 16 031investigated, are highly vulnerable and may be heavily damaged should a severe earthquake hit the city.

Figures from recent earthquakes in Turkey are shown in Table 1.

Table 1: Recent Earthquakes in Turkey

Event	Casualties	Damaged Buildings	Collapsed or Heavily Damaged Buildings	Displayed households	Economic Loss USD bn
Erzincan 1992	645	8000	1450	8000	0.75
Dinar, 1995	100	6543	2043	24000	0.25
Adan/Ceyhan,1998	150	21057	2000	600000	0.5
Kocaeli, 1999	>17000	24000	6000		18
Duzce, 1999	759	10121	800		1
Bingöl, 2004	177	6956	3005	-	-
Elazig, 2004	-	-	-	-	-
Gökova, 2004	-	-	-	-	-

Reference: Gulkan Polat, Managing Urban Risk through enhancing the resilience of building environment, Proceedings of the 3rd Earthquakes and Megacities Workshop, Shanghai, November 2001. Completed by Metin Ilkisik October 2005

Risk Communication

In Turkey, education relating to public disaster preparedness and disaster mitigation has been the responsibility of the central government's Department of Civil Defense and the Department of Education. Local governments and non-governmental organizations are not given a role in these issues. Education about earthquake risk is offered in primary and high schools, but there is no systematic education program for general public. Development of standards for public education and community organizations, reaching the public at large, active participation of public, training the trainers and production of training materials has not been considered.

CLIMATE CHANGE IN TURKEY

Climate change is a change in the statistical distribution of weather over periods of time that range from decades to millions of years. It can be a change in the average weather or a change in the distribution of weather events around an average (for example, greater or fewer extreme weather events). Climate change may be limited to a specific region, or may occur across the whole Earth: how much temperatures will rise and at what speed, etc.. All countries are now urgently examining the potential impact of climate change on their water situation and on society as a whole. The Middle East, like other regions, needs to urgently examine the way in which potential change may affect its future water supply and this in turn means examining the inter-relationship between climate variations, water supply, land use, economic planning and demographic change. Such questions cannot be dealt with on the basis of national interest only but demand cross-border and cross-disciplinary cooperation.

In Turkey, A 2008 study by three Devlet Meteorology scientists using the Regional Climate Model, PRECIS, of the British Met Office's Hadley Centre for Climate Prediction and Research concluded that:

- The average temperature in 2071-2100 would be 4-5° C; higher than the average for 1961-90 for coastal regions and 5-6° C higher inland.

- Both maximum and minimum averages rise similarly. – Rain fall would be 40% less in the west, though only fall 5% in the east and north-east.
- Turkey is tending to a tropical climate.

But the evidence of the past 60 years is more shaded for health & agriculture, 2% of Turkey's surface has dried.

Areas that have completely dried include:

- Elmali Gölü
- Gavur Gölü, Kahramanmaras 71,250,000 sqm, drained from 1950s, malaria
- Suğla Gölü, Konya 146,000,000 sqm, for agriculture
- Samsam Gölü, Konya, for agriculture.
- Amik Gölü, Hatay 75,000 sqm, drained from 1968
- Esmekaya Sazlığı, Konya
- Hotamıs Sazlığı, Konya

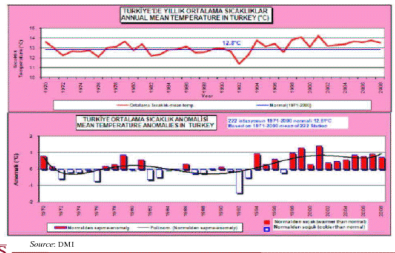
Areas under threat include:

- Aksehir Gölü, Konya Fallen from 350 mn to 35 mn sqm, max depth 1 m
- Eber Gölü, Bolvadin, Afyon
- Tuz Gölü Fallen from 2,600 mn to 1,600 mn sqm in 7 years
- DSI figures for 40 wells in the Konya area show a 22% fall in the level of the water table between 2002 and 2007
- Increasing salinity in many areas

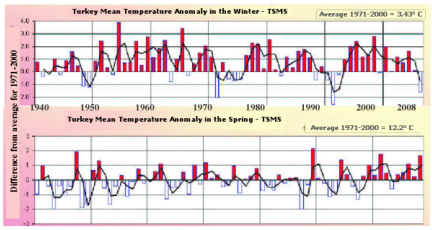
Evidence for Climate Trends

Relevant graphs of temperature and rainfall are shown below.

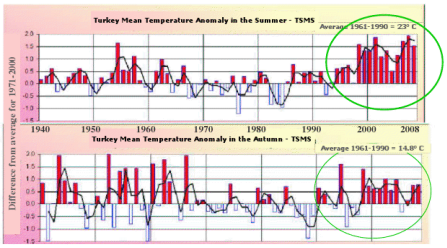
Mean Turkish temperature has risen slightly in past four decades



60 year records show slightly higher winter and spring temperatures

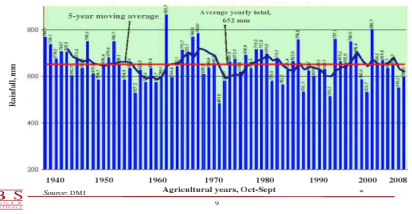


But striking figures for recent summers – and autumns



70 years of average rainfall in Turkey – 2000s better than 1950s

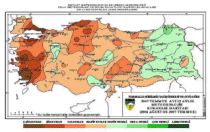
Volatile, and hard to discern a long-term trend



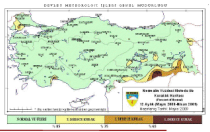
The recent drought condition is evidenced in the following figure:

Recent respite on drought

12 months to July 2007

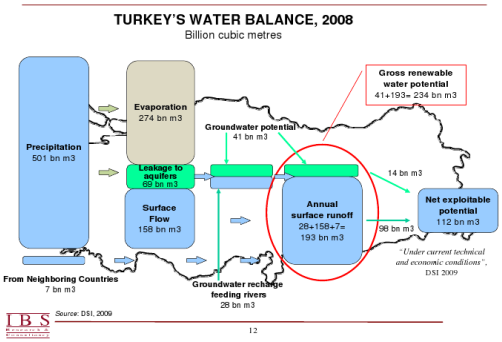


And the 12 months to April 2009



11

The seriousness of Turkey's water position is evidenced in the following figure:



Climate in the Arab world

The data shown in the figures and table above reinforce the view that the Arab region is especially vulnerable to climate change. It is one of the world's driest, most water-scarce regions, depends on climate-sensitive agriculture. Per capita renewable water resources in the region, which in 1950 were 4,000 m^3 per year, are currently 1,100 m^3 per year. Projections indicate that this will drop by half, reaching 550 m^3 per person per year in 2050 (World Bank, 2006).

In addition, climate induced resource scarcity could create further tensions in the region's conflict-ridden areas, potentially escalating violence and political turmoil even beyond the region's boundaries. This is supported by the fact that 80% of surface water resources and 66 % of total water resources in the Arab Region are shared between countries.

The Arab world can be categorized into the oil producing countries that built their economies on fossil energy and gas emissions, and middle-income countries like Jordan, Lebanon, Tunisia, Syria, Egypt and Morocco that depend mostly on imported oil with little energy diversification. Both sets of countries were not at the forefront of developing and implementing policies and projects to reduce greenhouse gas emissions.

Although the Arab World has a lower industrialization rate and less population than developing countries, its per capita production rate of greenhouse gases (especially carbon dioxide) is high and almost identical with the EU. This is due to the high fossil fuel energy production from the GCC countries. This fact puts both moral and economic pressures on the region to start reducing its per capita rate of greenhouse gas emissions. The post-Bali process within the Kyoto Protocol for Climate Change puts obligations for the first time on all developing countries for reducing their emissions, including the GCC countries and other oil producers in the region.

Based on scientific evidence, there is a high cost for inaction in the Arab World. Climate change is considered a major threat to the security of the Middle East. A recent report by the EU entitled "Climate Change and International Security" presented to a European summit in Brussels in March 2008 has warned that 'existing tensions over access to water in the Middle east are almost certain to intensify in this region leading to further political instability with detrimental implications for Europe's energy security and other interests'. In response to the increasing necessity for actions against climate change the Arab World has taken important initial steps towards sustainability option, especially at the core issue of renewable energy and combating climate change.

The 19th session of the Council of Arab Ministers Responsible for the Environment that was held at the headquarters of the League of Arab States in Cairo in December 2007 witnessed the agreement of all Arab countries, for the first time, on the inclusion of policies to deal with climate change issues in all sectors within national and regional policies for sustainable development. The declaration further stated the need for the production and use of cleaner fuels, improving the efficiency of energy use in all sectors, expanding the use of cleaner production techniques and environmental friendly technologies. Another important option identified by the declaration was the use of economic incentives to encourage more efficient products.

The Arab world has recently become active in embracing and developing new technologies for reduction of greenhouse emissions. The main story in the news currently is the beginning of construction of the first carbon-neutral, waste-free city in Abu Dhabi built by the "Masdar Initiative". The city will showcase the best available technologies for reduction of greenhouse gas emissions. By blending waste management with renewable technologies such as solar and wind power, Masdar says the city will use 75 percent less electricity and less than half the amount of water of conventional cities, saving the equivalent of $2bn in oil costs over 25 years. To maximize energy efficiency, the city's narrow thoroughfares will draw on the traditional architecture of the old walled towns of the Middle East. Carbon emissions saved by these techniques will then be monetized through carbon credits under the Kyoto Protocol's clean development mechanism.

This example is not unique. In the last meeting of the OPEC Ministers in Riyadh four Arab Gulf countries have decided to develop a US $ 750 million research fund for Climate Change. The fund aims to support cleaner and more efficient petroleum technologies for the protection of the local, regional and global environment, and promote the development of technologies such as carbon capture and storage (CCS).

With all the GCC countries requiring significant growth in the power and water sectors, an estimated $120 billion investment is anticipated in the industry over the next 10 years. This growth of investment if

managed wisely will contribute to moving closer to achieving sustainability in the region.

Some of the biggest companies in the region are developing and implementing their own Environmental and Social Corporate Responsibility options in reducing greenhouse gas emissions and shifting to alternative energy sources.

If this package of initiatives can be linked together in a comprehensive paradigm shift towards sustainability and real action to reduce greenhouse gas emissions, the Arab World will be able to declare its role as an active contributor in the global efforts to save the Earth, and enhance the options for sustainability in due course

GLOBAL RISK OUTLOOK

The Middle East is a focal point for global risk and its mitigation. This is particularly clear with geopolitical risk – with a high concentration of destabilizing geopolitical events having their origin in the wider Middle East region. But it is also true of two of the great intersecting global risks of the early 21st century – energy security and climate change – and of the risks relating to global economic imbalances: Middle Eastern external surpluses far exceed those of China. Some Middle Eastern economies (particularly those of the Gulf region) are heavily integrated into global trade and financial flows. Others, often the largest economies in the Middle East, have not yet overcome the dominance of the state sector and remain relatively unattractive to foreign investment. The vulnerabilities of these different economies and of different political structures, geographies and religious compositions across the region inevitably mean that global risks will play out differently.

However, the Middle East shares a number of global risks, and a number of solutions to those global risks. The region is interconnected by webs of investment, of geopolitics of religious affiliation – as well as physical infrastructure of pipelines for oil and sources of water, an increasingly precious resource. Many of the possible mitigation measures to deal with the consequences of global risks stem from within the region. Indeed, many of the mitigation measures can only be managed and controlled by acting in frameworks of regional cooperation.

This briefing does two things. First, it provides a brief overview of a range of 9 of the most salient of the 23 global risks extracted from *Global Risks 2007*, and outlines major trends as well as the impact on the Middle East region. Second, it provides a deep dive into four areas identified as being of particular interest: a global asset price collapse, a Chinese economic hard landing, retrenchment from globalization, and wider geopolitical and geostrategic instability in the Middle East. The intention is not to provide a prioritization of risks to the Middle East, but to highlight some of the common choices that the region faces and the common risks to prosperity and security, from the future of freshwater services to the future of the Middle Eastern currencies' peg to the dollar. Raising awareness of common risks raises the bar for shared responsibility for action and opportunities that will derive from timely, proactive policies to prevent global risks overwhelming the Middle East region.

China's economic growth over a quarter of a century has special interest for the Middle East. It has shifted global patterns of production and consumption, altered the relative strength of labour and capital, and driven a super-cycle boom in the prices of commodities, including oil. But China's economic success includes a number of warning signals. From the existence of bad loans to over-investment and stock market volatility, China has made itself a crucial part of the Middle East's economic future – as a market for Middle Eastern products including oil, as competition to Middle Eastern manufacturers, as a limited investor in the Middle East, and as a source of imports of consumer goods. A Chinese economic hard landing could have unpredictable consequences.

Should demand in oil slump, oil prices could fall. However, the fall in demand required to depress oil prices, given current supply constraints, would have to be sharp. Upstream investments to enhance production and refining capacity could be put on hold. In the long term, however, if Chinese economic growth resumes at previous rates, any major cutback in investment would accentuate future supply constraints. Geopolitical tensions between China the US, Europe and Japan over future strategic control of oil supplies would ease in the short term. Faced with a domestic recession, China would probably react by closing off potential foreign investment of interest to oil-exporting countries of the Middle East, not least in petrochemicals. Middle Eastern assets in China would depreciate, but despite prominent media coverage their importance as a share of overall asset portfolios is limited. Should China decide to revive its economy by export dumping, aspiring Middle Eastern manufacturing industries would be particularly hard hit, already under pressure from Asian competition in sectors such as textiles. Should China sell part of its dollar holdings to mitigate economic downturn at home, this would lead to a steep depreciation of the dollar and would negatively impact predominantly dollar-based foreign assets of Middle Eastern countries.

CONCLUSIONS

'Climate change could be critical for the Arab world because the region already suffers from poverty, widespread aridity, water scarcity and social marginalization' said Sima Bahous, Deputy Secretary General for Social Development in the Arab League,

The Kyoto Protocol and the United Nations Framework on climate change specifically stress the need for impacts and adaptation studies. This suggests that it is essential for Arab countries to establish a research network to co-ordinate research pertaining to

impacts and adaptation. The mission will be to build an Arab-wide network of researchers and stakeholders that will help develop credible information on the vulnerabilities of Arab region to climate change, the most significant impacts, and adaptation options. The mandate of the network can be to facilitate research on impacts and adaptation to climate change, and to coordinate research activities. Such network will allow stakeholders and researchers to work under one umbrella, while focusing on identifying the potential climate change impacts and adaptations strategies to protect water resources in the Arab region. Moreover, cooperation with international organization working in this field should be encouraged. This would help to streamline the information, increase capacity building and provide opportunities to share data, information, experience and lessons learned. Arab countries are also undergoing a political transition through the mainstreaming of elections, policy dialogues and other moves towards the liberalizations of politics. More active societies are encouraged, and human rights issues are reaching public visibility.

Due to its strategic position, the region has important and long-standing trade ties with the rest of the world. It is in a privileged position to act as a social, political, and cultural bridge between the North and South Regional integration. Such linkages are of great importance.

Globalization has forced Arab countries to negotiate their world wide economic integration on an individual basis, weakening both their collective and individual potential.

Limited regional economic trade connectivity and co-operation is blocking complementaries in the resource base and potential economies of sale and is deterring both foreign investment and successful local enterprise.

On the other hand, refugee issue needs a strong and systematic base of research and policy strategies to empower stakeholders to undertake action once the final status talks move into full operation.

In the energy sector, Turkey is promoting renewable energy and energy efficiency with legislation, incentives and awareness activities. Policies are being applied to increase energy efficiency in industry and in the transport sectors. According to the National Waste Management Action Plan, waste landfill sites will be increased. Turkey has adopted the Action Plan on Drought Preparedness and Combating the Drought in 2008. Turkey has committed to increase sink areas by afforestation and by controlling deforestation. The program is ambitious with a target of 2.3 million hectares of land to be planted in a 5-years period. 181.4 million tonnes of CO_2 will be sequestered in 20 years as a result of this campaign. Turkey is using only one third of its available water potential. The objective is to achieve effective water saving by better water management; through participation of the private sector more than 1500 new projects have been initiated.

Turkey is planning to adopt nationally appropriate mitigation actions and no-loose targets to limit emissions growth and move to a low-carbon economy. This shift to a low-carbon economy is only possible through technology transfer and multilateral financial support. Turkey expects the post 2012 regime to reflect the principles of common but differentiated responsibilities and respective capabilities. It should also consider adoption needs of the most vulnerable countries.

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PRIVATE EDUCATION AND ECONOMIC DEVELOPMENT IN NIGERIA

Dr Gabriel Udendeh*

A private university is one established and run by an entity other than government. In Nigeria such universities are run by faith-based organizations, individuals and community development associations. Whether public or private universities, the Nigerian educational policy requires that both should come under the regulation of the National Universities Commission (NUC). The later was established in 1962 as an advisory body but upgraded to a statutory body in 1974 with the following mandate (NUC website):

- Granting approval for all academic programs run in Nigerian universities;
- Granting approvals for the establishment of all higher educational institutions offering degrees;
- Ensuring quality assurance of all academic programs offered; and
- Channeling external support to the Nigerian universities.

The purpose of this paper is not to appraise the NUC but rather to attempt an evaluation of the contributions of private university system to the Nigerian educational development in particular and the entire economy in general; to identify possible constraints to the development of private universities in Nigeria and propose the way forward. This objective cannot be achieved without reference to the NUC, hence the review of the agency.

THE NUC

To effectively discharge its responsibility of implementing university system regulation in Nigeria the NUC is structured into 12 departments each headed by a director as shown in the Table.

An appraisal of the components of the NUC would confirm that things like quality assurance, physical planning & development and promotion of open and distance education could not have come at a better time than they did. If open and distance education department had come before the ill-advised wholesome proscription of outreach centres also, known as "satellite campuses" in 2001, the agency would probably have handled things a bit differently to preserve the right of Nigerians to higher education, while pursuing their daily bread. For the wrong decision, Nigeria lost huge foreign exchange to foreign universities who run the same programs without much difference.

It is pertinent to comment that the agency structure is well designed; however, its whole essence would have been better achieved if the liaison offices were replicated across the geo-political zones of the country

S/N	Department	Year of Creation	Core	Non-Core
1	Academic and Standards	-	Core	-
2	Inspection and Monitoring	2007	Core	-
3	Management Support Services	2007	-	Non-core
4	Students Support Services	2007	-	Non-core
5	Research and Innovation	2007	Core	-
6	Information and Communication Tech	2010	Core	-
7	Finance and Accounts	-	Core	-
8	Quality Assurance	2011	Core	-
9	Physical planning & Development	2011	-	Non-core
10	Open & Distance Education	2011	Core	-
11	Liaison Office (Lagos - upgrade)	2011	-	Non-core
12	Executive Secretary Office	1991	-	Non-core
	Total		7	5

for ease of access and impact. Also, it is my suggestion that the non-core departments might better be consolidated into one or two, and more strategically focused ones created, including:

- University Development Strategy Department;
- Equity & Dispute Resolution Department;
- Bonded Scholarship Department; and
- Academic-Professional Bodies Linkage Department.

I see the envisaged Development Strategy Department (DSD) working with proprietors of new universities to develop a road-map, including governance principles, resource base and infrastructure over a period of 5-10 years. Equity and Dispute Resolution Department (E&DRD) would ensure equal dispensation of development funds to be created under an arrangement, while working to resolve or minimize union (ASUU, NASU, NANS, and Host Community) conflicts that often result in long strikes. The Bonded Scholarship Department (BSD) would identify brilliant students for scholarship to higher education to broaden the pool of academics, while the Academic-Professional Linkage Department (A-PLD) would build synergies, seek collaboration and create room for practical experiences to make education more functional.

EVOLUTION OF PRIVATE UNIVERSITIES IN NIGERIA

The first major policy thrust on private university education was muted by President Shehu Shagari in 1983 following a pronouncement of the Supreme Court

of Nigeria that it was constitutional to allow individuals establish private universities. Consequently twenty-six (26) private universities were established but inexplicably abolished subsequently by the military regime that overthrew Alhaji Shehu Shagari in 1984. The Abuja-based Correspondence and Open University system was also closed down under the pretext that it was a cost-saving measure to Nigeria. The new regime (military) instead, proposed a country-wide Open University to reach Nigerians in their neighbourhood, which did not materialize until 2003 (Awe, 1998:72).

Following the return to civil rule in 1999 (generically referred to as 2nd Republic), General Olusegun Obasanjo rekindled the hope of private participation in university education to complement the efforts of government, which led to the establishment of Igbenedion University, Okada in Edo State, Babcock University, Illisan-Remo, Ogun State, Madonna University, Okija, Anambra State in 1999 (Ajadi, 2010). These were closely followed by several others in quick succession and by 2013, Nigeria had 52 private universities as against 78 government institutions (38 States and 40 Federal), implying that growth in private university system in Nigeria has become very high. It must be noted that of the 40 Federal Universities, 9 were established in 2012 and 3 in 2013 by the administration of President Goodluck Jonathan whose policy suggests that every state should have a Federal University.

Prior to the establishment of these universities, admission into the Nigerian university system was quite tasking for the teeming youth population who were yearning for university education. Demographically, Nigeria has a population of over 170 million which weighs heavily on the age bracket (10-25) years and overtime the available universities can only admit about twenty per cent (20%) of eligible candidates out of over 1 million that sat for the joint admission and matriculation board (JAMB) examination. This implies that about 80 per cent (or 800,000) fail to have the opportunity to read for their university education in Nigeria. Of these ten per cent source their university education outside Nigeria country, while seventy per cent or (700,000) wait for the subsequent year. Not surprisingly, this situation is the main reason behind the prevalent university entry examination malpractices. Rufai (2013) puts the number of university aspirants at 1.3 million with only 200,000 admitted. The advent of the private universities therefore, provided some kind of relief.

THE CONTRIBUTION OF PRIVATE UNIVERSITIES

Since the coming of the private universities, there has been a moderating influence on public universities in terms of decline in strikes, improved quality of teaching, infrastructure development and student welfare. This is possible because of the availability of credible alternatives; parents now realize that though costly, private universities are more cost-effective and it is better to sacrifice and pay the child's school fees in a private university where there is a guarantee of consistency of academic activity programs and reasonable predictability of graduation timelines. In most private universities, courses are offered to candidates as requested provided they meet the requirements, lecture handouts by teachers are non-existent, it is the school and not the teachers that stipulate school hours, and libraries are properly equipped with modern text books and resources to access e-books. Other contributions are as follows:

Freewill to Express Opinion

A university system is an environment where teaching staff expect mental liberation to freely express opinion on societal issues, including the manner of governance and policies underpinning administration of the system. My good friend and mentor, Zakari Gunde had to leave Ahmadu Bello University (ABU), Zaria and eventually Benue State University on account of his outspokenness on issues that bordered on the society and miss-governance.

Access to Courses of Choice

In the days of public universities, candidates' choice of a career in life was uncertain as the university reserved the right to assign any course of study to the candidate without any apology. Instances abound where candidates who applied for medicine were given microbiology, while those who applied for law were admitted for political science. At some point in time, public universities implemented quota system whereby admission to read certain courses (medicine, law and accountancy) was reserved for indigenes whether they achieved the stipulated cut-off JAMB marks or not. All these matters have been addressed by the private universities. My daughter, who was given philosophy to read in a State University, declined and skipped a year after which she gained admission to read Business Administration in a private university. She graduated and did her mandatory one year national service before the set she was to join at the State University eventually graduated.

Employment

Empirical evidence shows that each of the private universities has staff strength of not less than 1,000 staff, while the well-established ones have over 5,000 staff. Given an average of 3,000 (for simplicity sake) when multiplied by 52 private universities, will result to 156,000 employees. Besides other externalities, viewed against a multiplier factor of 0.25 per cent (1/4) one could see that the private universities are hypothetically catering for 624,000 people and at the same time, contributing to income tax revenue of the host states.

Relevance of Education to the Economy

In December 2011 I attended a course in Arlington, Virginia, USA on financial institutions analysis. The

greatest lesson of note was the use of locally generated live data and scenarios to stimulate discussion, while solutions arrived at typified ideal circumstances in the economy. Also relevant was the study of key players in the financial industry whose activities formed the basis of case studies used for the program and the localization of study materials made internalization quite easy and achievable. What this portends to us is that when students are made to study for a university degree outside their operating environments, they find it difficult to appreciate certain fundamentals within the environment that render policy tools effective. By broadening the horizon of university education in Nigeria, the private universities have localized university education within the context of Nigerian environment, thus enhancing insight into the economy as well as the process of an enduring research in the economy.

Curricula Geared Towards Professionalism

This is one of the most interesting innovations that private universities have brought about in Nigeria. Most of them offer courses that require professional certification such as accounting (ICAN), banking (CIBN), stockbrokers (CIB), medicine (NMA), law (NBA), engineering (NSE). This was not the case with public universities who felt that their government ownership status insulated them from the need for professional affiliation especially where the latter was perceived as having private sector orientation. Under the era of private universities, core professionals of relevant bodies are expected to form part of the university faculty in order to attract the necessary accreditation, which has proved very useful. It has provided a loop between academic knowledge and professional qualification which affords the beneficiary greater opportunity to play a role in the emerging economy.

Global Outlook

Most private universities are modeled after their mentors overseas. For instance, Covenant University, Ota and Landmark Universities, Omu-Aran, Kwara State both mirror Oral Roberts University in the USA; Pan African University, Lagos, looks up to the University of Harvard; Bowen University at Iwo, University of Mkar at Gboko and Babcock University, Ilesam Remo all look to educational institutions established by their faith-based mentors for emulation. The aspiration to achieve the academic feat and laurels attained by the reference institutions often accentuated by exchange programs reiterates the need for consistent improvement as a matter of principle.

Promotion of Entrepreneurship

Virtually all the private universities in Nigeria emphasize entrepreneurship, while others have gone a step further to offer degree courses in Entrepreneurship and Innovation. In universities like Covenant, they even engage graduating students in a program known as "total man concept" which is designed to take them through challenges of real business situations to better prepare them for the real life situation. The growing unemployment in the economy underscores the imperative of self-employment and the early recognition by these institutions to strategize against it is a step in the right direction.

Discipline

The private universities have, to some large extent eradicated the culture of indiscipline associated with public universities, especially cultism, exam sorting, sexual harassment, indecency, alcoholism, absenteeism, exam cheats, assault, etc. Bishop Oyedepo (2009) says Nigeria has a great number of graduates but most are not employable on account of indiscipline. This perhaps, informs his Covenant University's apparent rigid rules of discipline.

CHALLENGES FACING PRIVATE UNIVERSITIES IN NIGERIA

Use of Single Regulator

The use of a single regulator (NUC) for both private and public universities tends to limit innovative tendencies of the private universities in Nigeria. The orientation of the private universities is fundamentally different from those of the public sector as the former is driven more by market demand than the orthodoxy of the traditional university setting. The use of government regulator may slow down this process.

Irrationality in Regulation

In developing countries like Nigeria, government has more resources than the private sector and therefore, sets the pace and standards for institutional developments. For the private sector to compete with government they need friendly policies, grace period to evolve and facilitative regulation but this does not seem to be the philosophy guiding the university regulator in Nigeria. In 2012, over six private universities were suspended over some allegations bordering on inability to operate within set standards, while their public counterparts with apparent lower standards were allowed to run.

Centrality of the Regulator

Both private and public universities are spread all over the country and to locate NUC centrally in Abuja makes it difficult for effective monitoring given its budget constraint, limitation in personnel and other logistics. In the last Dana airline crash of June 3, 2011, NUC lost a good number of staff who were on accreditation assignment, which regional officers would have handled if the agency were co-located (well-spread out).

Admission Constraint by JAMB

Private universities continue to rely on the Joint Admission and Matriculation Board (JAMB) for admission into the universities. This has rendered the imperative of sourcing for the right candidates quite challenging, which informs the strategy of post-JAMB test by the private universities (now copied by even the public universities). The argument of the private universities has been that the candidates that score high in JAMB find it difficult to cope with academic work after admission.

Poor Infrastructure

Private universities face huge challenges developing infrastructure like hostels, cafeteria, recreational facilities and laboratories, especially those that do not enjoy the support of their faith-based owners. It is highly recommended that the physical planning and development department will liaise closely with the Infrastructure Development and Concession Agency and Estate Agents to develop policies that attract the participation in this direction.

Self-Imposed Limitations

University education entails total orientation of a human being to pre-dispose him/her to transform the society for the common good of everyone. The freewill to explore one's environment, the latitude to experiment with life situations and the human tendency to exploit life opportunities, however, most faith-based institutions do not seem to leave enough room for these expeditions to occur. This might be due to the tender age of some undergraduates who need institutional protection and pietal acculturation, however, this orientation also, often renders them less prepared and ill-equipped to face societal realities.

High Fees

The desire to improve or at least, maintain existing services compel private universities to charge high fees well beyond the reach of ordinary Nigerians. Experience shows that the most brilliant students come from poor families. The implication of this is that brilliant but indigent students cannot attend these universities, while the institutions are denied the opportunity to attract first class brains on account of unaffordable fees.

Exclusion from Access to Grants

Government policy toward private universities is unfriendly. For instance, in 2011 the government passed a law extending the retirement age of professors in public universities to 70 years and PhD holders to 65 years. The reason given was that academic who retired at 60 years were going to private universities. This is discriminatory to say the least. Presently, research grants, project funded under education tax fund or appointment to committees for the reform of education are denied private universities notwithstanding that the same JAMB conduct their exams and they are all subjected to NUC standards.

Paucity of Academic Staff

The recent directive by NUC that all university lecturers must possess a PhD put a lot of strains on the private universities as those who possess PhD prefer government universities due to the opportunities highlighted above. Part of the NUC regulation is that universities should not produce higher degree graduates until they have organically gone through the process of graduating first degree candidates. This has limited local production of PhDs.

Undue Focus on Market-Driven Courses

The greater emphasis being placed on market-driven course such as accounting, economics, banking and finance and computer science is also unhelpful to the private universities. Despite the growing demand by movie industry in Nigeria, most of these universities have not deemed it necessary to run courses in theatre arts and performance. This may be related to the religious background of most of the private universities. Experience of other jurisdiction shows that courses in humanities, natural science or civil engineering do not command high commercial appeal but hold great prospect for societal development in view of their ability to recognize situate and analyze issues. Professor Wole Soyinka read English but he is one of the greatest minds of his generation.

Absence of Pressure Group

The private universities presently do not have any pressure group to provide advocacy to influence government policies towards achieving their objectives. Most private universities in the United Kingdom and the US have admission or marketing officers that champion their search for new intake without necessarily going through a central admission scheme. This does not make their graduates less qualified than their JAMB administered graduates. The NUC accreditation criteria need to be more transparent, while a program of university development should be in place for every new university to ensure that it overcomes the teething challenges. These cannot come easy with a strong advocacy by the private university itself.

PROSPECTS OF PRIVATE UNIVERSITIES

Given the cursory analysis which suggests that over 700,000 candidates that deserve university education to not get the opportunity, one could see a great opportunity for private university development in view of its potentials market. Other prospects include:

- Attraction of direct foreign investment to establish and manage private universities in Nigeria;
- Improved service due to keen competition will usher in quality teachers, new quality improvement strategies, new discoveries and

innovation and ultimately a better management of the economy;

- With high quality, African states, Middle East and Asians will see the need to patronize our local universities, which will broaden our foreign reserves;
- With a robust local research and teaching, our education will find relevance in the local economy to open a vista of other opportunities;
- This may lead to self -employment, innovation and creativity;
- Private university system appears set to eliminate the stigma of poor quality graduates in the country; and
- Students – teacher relationship will become more mutual thereby eliminating social vices.

SUMMARY AND CONCLUSIONS

The establishment of private universities over the past fourteen years has made a tremendous difference to education in Nigeria. Though at infancy, private universities hold the key to education revolution in Nigeria. The establishment of over 52 private universities shows how earnestly Nigerians had been yearning for such an opportunity. Viewed from the perspective that an educated person understands the virtues of moral principles, cultural values and political sentiments with its economic incentives, there is no gainsaying that the Nigerian quest for higher education is to create a room for more constructive engagements in the society. Effective higher education enables the individual to foster societal transformation by laying a strong moral foundation for life's endeavours. One can agree with Awe (1998) who identifies five objectives of a university education as including:

- Raising a next generation of intellectuals to provide future direction;
- Expanding the scope of learning to diverse disciplines;
- Developing high caliber manpower to meet the needs of an evolving economy;
- Encouraging individual student to develop their full potentials; and
- Studying the cultural heritage to sustain and transform its values.

President Jonathan realized this imperative when he directed the establishment of Federal Universities in all states of the federation even in states where Governors were still dragging their feet over the issue. One expects that the same spirit driving the establishment of public universities would drive the policy for the establishment of private universities in terms of easing up the process without compromising standards to encourage participation. In similar vein, the Federal Government can be expected to resist the temptation to implement policies that put private universities at a disadvantage such as the recent retirement age for professors and PhD holders which sought to discourage migration of such academics to the private universities.

The NUC should be more transparent by publishing their requirements for university assessment, while bearing in mind that its oversight function needs to be even-handed to facilitate rather than coerce weaker partners to the education development equation given that everyone is a stakeholder with a common objective which is to develop the university system in Nigeria to anchor economic development.

Private universities should form pressure groups such as committee of private universities, registrars of private universities, proprietors of private universities, etc. to press for policy favours. After all, pressure groups are a cardinal principle of democracy.

JAMB should make room for flexibility in admission administration to enable private universities get their right candidates even where it is beyond the shores of Nigeria; hence at the end of the day, the private universities, not JAMB, will be assessed on the quality of their graduates.

Finally, there should be more collaboration among private universities, including exchange program, transfer of students and sponsorship for higher degree programs.

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MANY LEADERS – JOCKEYS TO AN APOCALYPSE

Dr Bruce Duncan*

Leadership is another of life's areas both bedevilled and enriched by a common denominator aptly named, "human nature". The Arab Spring[1], for example, illustrates bedevilment where some, who might have been said to have begun as effective political leaders and had initially enriched their country, had then subsequently become ineffective and consequently destructive forces in power. In parallel, the global political scenario portrays a jungle filled with many electioneering, "baby hugging" individuals who, once in office and in authority, kill the milk-giving cow that had fed the photo-shoot baby. However, it is not helpful to focus only on political debacles so as to ignore another bubbling cauldron of noxious problems viz. the world of business leadership.

Regardless of the historical precedents, the potential for further bedevilments in the world of the leadership scenario outside politics remains disturbing. Will there be repeated reincarnations of individuals like Bernie Madoff, a resurrection of hordes of irresponsible moguls, a further influx of cabals of self-serving oligarchs, a regeneration of bastions of vain entrepreneurs and soon-to-be discarded multinational and national companies, organisations and related enterprises – leaving horrifying collateral damage in their wake? Whilst this Paper hypothesises such a repetition by leaders in the business fields, it is hoped that serious consideration might be given to the possibility that the cycle of disastrous failures need not be perpetuated. Is it axiomatic that humankind can never learn from history?

This Paper will attempt to pinpoint destructive, vain-glorious business leadership that continues to kill the geese that should not only lay golden eggs but also thereafter ensure that they are not delegated to the scrap heaps of inglorious "has beens". It is suggested that positively addressing the issues raised could improve leadership in what is called, business. Importantly, we need to re-evaluate the idealising sentimentality that obscures the real person behind the office thus creating a Jekyll and Hyde reproduction.

GROUND ZERO

Why is it that many currently in leadership remain stubbornly committed to building epitaphs engraved "Another Disaster"? Why is it that the contagion of the "blinded" continues to bedevil?

Many lectures on leadership emphasise desirable personal characteristics, essential talents, notable physical prowess, a standard of education and most pursue the circuitous debate whether leaders are "born" or "made". Most do not however focus enough on the subliminal negatives that undermine and cause decay from within the psyche of respective leaders – those unique individuals who may otherwise possess all or some of the stated and essential attributes of leadership.

Human nature hosts sectarian Fifth Columnists[2] whose subtle ingenuity influences many leaders to jockey to disaster. Let us spotlight some of the major culprits of such devastating intrigues. Let us label some of the conspirators, the spoilers who influence the jockeys in their helter-skelter race to their painful day of reckoning. Let those of us who play some part in the phalanx of leadership search within ourselves – maybe danger is germinating within. Let us not shelter under a fascicle belief that we are exempt – we are, after all, human.

LOSING PERSPECTIVE

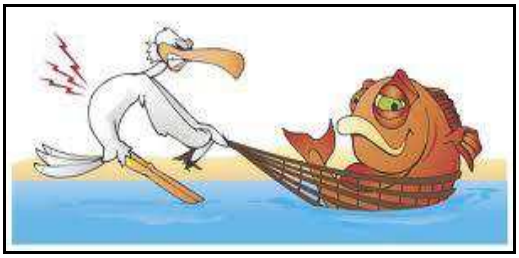
It is not uncommon or unnatural for leaders to lose perspective about *their* unique organisational place. For example, the inimitable role of the entrepreneur may not do justice to the role of consolidator but the former nevertheless still attempts to dictate to the consolidation function in "his/her" organisation – killing the goose and smashing the eggs.

theiamwho.blogspot.com

After entrepreneurs have established their kingdom it is rare to find that such exceptional and gifted individuals possess the essential abilities to strengthen and grow their creation from *within*.

In the Biblical account of creation, for example, the Lord God set up the world. Thereafter, delegation within proscribed parameters was handed to Adam and his task was to grow the project from *within.* Indeed, if the Media had been around at the time, the six-day wonder recorded in the Biblical account of creation would have earned positive headlines. However, even the God of the Bible then stood back and delegated – consolidation and development was apparently not part of that initiator's role.

Are entrepreneurs and leaders able to learn from the wisdom of the Greek aphorism, "Know thyself [3]"? The maxim is ignored at great cost to all concerned in any enterprise – nobody possesses all the qualities that a project demands – the reality is often indicative of the displayed vanity of many who refuse to accept their limitations when they fail to delegate to others.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Understandably, and in step with his humanity, Adam messed up badly but not before he had done some positive work (as is the case with many leaders today – not all their efforts are disastrous)! However, it was only when he allowed the Fifth Column spoiler to turn his mind away from his delegated perspectives that disaster struck.

Richard Branson, for example has allowed his empire to grow and expand through the talents and abilities of consolidators and developers. He accepted the demise of his Virgin Records division that was forced to succumb to Steve Jobs and his music download initiative. Nevertheless, he remains a maverick and is now concentrating on his latest entrepreneurial stint – a $209 million Spaceport controversially paid for by the Mexican taxpayer[4]. However his established business empire continues to *grow* under the delegated control of others. In contrast, it is a hallmark of tin-pot, psychopathic dictators to clutch everything to him / her – or rationalise their destructive performance.

The show must *continue* and to ensure growth and development, the participation of others with different skills and abilities (and possibly even better talents) must be harnessed. If they are not permitted to perform, an amphitheatre of blood and gore will soon be in evidence.

GROOMING BY THE TEAM

bjsgrooming.com

Does Greek mythology offer those of us in leadership any further sage advice? Consider the story of the Trojan Horse from where come the words, "Beware of Greeks bearing gifts[5]". Virgil's epic fable also epitomises Fifth Column infiltration that played on the vulnerabilities of opponents by feeding their curious egos – allowing them temporarily self-adulation before their destruction.

Let us beware of the agent provocateurs who stroke the entrepreneurial ego. It is true that the mogul deserves rewards, admiration and acclaim but he / she must also acknowledge that despite his / her skin deep demonstrations of humility, the evolutionary instilled seed of vanity has an insatiable appetite for "Please, Sir, I want some more[6]". The Kingdom of Self has a ravenous craving to gorge on adulation. Feeding "self" at the expense of disciplined perspective management is a recipe for organisational indigestion, pain and shared taste of the Arab Spring. The best antidote is a strong dose of *humility* at least three times a day – everyday – leading to the practise of servant leadership.

In the normal course of events, some leaders will all too often have acquiescent staff sacrificing openly honest criticism of their leader's performance and management because of a desire to remain "best beloved" in the pack. In parallel, the ego-centric leader will avidly devour "good" feedback and warm to such supportive (sycophantic) input to play down / ignore / rationalise any criticisms that slip under his / her radar of ego protection. Let us be aware, but not cynical of, Greeks bearing gifts.

Biased grooming by members of the team (or outsiders) is sometimes sincere but can nevertheless mutate into destructive Fifth Column manipulation. Concomitant with this parlous state, is the survival DNA seeking leadership-cosseted status and being ushered into the "IN group".

However, an "adulation bubble", is just that – an effervescent creation and, like the housing bubble in the USA and the UK, will burst – and catastrophes will follow.

Few of us like or welcome criticism – whilst we acknowledge that it is necessary, we often shrivel up when it comes. We all prefer strokes to smacks and when the critics voice their opinions, springing rapidly to our defence are our trusted Defence Mechanisms to protect our vulnerabilities, and chief amongst the recruits are denial, compensation, rationalisation and procrastination. However, vanity nudges us to glory in adulation and thus oil the ego-defence processes – and we jockey to disaster.

EQUALITY AND FRATERNITY

We must challenge leaders who bestow favouritism, practise nepotism and allow "special status" to selected staff. What are *his / her* objectives? Is it to create a cohort of shallow admirers whose allegiances might only be skin deep? Is it to create a surrogate clan to escape the loss or unhappiness of a biological family?

Understandably, in any employment scenario there are always challenging areas within a team structure and whilst the "inner core" is not necessarily a bad arrangement in principle, it more often than not leads to "not fair to all concerned practices" if not offset against an "equalities code".

One damaging result from the "Inner Club" is that the leader will allow sentiment and relationships to blur his/her objectivity in decision-making, planning and management – he/she wants to keep the group together (and their ego-stroking support base intact) so that control remains vested in the great "I am". Sadly, the outcomes reveal a debilitating organisational roundabout that rotates primarily at the whim and fancies of emotionally structured strings, rather than advancing in tune with the drum-beat of progress and relevant technological initiatives.

Open and transparent management based on contracted codes and enshrined in a clear structure are then ignored or twisted, resulting in the disappearance of fairness, equal opportunities and non-discrimination.

Decisions swayed by volatile personal allegiances that overturn set policies will invite an albatross to nest and reproduce its offspring on the shoulder of the leader.

This situation is exacerbated further when the blue-eyed staff members then presume on their assumed rite of passage by following their own employment agendas and privileges whereby the tail wags the dog. Such unfair approaches within any employment scenario negate the practise of Equal Opportunities and Non-Discrimination.

Peer resentment and low staff morale follow in the wake of perceived and experienced side-lining in favour of "the IN group"[7].

Sadly, a problematic scenario develops when the leader allows such an organisational culture to secure his / her status by accentuating the positives of praise and adulation to balance off their unacceptable performance and behavioural negatives. This process ensures that his / her "bad" practices are swept under the carpet and not addressed.

To compensate for failings, rather than address them, may ease the conscience but destroy professional organisational management in the medium to long term.

By creating "us – them" groups the stage is set for the coronation where a leader believes in his / her own power and infallibility. The Divine Right of Kings resurrects and the ethos of the Arab Spring will soon be personalised leading to abdication or assassination and thereafter, collateral chaos.

PLAGIARISM

The Fifth Columnists, in a further effort to motivate the leader to jockey to tragedy, allow misattribution of success into the situation. Ego-hungry leaders will greedily gulp down "success" that has not been of their own making but emanated from the work of others. Vanity sucks greedily on the positive input of others.

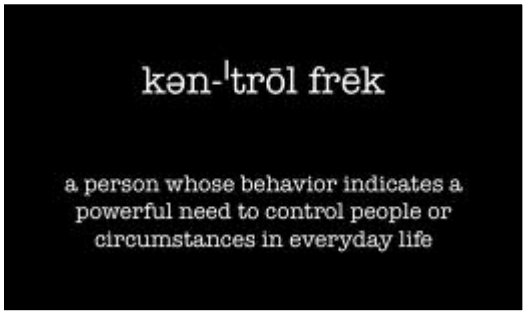
Misattribution slyly attributes cause and effect to the wrong sources and the fragility of the halo often given to leaders adds to the false caricature built around them. An example of this kind of behaviour can be seen in the manner in which the generals of a war receive praise that ignores the sacrifices of those who died for the Cause. There are rare occasions when the lower ranks feature in the list of credits at the end of the documentary. Richard Branson would not be where he is if it were not for the team behind him.

Is it true that most leaders receive media hype that is rarely objective? Articles about a leader will focus on "their humble background, how they turned from a nobody to a success story[8]", and these snippets might be true but reflect only a minute part of the person. Therefore, what appears on the screen or in the newspaper is not necessarily the full picture, warts and all. The death of the co-founder of Apple computers, Steve Jobs, has opened the curtain on an entrepreneurial genius and an individual who lived with his own demons. He gathered much public acclaim but success was made possible through the hard work (in a difficult environment) by others. Interestingly, he made his billions, not in the Apple orchard in Silicon Valley but in selling Pixar to Disney in 2006. He was, like us all, human.

Conversely, Sir Isaac Newton, when speaking of his dependency on Galileo's and Kepler's previous work in physics and astronomy said, "If I have seen further it is by standing upon the shoulders of giants"[9].

Pathetic leadership listens to the Sirens that not only attract and bind but, in so doing, also hurt others – those who have arduously chipped away at the coal face. The public face of the leader is often nothing more than a reflection of two-faced misattribution – the hypocritical emperor is wearing clothes purloined from the sweat and tears of the team.

THE CONTROL FREAK



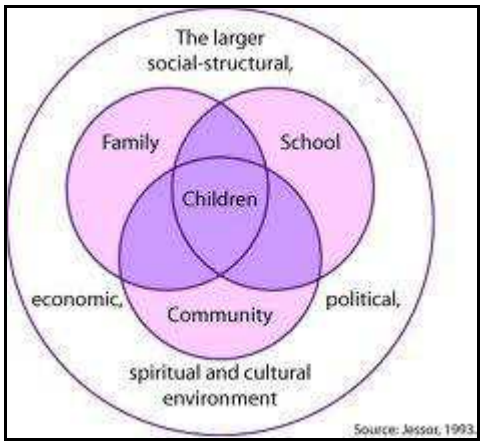
It is not uncommon to discover "God Players" amongst the ranks of leaders. Successful entrepreneurs must exercise control over their world without claiming omnipotent, omniscient and omnipresent qualities. However, there are those who go over the top and may best be categorised as "control freaks".

Entrepreneurs begin with a consciously sincere desire to create "something". Sadly, such industrious, conscientious and talented mavericks soon become obsessed with the belief that they are the indispensable "be all and end all" of their project.

Fifth Column bedevilment in this category is noted in the leader who exhibits a pattern of control that affects his / her ability to delegate and get along with others – especially when they sense peer competition. "Control freaks try and control every aspect of the environment … they obsess. They try to assemble masses of information[10]. They are not conscientious workers because their behaviour affects others, especially when they "try to set the agenda in meetings, interrupt others, and get hostile when challenged[11]".

The control freak is unable to deal with issues around dominance, trust and distrust, submission and team work. He / she remain paranoid about any authority or power other than their own. They thus create their own "safe" environment where they can hold court without any fear of a coup d'état – or so they believe. After all, the enemy is within and not without.

Sometimes, excessive dominance could be traced to hidden agendas, including malpractice that might be embarrassing if not kept hidden. Secrecy adds to the frenetic demand to seek refuge in control but serves as ammunition for those who think and have a basic understanding of human nature.



We might enquire whether control freaks are the victims of sad childhood events. *Why* do they not trust others? *Why* do they remain unconcerned about their poor people skills and rarely have second thoughts about their debilitating impact on their staff? *Why* do they need to rule like feudal lords? *Why* do he/she vacillate from being "the all-out bully to the sly scheming boss who changes the rules constantly[12]"? *Why* is he/she so insecure? *Why* does he/she spread his/her own damaged past onto others? Their volatile temperament and inability to consider the needs of team members is worryingly detrimental to mentoring leadership.

We leaders need to be aware of our own cycle of development. Often too, during and after the mid-life crisis, many leaders respond to an unconscious need to reassert "self" and to compensate for inadequacies in other areas of personal life. They thus increase their stranglehold on "their" creation and easily confuse work, family and recreational responsibilities, failing to appreciate that the employment scenario cannot compensate for socially weak areas, interpersonal quirks and lack of personal fulfilment elsewhere.

A study by the University of Bradford Management Centre found that 'control freaks were more prone to insomnia, palpitations, high blood pressure and chronic fatigue ... it's not until the company is run to the ground, the employees leave or the wife [husband] walks out, that the control freak realises it is time to change'[13]. Of course, by that time, the jockey has created another project – Armageddon.

QUIZ

Readers might care to complete the following nine questions[14]. Ensure that the answers are not controlled (!) by looking at the quiz results *before* completing the exercise. For the best results, note your answer immediately so as to prevent any "reasoning" to suit your mood.

1. I trust others to get the work done on time and to a good standard:

    a) rarely
    b) generally
    c) always

2. I find other people have better ideas:

    a) rarely
    b) sometimes
    c) often

3. I normally find I am right:

    a) mostly
    b) sometimes
    c) it depends on your perspective

4. During a meeting, do you:

    a) Take notes, because someone must
    b) Take down the important points
    c) Assume someone else is paying attention

5. At the end of the day are you more likely to:

    a) Stay until you have returned every email before going home
    b) Make a list of relevant things to tackle tomorrow

c) Start calling your colleagues to see who wants to go out for a drink

6. When faced with a menu in a restaurant, do you:

a) Think it is sensible to order for everyone to save time
b) Ask everyone else what they would like first and then order
c) Wait until it's your turn to order

7. Do you feel that if you were to take a holiday your business would:

a) Fall apart because no one knows how to do anything properly
b) Suffer a bit, but not as much as it would were you not to have taken a holiday
c) Allow others a chance to take charge and show what they can do

8. When planning a trip, do you:

a) Allow extra time for unexpected delays and bring work to occupy your time in case you arrive early
b) Follow the airline's instructions
c) Wait until the last minute, at which point you rush like mad

9. When setting off for a holiday, do you:

a) Go through everyone's suitcase to make sure it is packed properly before heading out
b) Pack your suitcase and figure everyone else can do their own
c) Pack when the taxi arrives

If most or all of your answers were a), you have controlling issues and should try to exercise some flexibility. Start by altering some of your routine. If not taking notes in a meeting makes you nervous, it is an indication of the problem.

If all or most of your answers were b), you are able to relinquish control when necessary and are on the healthy side of being in control. You are a team player.

If most of your answers were c), you are in danger of becoming an "out-of-control freak". There's a fine line between being easy-going and being irresponsible. The latter behaviour, in fact, fuels the control freak's anxiety[15].

QUO VADIS?

'The road to destruction is paved with good intentions' – let us ensure that the leadership we exercise allows our project and others to grow. Let us avoid denial and, when appropriate, accept that we must change. We do not have to repeat the cycle of bad input – in so doing, we shall avoid a damaging Judgment Day and the Arab Spring will pass us by.

READINGS

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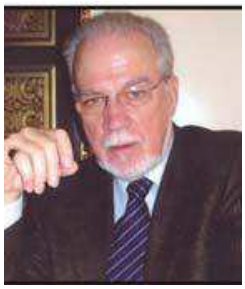

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STATISTICAL METHODS AND COST EFFECTIVENESS IN CLINICAL TRIALS

Dr Godfred Kwame Abledu*

This paper looks at how cost in clinical trials can be kept at the barest minimum. The paper attempts to find a statistical method to obtain the maximum benefit in the conduct of clinical trials at low cost. The standard approach to the statistical estimation of cost-effectiveness based on data collected alongside clinical trials has been outlined. The predominant approach in the paper is to estimate a single Incremental Cost-Effectiveness Ratio (ICER) for the trial as a whole, and has focused on the appropriate way to characterize statistical uncertainty in the estimated cost-effectiveness.

The standard approach proposed by Willan and Briggs(2006) and Hock and Blume (2008), will then be extended to consider issues associated with covariate adjustment and subgroup analysis in economic evaluation studies, within a net-benefit regression framework. A more general framework of statistical modeling is proposed, based on modeling the separate components of cost and effect.

INTRODUCTION

It has become increasingly common for clinical trials to incorporate an economic appraisal in order to inform an assessment of not only a new intervention's clinical effect, but also its value for money. This has led to many more health economic appraisals where patient-level data are available, and this in turn has led to developments in the statistical methods used to estimate cost-effectiveness.

Willan and Briggs (2006) and Hock and Blume (2008) are of the view that clinical trials are expensive and time-consuming; and a lot of thought goes into their planning, execution, and reporting. The time involved from concept development to study activation varies depending on the phase of the trial and whether it is a single or multi institutional study. It is for this reason that we find statistical methods for cost-effectiveness analysis in clinical trials an important topic.

CLINICAL TRIALS

Hoch, Briggs, and Willan (2007), Halaby (2007), Etzioni (2008), Zwahlen (2008) and Grossman (2008) define clinical trials as scientific investigations that evaluate the safety and\or particular outcome(s) of a therapeutic or non-therapeutic intervention in a defined group of patients. According to ClinicalTrials.gov, 'a clinical trial is a research study to answer specific questions about vaccines or new therapies or new ways of using known treatments. Clinical trials (also called medical research or research studies) are used to determine whether new drugs or treatments are both safe and effective; they are the main conduit that the Federal Drug Agency (FDA) uses to approve drugs for use in humans.

Over the past several decades, clinical trial methodology has evolved from simple, small, prospective studies to large, sophisticated studies that incorporate many correlative-science and quality-of life objectives. Although studies have become more complex, most researchers and writers, including those quoted above, are of the view that clinical trial methodology can be broken down broadly into four categories or phases:

- Phase I: This phase tests a new drug or treatment in a small group to evaluate dose and safety;
- Phase II: This phase expands the study to a larger group of similar patients with a defined treatment or intervention;
- Phase III: This phase expands the study to an even larger group of people;
- Phase IV: This phase takes place after the drug or treatment has been licensed and marketed."

A Phase III clinical trial is 'a prospective controlled evaluation of an intervention for some disease or condition in human beings'. Phase III clinical trials are usually the definitive trials providing evidence for or against a new experimental therapy, and they have become the gold standard in assessing the efficacy of a new experimental arm or device.

In a clinical trial, Raghanvendra, Davadiga and Maria (2011) see substantial amounts of data recorded on each subject patient: demographic characteristics, disease related risk factors, medical history, biochemical markers, medical therapies, and outcome or endpoint data at various time points. This data can be categorical or continuous. Understanding the types of data is important as they determine which method of data analysis to use and how to report the results.

STANDARD APPROACH TO STOCHASTIC EFFECTIVENESS ANALYSIS (CEA)

An economic analysis most commonly involves an evaluation of an intervention treatment (T) compared to a standard care treatment (S), (Hock, Briggs and Willan (2006), Cuccurullo (2010) and Dey, Ghosh and Mallick (2011). Denoting the true (but unobserved) values of cost and effect for the treatment as C_T and E_T and C_S and E_S for standard, the incremental cost-effectiveness ratio, which provides a summary measure of value for money of the new intervention relative to the current standard, is defined as:

$$ICER = \frac{C_T - C_S}{E_T - E_S} - \frac{\Delta C}{\Delta E} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

with the implication that the intervention offers good value for money if the ICER falls below some maximum willingness to pay for health gain (call this λ). That is, a decision should be made to implement the more costly but more effective treatment intervention if:

$$\frac{\Delta C}{\Delta E} < \lambda \quad \text{.....(2)}$$

THE INCREMENTAL COST-EFFECTIVENESS RATIO (ICER) STATISTIC

It is never possible to know the true incremental costs and true incremental effects of an intervention, since it is impossible to simultaneously observe the costs and effects of two different treatments in the same population of patients. Instead, the average experience of patients randomized between the treatments to be compared is employed. Using sample data for economic information collected in a clinical trial setting it is possible to define an estimator for the ICER by

$$\hat{ICER} = \frac{\bar{C}_T - \bar{C}_S}{\bar{E}_T - \bar{E}_S} - \frac{\Delta\bar{C}}{\Delta\bar{E}} \quad \text{.....(3)}$$

using the sample mean costs and effects in each of the treatment arms.

It is this statistic that is estimated in the majority of economic appraisals conducted as part of clinical trials. However, the use of the ICER as the statistic of interest in cost-effectiveness studies can pose substantial statistical challenges. For example, the variance of a ratio statistic is not defined, and the confidence interval estimation can be problematic, particularly when the denominator of the ratio has non-negligible probability of having a zero value leading to a discontinuity in the sampling distribution.

In such situations, Fieller's theorem will fail to provide a solution, and care must be taken when interpreting any non-parametric bootstrap confidence interval estimate of the interval. The issue is that, where uncertainty covers several quadrants of the cost-effectiveness plane, the use of the ICER results in loss of information. For example, two ICERs can have the same absolute value, but if one were generated from a negative effect difference and the other from a positive effect difference, the decision making implications of the two ICERs are exactly opposite. Without knowledge of the sign of the denominator of the ratio, this information is lost.

An alternative approach to presenting uncertainty for such cases is the cost-effectiveness acceptability curve (van Hout et al., 1994 cited by Willan and Briggs, 2006) which shows the proportion of the joint density of incremental cost and effect that favours the intervention, as a function of the decision threshold, λ from equation (2). This approach correctly distinguishes the parts of the joint density falling into different quadrants of the cost-effectiveness plane.

THE NET-BENEFIT STATISTIC

More recently, the use of a net-benefit statistics has emerged in preference to the ICER, mainly due to the statistical properties of the net-benefit estimator, and the fact that the use of the net-benefit statistic does not result in the same loss of information as the ICER when uncertainty is high. Two alternative formulations of net-benefit have been suggested based on a simple rearrangement of the decision rule such that the new treatment should be implemented over the existing standard if net monetary benefit (NMB) is positive

$$NMB = \lambda\ \Delta E - \Delta C > 0 \text{ .....(4)}$$

or, entirely equivalently, for positive net health benefit (NHB)

$$NHB = \Delta E - \Delta C \big/ \lambda > 0$$

The same sample analogies are employed to estimate the mean effect and cost differences in order to give the estimated net-benefit statistics:

$$NMB = \lambda.\Delta\bar{E} - \Delta\bar{C} \text{ .....(5)}$$
$$NMB = \Delta\bar{E} - \Delta\bar{C} \big/ \lambda \text{ .....(6)}$$

However, in contrast to the ICER, where the variance is not defined, the variance of net benefits estimated from sample mean cost and effects in the trial arms is simply a linear combination of two asymptotically normal variables and can therefore be defined as:

$$NMB = \lambda^2 \operatorname{var}(\Delta\bar{E}) + \frac{1}{\lambda^2}\operatorname{var}(\Delta\bar{C}) - \frac{2}{\lambda^2}\operatorname{cov}(\Delta\bar{E}, \Delta\bar{C}) \quad (7)$$

in terms of the monetary net-benefit measure, or:

$$\operatorname{var}(NMB) = \lambda^2 \operatorname{var}(\Delta\bar{E}) + \frac{1}{\lambda^2}\operatorname{var}(\Delta\bar{C}) - \frac{2}{\lambda^2}\operatorname{cov}(\Delta\bar{E}, \Delta\bar{C})$$

for the net health benefit measure. Therefore, the advantage of the net-benefits approach is that the $(1-\alpha)\%$ confidence interval for net-benefits can be easily determined in the standard fashion, as $NB \pm Z_{\alpha/2}\sqrt{\sigma_{NB}^{\ 2}}$ where NB is the estimated net-benefit measure, with variance $\sigma_{NB}^{\ 2}$, and $Z_{\alpha/2}$ is the critical value from the standard normal distribution.

Of course, the net-benefit statistics make use of the threshold decision rule (λ) from equation (2), which is itself unknown. Although some commentators prefer to plot the net-benefit statistic itself as a function of λ (Hock, Briggs and Willan, 2006), the net-benefit statistic can be employed to provide a simple way to estimate the acceptability curve, and it is this curve which answers the fundamental question of how likely it is that treatment is cost-effective.

AVERAGE COST-EFFECTIVENESS RATIOS AND AVERAGE NET-BENEFITS

Many researchers emphasize the importance of taking an incremental approach (e.g. Hoch, et al 2006) rather than comparing average cost-effectiveness ratios, since the difference between two average ratios does not equal the incremental cost-effectiveness ratio

$$\frac{\bar{C}_T}{\bar{E}_T} - \frac{\bar{C}_S}{\bar{E}_S} \neq \frac{\bar{C}_T - \bar{C}_S}{\bar{E}_T - \bar{E}_S} \quad \text{.....(9)}$$

By contrast, the difference in the mean net-benefit between arms will give the overall incremental net-benefit statistic of equation (7). This is straightforward to see algebraically through simple manipulation of the net-benefit expressions

$$\begin{aligned} \bar{NMB}_1 - \bar{NMB}_0 &= \left(\lambda \cdot \bar{E}_T - \Delta\bar{C}_T\right) - \left(\lambda \cdot \bar{E}_S - \Delta\bar{C}_S\right) \\ &= \lambda(\bar{E}_T - \bar{E}_S) - (\bar{C}_T - \bar{C}_S) \\ &= \lambda \cdot \Delta\bar{E} - \Delta\bar{C} \\ &= \Delta\bar{NMB} \end{aligned}$$

Therefore the usefulness of average net-benefit is not directly in terms of the average figures themselves, but in the simple linear relationship between average and incremental net-benefit.

NET-BENEFIT REGRESSION FRAMEWORK

Halabi (2007), Etzioni (2008), and Hoch et al. 2006 used the net-benefit framework to directly estimate cost-effectiveness within a regression framework by formulating a net-benefit value for each individual patient as

$$NMB_i = \lambda \cdot E_i - C_i \quad \text{.....(8)}$$

where E_i and C_i are the observed effects and costs for each patient. At the simplest level, the linear model

$NMB_i = \alpha + \Delta t_i - \varepsilon_i$ (Model 1) can be employed where α is an intercept term, *t*, a treatment dummy taking the values zero for the standard treatment and one for the new treatment, and a random error term ε. The coefficient Δ on the treatment dummy gives the estimated incremental net-benefit of treatment and will coincide with the usual estimate of incremental net-benefit obtained by aggregating across the treatment arms in a standard cost-effectiveness analysis. Similarly, the standard error of the coefficient is the same as that calculated from the standard approach.

COVARIATE ADJUSTED CEA

Commenting on the power of the net-benefit regression framework, Willan and Briggs (2006) state that it is straightforward to add additional explanatory variables in order to examine their impact on cost-effectiveness directly. For example, where baseline characteristics of patients have been measured prior to randomization, these can be employed to make allowance for prognostic information in the treatment comparison using a multiple regression framework

$$NMB_i = \alpha + \sum_{j=1}^{p} \beta_j X_{ij} + \Delta t_i + \varepsilon_i \text{ (Model 2)}$$

In this model the coefficient on the treatment dummy gives the incremental net-benefit, and therefore the cost-effectiveness, of implementing the new treatment controlling for the known covariates. In the context of an experimental design like a randomized controlled trial, the randomization process is expected to ensure a balance of both observed and unobserved potentially confounding factors across the treatment arms. In this case, the use of prognostic covariates will not materially affect the magnitude of the estimated cost effectiveness, but may improve the precision of the estimate and lead to a corresponding narrowing of the estimated confidence intervals.

Where an experimental study has, by chance, resulted in an imbalance of prognostic factors between arms, then allowing for that imbalance through a multiple regression model such as that presented in Model 2, will affect both the magnitude and precision of the estimate. Of course, in a well-designed study, patients should be stratified with respect to important prognostic factors. Covariate adjustment is likely to be particularly important in non-randomized clinical trials or observational studies.

The importance of the net-benefit regression approach comes from the ability to employ standard regression techniques directly to an estimate of cost effectiveness. Nevertheless, in going beyond the simple randomization of Model 1 it will be important to use standard approaches to assess model fit to see if the linear approximation holds.

COST –EFFECTIVENESS SUBGROUPS

Although regression methods can be used to correct for unbalanced allocation in observed covariates which has arisen by chance in clinical evaluation, the main advantage of adopting a regression-based approach to cost-effectiveness analysis relates to the ability to explore potential subgroup effects. Since economics is concerned fundamentally with the margin, the impact of covariates such as age, sex and disease severity on the cost effectiveness of treatment interventions is of fundamental interest. All too often in RCT based cost-effectiveness analyses, the results are simply aggregated across the two arms to provide the overall ICER without any consideration of how the ICER varies at the margin.

In order to answer the question of whether cost-effectiveness varies by patient characteristics it is natural to consider extending the additive model presented in Model 2 above to test interactions between treatment and baseline covariates (the potential role of multiplicative models in the absence of interaction for the estimation of subgroups). Consider the model

$$NMB_i = \alpha + \sum_{j=1}^{p} \gamma_j X_{ij} + \Delta t_i + \varepsilon_i \text{ (Model 3)}$$

where the final term is the interaction between the treatment dummy and the prognostic covariates. The significance of the coefficients γ_j on the interaction between the covariates of the model and the treatment dummy represent the appropriate test for subgroup effects, although this does not protect against spurious subgroup effects being detected by chance. Where treatment effect modification is detected, the fact that cost-effectiveness varies for different types of patient may have important consequences for decision-making.

EXTENSIONS AND APPLICATIONS

The key advantage of the net-benefit regression framework is the ability to use standard regression techniques for model selection and diagnostics to choose an appropriate model for cost-effectiveness, instead of the usual approach of aggregating cost and effect differences across arms of the trial. For example, Manca and colleagues have used a net benefit regression framework to adjust for the multi-level nature of cost and effect data in a multi-centre study (Manca et al., 2005). Nevertheless there are some problems associated with the net-benefit regression approach.

Firstly, by combining cost and effect into a single net-benefit, the ability to allow for different covariates to influence cost and effect is lost. Second, the assumption is that the scale of measurement for modelling cost and effect is the same. Willan and colleagues argued that modelling cost and effect in a bivariate regression, using 'seemingly unrelated regression' (or SURE) could have potential benefits (Willan et al., 2005). By using generalized least squares, more efficient estimation is possible if different covariates are explanatory in the cost and effect equations. Although if the same covariates appear, the SURE approach will be equivalent to standard fitting by ordinary least squares which will be equivalent to the net-benefit regression approach described above.

Data generated from randomized clinical trials are often subjected to administrative censoring and in a further paper, Willan and colleagues go on to describe an adaptation of the SURE procedure to handle data that are censored (Maguire and Novik, 2010).The other potential advantage of the bivariate SURE regression approach is that by separating costs and effects, the appropriate form of the model could in principle be different for both the cost and effect equations. The skewed nature of cost data often results in the use of a log transformation of the data. Such a multiplicative model for cost could be combined with an additive model for effects using the SURE framework, although the same issues surrounding the back transformation results to the original cost scale outlined by Manning would apply.

SUMMARY AND DISCUSSION

In this paper, the standard approach to the statistical estimation of cost-effectiveness based on data collected alongside clinical trials has been outlined. The predominant approach in the literature is to estimate a single ICER for the trial as a whole, and much of the research activity over the past decade has focused on the appropriate way to characterize statistical uncertainty in the estimated cost-effectiveness. By contrast, little effort has been aimed at understanding how cost-effectiveness varies by patient characteristics. Through the development of the net-benefit framework the ability to estimate cost-effectiveness directly within a regression framework was outlined. Nevertheless, net benefit regression may still be quite restrictive since covariates cannot vary between cost and effect, and the same functional form must be employed.

Furthermore, according to Finkel (2011), at a practical level, a number of regressions must be run when varying λ in the net-benefit expression. Therefore, separate modelling of costs and effects is likely to be more convenient and potentially more efficient compared to direct regression modelling of net-benefit. An even more flexible framework, based on modelling the individual components of cost and effect was proposed and illustrated using the example of an economic appraisal conducted alongside a large trial of cholesterol-lowering therapy. This example illustrates the potential importance of modelling the inherent heterogeneity in cost-effectiveness results. The overall trial cost-effectiveness was estimated quite precisely as £11 600 ($8500–$16300) per MVE avoided. However, as the estimated cost-effectiveness by risk subgroup showed, this overall figure masks considerable variation in cost-effectiveness from an estimated £4500 ($2300–$7400) per MVE avoided in the highest risk group to £31 100 ($22 900–$42 500) per MVE avoided in the highest risk group.

It is important to recognize the importance of the scale of measurement when discussing subgroup effects. The testing of interaction terms in the additive net-benefit regression of Model 3 is based on splitting the data and provides no protection against spurious subgroup effects if potential interactions were not pre-specified. By contrast, the multiplicative assumption in the absence of treatment interactions is not based on splitting the data, and therefore subgroup effects are based on the full dataset, arising from the assumed relative nature of the treatment effect. This was illustrated in the example of cholesterol-lowering therapy, where cost-effectiveness estimates for subgroups were based on relative effects estimated from the whole trial applied to baseline event rate and costs estimates.

From the point of view of estimation, cost-effectiveness subgroup estimates based on the application of trial-wide relative effects to baseline event rates and costs can be considered to be more robust than estimates based on splitting the data. This is particularly so in a large trial like the Heart Protection Study, where the constancy of the relative treatment effect was rigorously tested. Nevertheless, it is the case that the robustness of this approach stems from the additional assumptions placed on the analysis. The general framework of modelling the components of cost and effect outlined in this chapter and exemplified in the cholesterol-lowering example places a large degree of structure in the analysis compared to the standard approach. As a result, the estimates made are conditional on the model assumptions holding. This introduces model uncertainty into the analysis in that a different set of modelling assumptions may have produced a different result.

Randomized clinical trials, according to Hoch, et al (2006) and Halabi (2007) remain the most robust and credible method for generating data to formally compare treatments for patients with cancer. In planning the technical aspects of the randomization during the design of the clinical trial, the stratification variables and the randomization scheme must be selected. Choice of the number of stratification variables represents a trade-off between controlling as much as possible and striving for simplicity to the extent that it is possible. Criteria for using a stratification variable in the design should include the strength of the association between the variable and the outcome measures, its known ability to affect the response to treatment, and the reliability with which it can be measured prior to start of treatment.

If there are only 1 or 2 stratification variables and the final study size will be large, then simple stratification will be sufficient. In this case, randomization using the permuted block design is both easy and effective. If there are many stratification variables or if there will be early interim analysis or the study is relatively small, then minimization randomization will be more effective for achieving short term balance across the stratification variables. All three elements of trial design are essential: control, randomization, and replication. Properly designing and executing the randomization is critical for the success of the trial.

Draper argues that without considering model uncertainty, results that are conditional on a specific model structure may be too precise (Draper, 1995). While it is undoubtedly important to bear in mind the potential impact of model uncertainty, the importance of providing estimates of how cost-effectiveness may vary by patient characteristics is likely to lead to the increasing use of statistical modeling of clinical trial data, compared to the standard approach of estimating a single cost-effectiveness ratio for an economic appraisal alongside a clinical trial. Finally, it is worth noting that while this chapter has outlined statistical approaches to cost-effectiveness analysis alongside clinical trials, it is increasingly recognized that a single clinical trial cannot in and of itself answer policy questions relating to cost effectiveness, (Zwahlen, 2008, Willan and Briggs, 2006).

While clinical trials are likely to remain an important source of information for cost-effectiveness, a full analysis is likely to include external data, perhaps involving synthesis of evidence across a number of trials, and is likely to involve extrapolating over time. While techniques such as decision analysis have often been used for this purpose, the traditional distinction between 'trial-based' evaluation on the one hand and 'decision models' on the other is increasingly blurred as trial-based analyses include more explicit modeling of the data (as described above) and as decision models incorporate more explicitly statistical approaches to evidence synthesis and representation of statistical uncertainty (Zwahlen, 2008; Willan and Briggs, 2006).

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THE OLD LIBYAN INSCRIPTION

Dr Abdullaziz Saeed Swei*

During the first millennium BC, Libya faced events and changes which greatly affected its civilization. Those events can be summarized as follows:

- Libyans' entrance into Egypt in what was known as peaceful migrations. Day after day they managed to lead the army and supervise the priests, until they ascended the Egyptian throne through Shishanq 1st in 945 BC. His army was supported of the Libyans, Egyptians and Cushites (Sudanese), and his reign extended to Palestine and the Levant.

- The Garamants (Libyan tribes) took over the Libyan Desert in the first millennium BC and build a large military force, controlling the trade caravan routes between the Mediterranean coast and the heart of Africa. They established their capital in the valley of Aajal, Southwest Libya; the area known as Jarma.

- The Phoenicians arrived at the Libyan coast and established ports, harbors and small businesses in each of Sirte, Oea, Sabratha and other places to the west, sometime before the construction of the new city of Carthage in 750 BC[1]. Some historians have suggested that the date was 814 BC, and that the Phoenicians intention was to establish these stations before the formal stability in Carthage in the Lake of Tunis.

- Coming of the Greeks, led by Batos, who had been advised by the inspired Apollo Delphi to go to Libya after the entrapment rain on their island Thira. They founded their City Cyrenaica in Shahat in the Barka region in 631 BC[2], and founded their famous Greek Civilization.

These four important events brought big changes to the lives of the residents of Greater Libya; their civilization rose to a level not seen in the last stages of the Neolithic period in the region as a whole. This brought about friction with the Egyptians, contrary to what had been happening in the hit-and-run days and military skirmishes. The Libyan Tribes of Barka must have exchanged with the Greeks of Cyrenaica the elements of civilization, despite a clear dissonance between the two peoples. The classical writers have acknowledged the influence of the Libyan civilization on the Greeks. Garamants were also affected by these events; they were the owners of the largest empire in the region at that time. But they also had cultural elements that affected even in the Greek's precedence in the culture industry. Perhaps the greatest civilizing influence was the presence of the Phoenicians in North Africa, especially after Alexander the Macedonian had destroyed their towns in the Levant, during his campaign on the East at the beginning of the fourth century BC. They founded the Carthaginian civilization that has affected the region. Local inhabitants were totally integrated into that civilization and merged with the new society.

ANCIENT LIBYAN WRITINGS, OVERVIEW

Historians have recalled that the evidence of ancient Libyan writing had emerged in the northern and southern regions albeit with a bit of duplication and confusion evident in the details of that evidence. Besides writing that they called Numidian in the north, they mention writing called Jermantian in the south. Whereas they found evidence of the old Libyan writing in Tripoli, Tunisia and Algeria to the north, also found evidences of writing in the southern city of Jerma. All that we know about the Jermantian writing that it was depending on horizontal and vertical lines, such as that found on some parts of Upper Egypt. We do not exclude that the writing found in Tripoli, Tunisia and Algeria may have been used in the south first, especially in Jerma's boom period before the settling of Phoenicians in Carthage city. We suppose that those Jermantian writings reach to the north only after the direct commercial connection between Punic and Garamants. It 'shows that the Carthaginians did not travel in the previous decades themselves to Sudan (Southern lands) to bring the goods, but they spent a long time using mediators from the local population, convoys were coming under the guarding of Garamants to reach Tripoli'[3]. We could say that the writings of Guerza, an ancient city on the caravan route between Tripoli and Fezzan, had been the precedent of writing used in Numidia (Actual Algeria).

Scientists have for a long time thought that the ancient Libyan language was spoken not written. That view changed with the discovery in various areas of the Arabic Maghreb of an 'alphabet that appeared in many of the inscriptions found in all of North Africa, that formed part of a single system shared between Crete and Egypt, on the one hand, and Spain and others on the other hand. This discovery is one of the most important recent discoveries about the remains of

[1] Abbudi, Hennery S. (1991): Mu'jam Hadharat Samia (=Dictionary of Semitic Civilizations), 2nd edition, Gross Press, Tripoli/Lebanon, p 675.

[2] Barghouthi, Dr. Abdullatif Mahmoud (1971): Tarikh Libi Qadim (=The Old Libyan history), 1st edition, Dar Sader, Beirut/Lebanon, pp 242-243.

[3] Sfar, Ahmed (?): Madaniet al-Maghreb al-Arabi fi at-Tarikh (=Civilization of Arabic Maghreb in the history), Dar an-Nasher Bu-Slama, Tunis/Tunisia, p 125.

prehistoric'[4]. The traces of those inscriptions were found in distances ranging to Sinai Bay in the east, the Canary Islands to the west and in the desert in the south.

Within Roman history, Western scientists, who do not explicitly admit the impact of the Eastern culture on the Arabic Maghreb, have classified the ancient Libyan writings into three groups with some duplication and inconsistency. They decided that the first group inscribed in Libyan language by Latin letters such as those were found on the Roman ruins in actual Libya. The second group was written exclusively in Libyan letters such as writings found in Dogga city in Tunisia. The third group was bilingual: some Phoenician/Libyan, some Latino/Libyan. Such writings have been found on tombstones in short texts over many places in North-Africa. Those Western scientists have tended to ignore the primacy of Phoenician Canaanite Eastern culture on the north of Africa's population for hundreds of years prior to the Roman presence, as we shall see.

EFFECTS OF PHOENICIAN CIVILIZATION ON THE ANCIENT LIBYANS

Entry of Phoenician Writing into Libya

This occurred when the Phoenician Canaanites settled on the northern coasts of Africa and mixed with Libyans. It is well known that the Phoenicians were the owners of the first alphabetic writing ever known in the world at the time. They did not invent it accidentally and without precursors, but it seemed that they had developed the cuneiform alphabet which had been used by the ancestors of the Canaanites in the city of Ugarit (near the Syrian centre of Latakia). Maybe they borrowed some symbols and forms of writing that mingled with Egyptian hieroglyphs when the Canaanites were in the Sinai desert as mineral prospectors in the area of Sarabit al-Khadim for the benefit of the Egyptian pharaoh at that time, which had been known as writing of Sinai's alphabet[5]. Phoenicians must have come to North Africa with all the elements of their civilization, including the alphabet for which they were famous. Peoples surrounding the Arab region borrowed the Canaanites characters and used them in their multiple languages. Among those peoples were the Greeks who passed them to the Romans later, and then to all European Latin languages until this day. However, it became recently clear that the Greeks did not borrow those characters from the Phoenicians when they were in the Levant, but after settling in Arabic Maghreb (ancient Libya). Toynbee says that the Greeks 'after the catastrophe that had hit them around the year 1200 BC did not quote alphabet from the Phoenicians until about 750 BC, thus the Greeks had delayed nearly two centuries for the Hebrews and Arameans in quoting Alphabets. The Greeks had remained illiterate nearly 450 years'[6]. The year 750 BC is the same as the date in which the city of Carthage was built according to the consensus of many sources. Perhaps the date of 814 BC refers to the presence of the Phoenicians in the North African before their final settling in their new city Carthage. This suggests that in the time when the Phoenicians were building their civilization on the northern coast of Africa, the Greeks had been ignorant of reading and writing until they received the initial of Phoenician alphabet that had come from Carthage.

There is no historical reference to confirm that ancient Libyans used any kind of writing, except rock paintings that had been produced for thousands of years before leaving their caves to other territories. When they settled in more civilized places, they embraced the culture of their cousins the Phoenicians (Canaanites), and may had used their writing symbols like other peoples. However, the Phoenicians themselves developed their writing, perhaps according to the new environmental conditions, or perhaps because of the impact of linguistic, cultural, social and economic mixing imposed by that phase. So their writing became known as Punic writing. This naming (Punic) some people insist was made up of two words Libo-Phoenic)[7] → (Libyan + Phoenician) shortened gradually to (Libonic) and then to (Bunic) or (Punic).

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[4] Omar, Ahmed Mokhtar (1992): Tarikh al-Lugha al-Arabia fi Maser wa al-Maghreb al adna (=History of Arabic Language in Egypt and Nearer Maghreb) Alam al-Kutub, Cairo/Egypt, pp 224-225.

[5] To know more see:

a-Hibu, Dr. Ahmed (1984): al-Abajadia, Nashaat al-Kitaba wa Ashkaluha inda as-Shu'oub (=Alphabet, the emergence of writing and its forms of peoples), 1st ed., Dat al-Hiwar lin-Nasher wa at-Tawzi'e, Latania/ Syria, different pages.

b-Tunji, Dr. Mohammed (1982): Abkariat al-Arab fi Lughtihem al-Jamila (=Genius Arabs in their beautiful language), 1st ed. Al-Monshaa al-Amma lin-Nasher wa at-Tawzi'e wa al-I'lan, Tripoli/ Libya, different pages.

c-Hatem, Dr. Imad (1982): Fi Fik'h al-Lugha wa Tarikh al-Kitaba (=Philology and history of writing), 1st ed. Al-Monshaa al-Amma lin-Nasher wa at-Tawzi'e wa al-I'lan, Tripoli/ Libya, different pages.

[6] Toynbee, Arnold (1981): Tarikh al-Basharia (=Human history), translated into Arabic by Nikola Ziada, part 1, al-Ahlia lin-Nasher wa at-Tawzi'e, Beirut/ Lebanon, p 141.

[7] Camp G. (2005): al-Barbar, ad-Dhakira wa al-Hawia (Berber, memory and identity), translated into Arabic by Jad Allah Azuz at-Talhi, Markaz Jihad al-Libyin le-Dirassat at-Tarikhyia, Tripoli/ Libya, p 56.

Why the Ancient Libyans Were Late in Using Writing?

It seems to be that excavation experts, archaeologists and historians, have been attracted by the easier access to sources and historical documents situated in the Eastern Arab Middle areas, rather than those from Western North Africa. As a result they have caused some large and deep gaps in Old Libyan history, especially concerning events occurring in the period in which the documented history began taking root in the Arab Middle East and Egypt.

If the historians are asked about the reasons for their reluctance to follow the history of ancient Libya in the same fervor they have given to others, they will make excuses but the main reasons may be[8].

- The vast expanse that was occupied by old Libya at that time, stretching from the Nile Valley easterly to the Atlantic Ocean westerly, including what is now called the Great Sahara, in addition to the diversity of topography. All of these elements and others caused a dispersion of ancient Libyan tribes and did not build strong and united States, especially after the domestication of the horse and camel, and became easy to navigate between distant places.

- The lack of rivers and permanent water resources to encourage people to live nearby.

- Some of the old Libyan tribes were dependent on the simplicity of living in a climate with scarce rainfall which kept them from prosperity and luxury and building long-term civilizations which left their marks after them.

- The tendency of some tribes on invasions and wars, a dependence on force to possess the capabilities of their lives, especially with their eastern neighbors, the ancient Egyptians.

- The lack of any stable Libyan civilization before the first millennium BC such as happened in the Fertile Crescent when the nomads were affected by the Sumerian civilization and contributed to the events of the civilizations that established later.

- The refusal of Libyans to accept any kind of foreign interference, to treat strange peoples as colonial occupiers and resist them with ferocity and strength.

- No serious explorations and careful researches were made by modern scientists to remove the rubble from the remains which may still buried under the sands of the desert, especially in actual Libya.

- Many Arab and Maghrebian scientists refer to historical books written by European experts, which might well be motivated by political purposes and not characterized by scientific impartiality. This leads them to adopt the view of the European occupiers, Greeks and Romans, that the local residents were barbarians and savages.

- The selfishness of some Arab and Maghrebian writers who are highly committed to their own countries and remain hidden inside their current administrative borders and have not understood the racial, ethnic and cultural trends that have bedeviled the general feeling of belonging to this land, and weakened the full scientific alignment in putting ideas and opinions.

Even if the existence of these reasons that led to the scarcity of historical sources of the old Libya are proven or disproven, we are confident that the history of this region has no less abundance than others. The documentation of this history may be scripted on pages of stones, or pieces of grilled clay, or pages of papyrus or any other surfaces. Perhaps the enormous mountains of the desert sands sit on the chest of history and hide the secrets of the cultural elements of the ancient Libyans.

The Punic Writings

Historians have ascribed the first stabile settlement of the Phoenicians in Tunis as the Carthaginian era. Since the beginning of the outbreak of the first war with the Romans, the Carthaginians started building their relationship with the ancient Libyans more and more in order to gain their support against the danger coming from Rome. Thus began the era known historically as the Punic era and three famous wars. As a result of the human merging, the two languages - Phoenician and Libyan - were merged to what is known as the Punic Language. This linguistic integration must have been accompanied by a merger in writing, or the Phoenician writing may have been influenced by that new environment. Historians who are interested in the eastern writings emphasize that the Punic characters was 'the latest form of Phoenician writing'[9], it was not surprising that 'the ancient and late Punic writing had been distinct in form from the mother Phoenician writing'[10].

[8] Swei, Dr. Abdullaziz Saeed (1999), Usul al-Harf al-Libi, (=The origins of the Libyan letter), ad-Dar al-Jamahiriya lin-Nasher wa at-Tawzi'e wa al-Ii'laan, Misurata/ Libya, pp 170-171.

[9] Hatem, Op. Cit. p 222.

[10] Hibbu, Op. Cit. p 166.

When we compare the Phoenician writing with its Punic branch, we find that the mother writing was line-separated words, then those commas disappeared and the letters of the words became overlapping, which made it difficult to read. But the Punic had transgressed in extending characters down more than ever before, this process is known in Arabic writing as Ta'riqa. Most of the Punic letters were silent, similar to the mother alphabet, so we could not consider *wa* and *ya* as pure sonant letters 'but as half sonant, because the vowels had been neglected in this alphabet, so we can say that the Punic alphabet was pure silent'[11]. Perhaps that was what happened under the influence of ancient Libyan dialects; so far Maghrebian dialects remain silent. The remains of this writing have been found along the western strip of the Mediterranean, especially in 'Tunisia, Libya and Algeria'[12]. One of the most important monuments that attest to Punic progress in architecture, a tomb was found in Dugga, Tunis 'dated to the second century BC'[13], which is probably the tomb of the Nomidian King Massenissa[14]. 'This artifact, now preserved in the British Museum under No. 495'[15] had been written in both ancient Punic and Libyan. This sample may be a type of 'modern Punic writing or latest Punic which was still in use in the beginning of the era of the birth of Christ'[16]. The researchers extracted three or four forms for each letter of the late Punic (Fig.1); this might be a reason of its distancing from the images of the mother alphabet. When the barbaric armies of Vandals entered to North Africa through Spain in the period between the years 430 and 534 AD, the usage of Punic writing completely ceased.

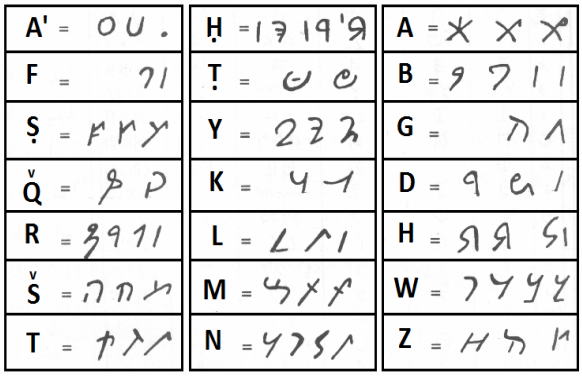

Fig.1: Forms of Punic writing

ONSET OF LIBYAN WRITING AND ITS RELATIONSHIP WITH OTHER FORMS

Events rolled on rapidly in North Africa. Alexander the Great took over Sidon and Tyre and devastated the Phoenician cities in the Levant, forcing the Phoenicians to finally settle in the North Africa. Then the Romans claimed as their right the control of the Mediterranean Region; jealousy and envy led the Romans to hit Carthaginian strongholds that had been built in the 'Italian' islands, and the three Punic wars broke out. Finally in 146 BC[17] the Romans destroyed Carthage, burned its cultural components and planted its land with salt, and North Africa entered into a new phase of its militant history and civilization. Some Libyan tribes found themselves in the midst of these events, the most famous of those tribes being the Massolla and Mazissolla whose Leader were Massenissa and Sifacos. They were in the Numidia region between Tunisia and Algeria, where everyone had been influenced by Phoenician civilization; the Bedouins settled down, worked in agriculture and animal husbandry, developed fields of trade and penetrated the depth of the desert to bring out African riches. It was at that time that signs of the ancient Libyan writing clearly appeared, those writing which are sometimes referred to as Numidian writing.

As historians call the ancient Libyan writing Numidian, they must see a certain Numidian impact upon it. We presume that this effect was a developmental stage of writing made before the existence of Numidians themselves, or we could say before being known in that name.

However, since the first millennium BC the Garamants founded a desert civilization in the south, admired the classical Greek writers. As a result of this civilization represented by their capital Jarma (located in southern Libya), there were found evidences of writing showing that Garamants used their own special writing which was different from the northern writing[18]. The Garamantes were not far away in time and space from the figurative paintings and the rocky colored pictures which had been left in the caves of the Acacus and Tadrart mountains. They must have developed their ancestors' writing in terms of connotation and meaning. That writing could have been influenced by Egyptian hieroglyphic symbols before coming under the influence of Phoenician or Punic alphabet when Garamantes began connecting commercially with Carthage. It is known that it was still in use until the Roman era. Goodchild says: 'The excavations that were done in the Tripoli area during the last fifty years, especially since 1946 has led to the discovery of a number of inscriptions which provide us with

[11] Hatem, Op. Cit. p 220.

[12] Hibbu, Op. Cit. p 79.

[13] Sfar, Op. Cit. p 156.

[14] Julian, Charles Andre (1969): Tarikh Afrikia a-Shamalia (=History of Northern Africa), translated by Mohamed Mzali and Bashir ben Slama, ad-Dar at-Tunisia lin-Nasher, Tunis/ Tunisia, p 32.

[15] Sfar, Op. Cit. p 157.

[16] Hatem, Op. Cit. p 222.

[17] All sources agree with this date. See, for example: Barghouthi, Op. Cit. p 312.

[18] Omar, Op. Cit. p 228.

important information on the language of the Libyans and their live during the Roman era'[19], He nevertheless admits that the discovered inscriptions are still few.

Historians agree that these writings 'had been known in the time of the Romans, as evidenced by more than a thousand short writings on the graves that are scattered between Libya in the east and Morocco in the west'[20].

In Guerza, an antique city situated southwest of Tripoli, on the caravan route linking the cost and the desert, in the period between the years 1953 and 1957, inscription were found that 'looked like Libyan alphabet forms that had been previously found in Tunisia, Algeria and Morocco'[21]. This is evidence of a link between the writings of the north and the south, as we shall see. However, due to the shortage of texts, which had been codified by the Libyan letters, and which did not exceed a few words on the graves stones, some researchers thought that that ancient Libyan writing (Numidian) had only ten letters. And to cover those few characters in a heavenly Godhead and surround them by a halo of naive belief, old Libyans believed that 'those characters came from God, and were of God's creation not human making'[22]. In fact, the sky does not drop characters. We believe, rather, that the ancient Libyans, especially in Punic times, used full characters, but explorers did not find more than ten of them due to the short texts which were codified in the early stages (Fig.2).

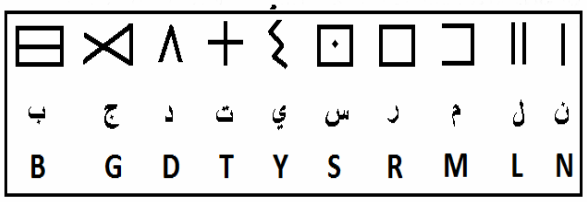

Fig 2: Short Libyan Grave Text

Among the most important achievements of the Numidians during the time when the Phoenicians were in Carthage, was the forcing of nomads to settle. That impacted on the culture of both Punic and Libyan populations of the period, even 'they were good at many languages by necessity'[23]. Among the most prominent cultural things that interested the Numidian king Massinissa, chief of Massolla tribe which situated in the eastern side of Numidia, was writing. An Algerian historian said: 'The king Massenissa took care of Berber (Libyan) writing in the second century BC, he developed it and increased its letters to become as we find it today'[24]. While we can support the claim to improvement and promotion, we do not accept Massenissa found only ten letters and added others. It is more likely that he developed and simplified the Libyan alphabet forms, perhaps following the Punic example in which five letters had not found in the short texts which showed only ten characters. The new five letters were formed in horizontal and vertical lines, similar to a rocky panel that had been discovered in the Valley of Jabbarin in the Acacus Mountain in Southern Libya, which was described by its discoverer Henry Lhot as similar to that found on some Egyptian antiques before the foundation of the dynasties. By then the ancient Libyan alphabet had increased to reach 19 characters and later 27 characters.

Historians have disagreed as to which was the first source from which ancient Libyan writing was quoted. Dabbuz said 'They (the Numidians) could quote some characters from the Egyptians'[25]. Omar sees the Libyan characters as part of a single system shared between Crete and Egypt on the one hand, and Spain and others on the other hand'[26]. We can discuss the earliest of these hypotheses according to the historical events that contributed to the ancient Libyans with the Egyptians, on the one hand, and the Phoenicians, on the other hand:

- **Egyptian hypothesis**: It is essential for cultural connections which linked the Libyans with their neighbors and their cousins the Egyptians to be accompanied by reciprocal cultural influences between the two peoples. In this regard, we note the great similarities between ancient characters of both Libyans and Egyptians, especially in the hieratic writing which was derivative from hieroglyphs, including the symbols that do not correspond to the verbal meaning of the character in both languages (Fig.3).

Hieroglyph	Ba	Ta	Ma	Da
Hieratic	Ba	Ta	Ma	Da
Libyan	Ba	Ta	Ma	Da
Hieroglyph	Ḳa	Ṭa	Ḥa	
Hieratic	Ḳa	Ṭa	Ḥa	
Libyan	Ga	Ṭa	Ja	

Fig.3: Egyptian and Libyan Symbols

[19] Omar, Ibid, p 225, from Goodchild's book titled by "The Latino-Libyan inscriptions".

[20] Hibbu, Op. Cit. p p 93-94.

[21] Omar, Op. Cit. p 228.

[22] Dabbuz, Mohamed Ali (1964): Tarikh al-Maghreb al-kabir (=History of Great Maghreb), part.1, 1st edition, Maktabat Issa al-Babi, ?, p 65.

[23] Julian, Op. Cit. p 117.

[24] Dabbuz, Op. Cit. the same page.

[25] Dabbuz, Op. Cit. p 64.

[26] Omar, Op. Cit. p 224.

- **Phoenician hypothesis:** We know how the Libyans were mixed with Phoenicians and all of them were melted in the crucible of the North African population. Even that history no longer mentioned the Phoenicians after the year 332 BC, because most of them became Punic and a few of them became known as Syrian traders, especially in old Europe. So the Phoenician influence on the ancient Libyan writing (Numidian) must be strong and direct (see Fig.4).

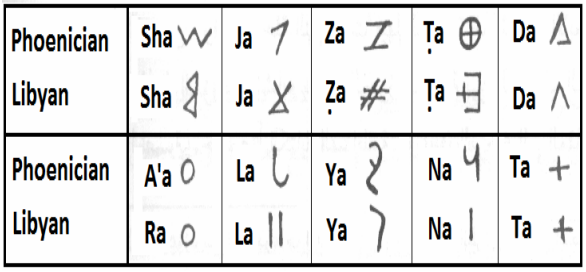

Fig.4: Libyan and Phoenician Writing

TIFINAGH - THE TOUAREG WRITING

Where the Touareg are Living?

The Touareg are spreading in a large part of the 'Sahara between the Republic of Mali's northern border with Mauritania to Western Sudan's borders through northern Mali and northern Niger and northern Chad and southwest Libya and south-eastern Algeria'[27]. The Touareg are divided into three main categories according to the geographical distribution: 'Touareg of the Avogas Mountains in Mali, Tuareg of Hoggar Mountains in Algeria, and Touareg of Tassili Mountains'[28] in Libya.

What is their Origin?

Several sources agree that the Touareg were from Arab descent, came from Yemen across the Bab el-Mandeb Strait through Ethiopia and Sudan and settled initially in the south of Libya and multiplied there, until they expanded slowly to West Africa. It was said that the Himyari King (Afrikish ben Saifi) had gathered some Arabic tribes from Yemen and moved them towards the Maghreb in the beginning of the 4th century AD. The biggest of those tribes were the Sanhaja and Kutama. Some historians have suggested that the Sanhaja were the ancestors of the Touareg. Arabs after Islam called them "the masked" because of their practice of putting a veil on their faces and the turbans on their heads. But the French called them "the blue" because of the color of their loose dress.

Number of Discovered Tifinagh Letters

The first discoverer of the Touareg letters (Tifinagh) was the French scientist Dr. Oudney in Murzuq city Southern Libya in 1882, he identified nineteen characters[29]. Oudney says : 'Touareg's symbols are found on almost every stone, it does not matter that the characters are written from right to left or vice versa or vertically'[30]. These nineteen characters raise two questions: Are they the same first nineteen Numidian characters previously mentioned, or something different? Had the ancient Libyan writing been originally in the south and then moved to the north, or vice versa? All we can say now, is that the compatibility of the figure (19) may happen by hazard, but those nineteen characters were not enough to express both writings: Northern and Southern. Hanoteau, another French discoverer, gave us a new list of the twenty three (23) Tifinagh's characters[31], so the number of discovered Tifitagh's characters began to be completed and clearly known.

Due to the proximity of actual Arabic and Touareg dialects phonetics, Tifinagh had 19 characters similar - in phonetic values- to the Phoenician (Canaanite) alphabet used in the Language of Northern Arab Peninsula, in addition to four dotted letters similar to an old addition in the Yemen alphabet used in the language of Southern Arab Peninsula. Those added, dotted and Southern Arabic letters to Tifinagh alphabet were KHa "خ", DHad "ض", DHa "ظ", GHa "غ". The difference in the Tifinagh's discovered characters could have happened due to the ability of French explorers and their efforts during the research and exploration, on the one hand, and the similarity or difference of some characters in the shape or phonics, on the other hand. Some Arab researchers presented other lists in different figures of Tifinagh's characters as 22, 24 and 27 or 28.

The Difference between Numidian and Touareg Inscription

In addition to the previous lists given to us by historians for Tifinagh characters (South), there are other lists of Numidian characters (North). Through those lists we are able to compare them with each other. Recently we have found that the Tifinagh characters were very similar to the Numidian characters, with an exception of a single and strikingly phenomenon, which is a converting of five letters

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[27] Al-Gashat, Dr. Mohammed Saeed (1989): at-Touareg, Arab as-Sahra (=The Touareg, Arab of the Desert), Markez Dirasat wa Abhath Shu'un as-Sahra, Tripoli/ Libya, p 17.

[28] Ad-Dali, Dr. al-Hadi al-Mabruk (2006), Kabai'l at-Touareg, Dirassa Wathai"kia (Touareg Tribes, documental research), 1st edition, ?, p p 7-8.

[29] Omar, Op. Cit. p 230.

[30] Omar, Ibid. the same page.

[31] Omar, Ibid. the same page.

depended on horizontal and vertical lines to dots stacked horizontally and vertically. Those letters are: (H "هـ", K "ك", Ḳ "ق", Ḡ "غ", W "و"), (Fig.5).

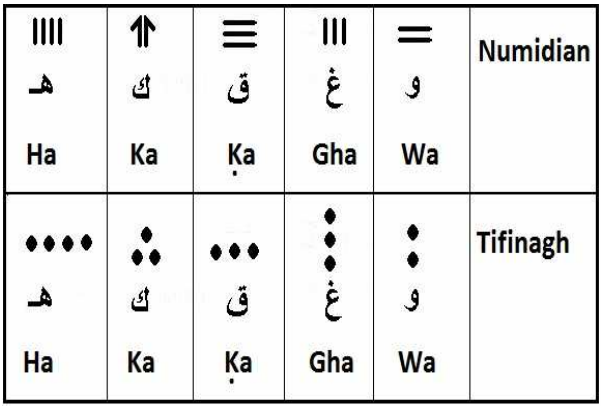

Fig.5: Numidian and Tifinagh Symbols

TIFINAGH ROOTS AND ORIGINS:

Historians had different theories and points of view on the origins of Tifinagh, 'Some attributed it to the Egyptians, some to the Greeks, some to the Vandals, some to Sheba and some of them to the Ethiopians. But others have linked it with Safawi and Thamudi which are attributed to the Northern Arab Peninsula'[32].

- **The Egyptian hypothesis**: If we agree that the Garamants imitated the ancient Egyptians in the ways of writing, we could imagine that that had happened at a time earlier than the emergence of the power of Numidia in North, probably before the emergence of Punic and Numidian writings. European historians argued that 'some writing symbols (composed of lines) found on the ancient Egyptian pottery were very consistent with those found in Libyan-Touareg symbols'[33]. So it seems reasonable to say that the Northern Libyans (Numidians) borrowed the symbols, which had Egyptian effects, from the Southern Libyans (Garamants ancestors of Touareg). As a result of the Garamants movements across trade-caravan routes to the east and north, and with the passage of time, the two inscriptions had met to create the Libyan ancient writing which historians talk about. A contributing cause in that period would have been the merchant's need to deal with numbers and identify business transactions, from buying, selling and bartering and other things that could not be trusted to human memory but needed to be written down. Certainly, that what was actually happened with the peoples who had preceded the Libyans in writing and blogging.

- **The Western hypothesis (Greece, Roman and Vandal)**: Greeks learned writing from the Phoenicians, probably after the construction of Carthage, between the ninth and eighth centuries BC. Romans, when they came to North Africa in the second century BC were carrying a culture inherited from the Greeks. The Vandals (fifth century AD) did not have any elements of civilization to convey it to others. So, these theories are false.

- **Yemeni hypothesis**: The people of Yemen had used special characters known to the Arab historians as al-Musnad (= predicate), and to the Orientalists as ancient South Arabian writing. That writing had extended in use 'between the eighth century BC to the seventh century AD'[34] when it became extinct and was replaced by the Northern Arabic script mixed between Yemeni-Musnad and Old-Arabic-Nabataea. Yemenis in the south, like the Phoenicians and the Aramaeans in the north, loved to travel and search for riches by trade. In the view of many historians Arab-Yemeni also visited the southern areas in North Africa in very early times. A lot of Tifinagh letters largely correspond with Musnad letters even though some difference in the value of sound, but few of them have identical drawings and voice. Thus this hypothesis has a lot of merit.

- **Safawi and Thamudi hypothesis**: From the Yemeni Musnad had emerged three sub writings in the north which were not found in Yemen itself:
    - Lahiyani writing (relative to Lahiyan, one of the Arab extinct tribes.
    - Thamudic writing (relative to the Thamud tribe, also extinct)
    - Safawi writing (relative to the Safa region in Hauran).

We found some Lahiyani, Thamudi and Safawi effects on the Tifinagh which we did not notice on the Numidian writing. But what was the relationship between those tribes and the Southern Libyans? All we could know until now was that some tribes of the northern Arabic Peninsula had come to Libya in the year of 'the elephant[35] and spread palm cultivation. Some ancient Arab historians have said that palm oases in the Fezzan basin may support that. They might have brought with them their cultures elements. (Fig.6).

[32] Omar, Ibid, p 232.

[33] Omar, Ibid. the same page.

[34] Hibbu, Op. Cit. p 92.

[35] The year when the Prophet Mohammed (P.O.A.B.U.H.) was born (571 AD).

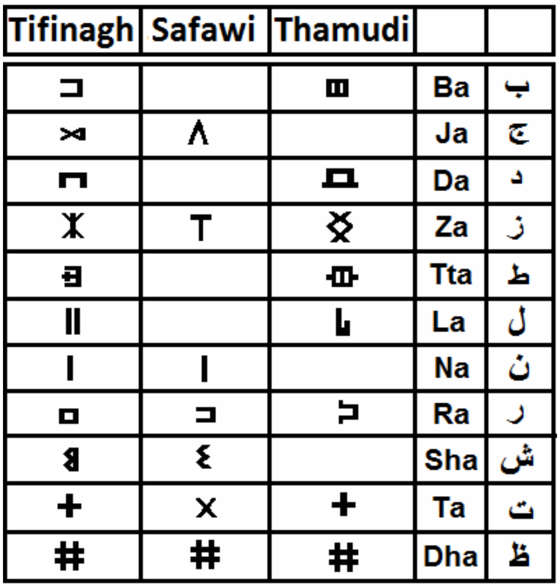

Fig 6: Tifinagh, Safawi and Thamudi symbols

- **Ethiopian hypothesis**: Ethiopian writing emerged after the establishment of the Ethiopian Kingdom of Aksum civilization which flourished in the 'fourth century AD'[36]. At the beginning it had been a pure Yemeni writing (al-Musnad), but it took a special way during its stages of development. The most important Ethiopian effects that we observed on the Tifinagh are those characters that in the form of dots like Ethiopian prolonging-sound's letters when they were separated, that such letters and sounds found in Tifinagh were not existed in Numidian writing, like *alif* (=A) which was one dot and *waw* (=W) which is two dots, in addition to a new letter had not been existed in Numidian alphabet (*Kha*) which is four paralleled dots and so on. So the theory of an Ethiopian influence on Tifinagh is very acceptable.

- **Phoenician hypothesis**: We have discussed part of this theory when talking about the Phoenician origin of ancient Libyan writing in Northern Numidia. The Tifinagh alphabet used by the Southern Libyan Touareg demonstrates a close relationship between Phoenician and Tifinagh alphabets. Many Western and Maghrebian historians agreed with this relationship. Regardless of what has been proven by historians with regard to Phoenician influence on ancient Libyan writing, we could be satisfied with the recognition by the Touareg themselves that they had derived their letters from the Phoenician alphabet. They dubbed Tifinagh (which means Phoenician characters), unlike the view of the ancient Libyans and some contemporary historians of that characters descending from God, as mentioned above.

[36] Hibbu, Op. Cit. the same page.

FINALLY

The above discourse presents a quick tour through the history of the old Libyan inscription, from the first Numidian attempt to the Touareg effort in building the Tifinagh alphabet. But we have to say that the influence of Phoenician alphabet on the Libyan writing was strong, especially on Tifinagh letters. It is obvious linguistically that the word Tifinagh means Phoenician, the 'T' is an old Libyan identifying symbol, the rest of the word *finagh* corresponds the word phinic (=finik) → phinagh (=finagh) which is compatible with Arabic pronunciation and linguistic phenomenon.

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LEARNING STYLES AND GRADE ACHIEVEMENT IN COMPUTER PROGRAMMING

Dr Thomas Yeboah* and Mr Frank Agyemang Duah**

In tertiary institution communities some students tend to perform poorly in various courses while others perform excellently. This study asked the question: is this failure due to gender difference, the previous knowledge of the learner, the use of the lecture method, misconceptions of students about the course in general, lack of logic and methodology in the course, ineffective use of teaching materials and learners' learning style?

In looking for ways to answer these questions the study seeks to investigate various learning styles and how these learning styles affect the performance of the learner. In order to achieve a tangible conclusion the researchers compared the various learning styles and their corresponding grade achievement by using Bonferroni Post Hoc Test on various learning styles and grade achievement.

INTRODUCTION

It is obvious that when students are assessed on their performance there are always variations in the results of their performance. Some students always perform better in almost all the courses while others perform poorly. This study seeks to investigate the link between various learning styles and grade achievement. The reason may be that individual learners have different learning style; therefore the way the teacher teaches is always characterized by the learning styles of the instructor/teacher for it is apparent that different learners have different ways of receiving and assimilating instruction.

According to Rundle and Dunn (2000), visual text learners remember material best by reading it. Therefore, the matched media experience is a text-only version of the content. This means that learners can learn best if the learning materials are given to students in the form they can learn best. The form that a learner can learn best is known as the learning style of the learner. It could be noted that the learning style of a learner might have significant impact on the grade achievement of the learner. Therefore the main objective of the research reported in this paper is to find out the effect that the learning style has on learner's grade achievement in order to help instructors to match their reading materials with the learning styles of the learners in order to improve their performance.

LITERATURE REVIEW

This research work was based on learning style theories. Learning style can be defined as a condition or environment that a learner can learn best. In the literature, learning styles are often referred to as "cognitive styles". James and Blank (1993) suggest the existence of difference dimensions within learning styles. This concept has also been established by a number of other researchers.

Paivio Dual Coding Theory

Paivio found strong evidence to support his Dual Coding Theory (Paivio, 1986). He postulated that when instructions are presented in both visual and verbal form it helps the learner to learn best. This, he suggested, was because the human brain works within two cognitive subsystems, one of the subsystems deals with language whiles the other deals with the visual aspect. Figure 1 illustrates the Paivio dual coding theory.

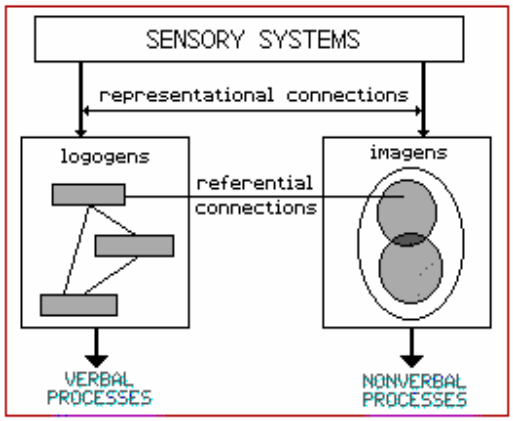

Fig 1.Paivio's Dual Coding Theory

Paivio's research has been recently backed up by Mayer's Theory of Multimedia Learning (Mayer, 2001). This theory is based on three assumptions:

- **Dual-Channel Assumption:** This assumption is closely related to Paivio's findings (Clark &Paivio, 1991). It argues that humans possess separate information processing channels for visual and verbal information. Students learn better if both channels are addressed simultaneously.

- **Limited-Capacity Assumption:** The human brain is limited in the amount of information it can process at any one time per channel. This assumption is backed up by Sweller's Cognitive Load Theory (Swellerl999) and argues that appropriate structuring and "chunking" of multimedia content is necessary to facilitate learning.

- **Active-Processing Assumption:** Humans actively engage with what they learn and construct their own mental representations. This process involves paying attention, organizing new content and relating it to prior knowledge. A multimedia environment should therefore encourage and enable students to actively engage with the content taught.

Curry Learning Style Theory

Curry (1991) has suggested that learning style theories can be generally categorized into three different schools of thoughts or dimensions:

- ***Perceptual Modality:*** The way our body takes in information with our senses: biologically-based reactions to the physical environment.
- ***Information Processing:*** The way our brain processes information: distinguishes between the way we think, solve problems, and remember.
- ***Personality Models:*** The way we interact with our surroundings could affect our thoughts.

Furthermore, Curry (1991) categorized learning style theories into three different layers that is compare with onion (Figure 2).

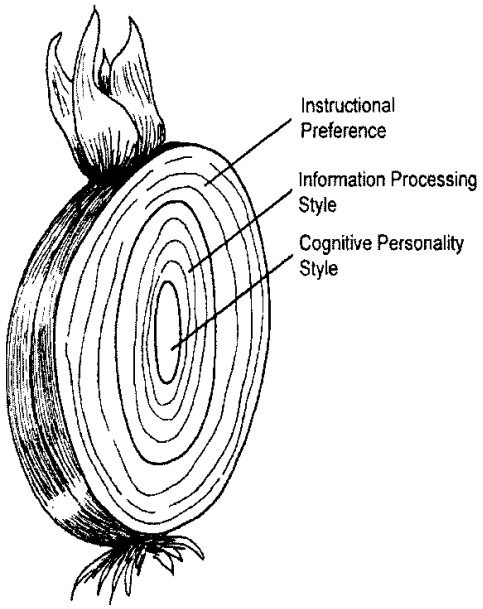

Fig 2: Curry's Onion Model of Learning Style Theory

Curry sees the outer shell of the onion model contains instructional preferences. Styles in this layer are concerned with 'an affinity for various modes of information delivery' (Curry, 2000, p.239). They are believed to be the least stable over time and easy to alter through interactions with other variables.

The middle layer of the onion model holds information processing styles. These styles deal with the way our brain processes information. Information processing influences the way learners think, solve problems, and remember. These styles are believed to be more time stable.

The core of the onion consists of cognitive personality styles. Styles in this layer are concerned with deep personality traits that indirectly influence how learners interact with their environment. These styles are believed to be the most time stable.

Kolb Learning Style Theory

Kolb (1984) identified fours ways that a learner can perceive and process information that determines the learning styles of the learner. The four proposed learning styles by Kolb are:

- **Diverging** (concrete, reflective) –These learners consider concrete situations and also consider innovative and imaginative approaches to learning. They consider activities that involve cooperative groups and brainstorming.
- **Assimilating** (abstract, reflective) –These learners consider different observations and thoughts to form a whole. Learners of this type mostly consider activities that involve projects design and experiments.
- **Converging** (abstract, active) –These learners learn better when dealing with technical problems rather than interpersonal issues. Convergent learners like practical application of ideas in solving problems.
- **Accommodating** (concrete, active) –These learners normally use trial and error rather than thought and reflection in solving problems.

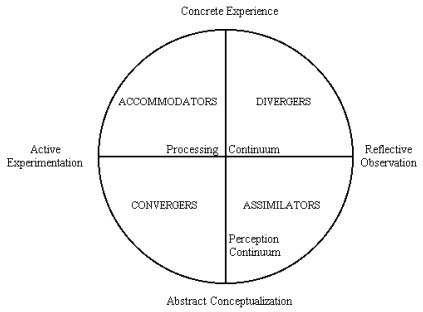

Fig 3: Kolb's Learning Model

HYPOTHESES

With reference to the available literature on learning style theories the researcher considered the following hypothesis:

H1: In relation to performance of students there is a significant mean difference of divergent learning style with convergent learning students

H2: In relation to performance of students there is a significant mean difference of assimilative learning style with convergent learning students

H3: In relation to performance of students there is a significant mean difference of convergent learning style students with assimilative, divergent and accommodative learning style students

H4: In relation to performance of students there is a significant mean difference of accommodative learning style with convergent learning students

METHODOLOGY

This research study aimed to find whether there was a relationship between learning styles and the grade achievement of students and how this affects their cumulative results. This involved finding out what the learning styles of the students were and whether the learning resources given to the students by the instructors addressed the learning styles of the students. The effect of some gender on learning style was also studied.

Learning style was taken as an independent variable, and grade achievement was taken as dependent variable.

POPULATION

Data for the study have been collected through a face-to face interview with 820 students.

Table 1

Sample size students obtained from institutions.

S/No	Universities	Sample
1	University of education, winneba	462
2	Christian Service university	80
3	Baptist University	75
4	Catholic University college	86
5	Garden City university	117
	Total	**820**

RESULTS

The following tables give the results of Bonferroni Post Hoc Test on various learning styles and grade achievement. Table 2 indicates that there was no significant mean difference between divergent learning style and both Assimilative (0.116) and Accommodative (0.011) Learning Styles at the 0.05 level of significance. However, there was a significant mean difference of 0.447) on Convergent as to Divergent. It can therefore be concluded from the findings that divergent learners are better than convergent learners in relation to grade achievement given the learning delivery styles of the teachers.

Table 2

Bonferroni Post Hoc Test for Mean difference of divergent learning style of the students and their Actual Grade Achievement with other learning styles.

(I)Learning Style	(J) Learning Styles	Mean Difference	Standard Error	p
	Assimilative	0.116	0.087	1.000
Divergent	Convergent	0.447	0.122	0.002
	Accommodative	-0.011	0.124	1.000

Table 3 indicates that there is no significant mean difference between Assimilative Learning style and both Divergent Learning (-0.116) and Accommodative Learning (-0.126) styles at 0.05 level of significant. However, there is significant mean difference of 0.331between Assimilative as to that of Convergent. It can therefore be concluded from the findings that Assimilative learners are better than Convergent learners in relation to grade achievement.

Table 3

Bonferroni Post Hoc Test for Mean difference of Assimilative learning style of the students and their Actual Grade Achievement with other learning styles.

(I)Learning Style	(J) Learning Styles	Mean Difference	Standard Error	p
Assimilative	Divergent	-0.116	0.087	1.000
	Convergent	0.331	0.125	0.050
	Accommodative	-0.126	0.127	1.000

Table 4 indicates that there is no significant mean difference between Accommodative learning style and both Assimilative (0.126) and Divergent (0.011) Learning styles at 0.05 level of significant. However, there is significant mean difference of 0.458 between Convergent and Accommodative. It can therefore be concluded from the findings that Accommodative learners are better than Convergent learners in relation to grade achievement.

Table 4

Bonferroni Post Hoc Test for Mean difference of Accommodative learning style of the students and their Actual Grade Achievement with other learning styles.

(I)Learning Style	(J)Learning Styles	Mean Difference	Standard Error	p
Accommodative	**Divergent**	0.011	0.124	**1.000**
	Assimilative	0.126	0.127	**1.000**
	Convergent	0.458	0.153	**0.017**

Table 5 indicates that there is significant mean difference between Convergent learning style and all the other learning styles; Divergent (-0.447), Accommodative (-0.458) and Assimilative (-0.331) at 0.05 level of significant. It can therefore be concluded from the findings that Assimilative, Divergent and Accommodative learners are better than Convergent learners in relation to grade achievement.

Table 5

Bonferroni Post Hoc Test for Mean difference of Convergent learning style of the students and their Actual Grade Achievement with other learning styles.

(I)Learning Style	(J)Learning Styles	Mean Difference	Standard Error	p
Convergent	**Divergent**	- 0.447	0.122	**0.002**
	Assimilative	-0.331	0.125	**0.050**
	Convergent	-0.458	0.153	**0.017**

CONCLUSIONS

The results of this study suggest that:

- Divergent learners achieve better grades than Convergent learners.
- Assimilative learners achieve better grades than Convergent learners.
- Accommodative learners achieve better grades than Convergent learners.
- Divergent learners achieve better results than Assimilative and Accommodative learning styles.

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STRATEGIC PLANNING IN DISTRICT ASSEMBLIES IN GHANA

Ernest Asamoah*

The business environment is constantly changing. There is uncertainty about the future with regard to technological advancement, societal trends, economic forces and/or newly enacted government regulations. In order to survive in a dynamic and fast changing turbulent environment with competitive markets, an autonomous government institution must monitor the changing circumstances and put in place strategic measures to meet them.

However, formulating and implementing a strategic plan should not be the end of strategic planning. District Assembly administrators and other stakeholders need to know the impact or effects of strategic planning on the Assembly's performance. The impact or effects should be measured not only in terms of typical output-oriented quantitative indicators, but also in terms of qualitative impacts of the strategic planning process or activity itself. Measuring the impact of strategic planning will enable management to know whether the resources devoted to strategic planning are worth their value or not. The study reported aimed to measure the qualitative impact of strategic planning on performance of District Assemblies in Ghana.

BACKGROUND

Most organizations have a strategic plan even if that strategy has never been explicitly formulated. The District Assemblies are by laws mandated to have a written strategic plan in the form of medium term or long term plans for the district. In this competitive world, however, every organisation must be proactive, that is, prepare for and deal with the rapidly changing environment. The complexity and dynamics of managing a District in the face of changing technological, social and economic factors compels District Assemblies to monitor and evaluate these factors relevant to the district and work out strategic measures to proactively cope with these challenges. The ability of a District Assembly to respond proactively has therefore become an imperative and in some cases, a competitive edge. Thus, every District Assembly regardless of its size, location, resources, and the party in power must have some form of strategic plan or develop a strategic perspective. The administrators must be able to measure the impact of strategic planning on their performance of the Districts Assemblies.

The literature on the impact of strategic planning has increasingly and exclusively dealt mostly with profit or financial payoffs (e.g. Ramanujam and Venkatraman, 1987). There has been little or no concern with regard to measuring qualitative aspects of the impact of the strategic planning and the planning process itself on performance of local government structures such as District Assemblies. The writer believes that the act of engaging in strategic planning is as valuable as the strategic document and believes that this process needs to be measured.

This study reported here investigated the impact of strategic planning on performance of District Assemblies in Ghana with particular reference to the Ahanta West District Assembly in the Western Region of Ghana. The focus was on measuring the impact resulting from the strategic plan and the strategic planning process.

OBJECTIVES

Measurements of the impact of strategic planning have focused on parameters such as measures of financial indicators in profit making organizations; little or no attention has been paid to qualitative aspects especially in not for profit or political organizations. The central hypothesis of this study was that apart from economic and financial indicators of measuring strategic planning on performance of District Assemblies other non-economic and non financial indicators are of equal significance.

The objectives of the study were as follows:

- To determine how Ahanta West District Assembly plans strategically to respond to the diverse needs of the family and communities in the district.

- To assess the qualitative impact of strategic planning on team building, common understanding, managerial decision making, and organizational goals implementation on the performance of the Ahanta West District Assembly.

THE STRATEGIC PLANNING PROCESS

The preparation of strategic plans of all the District Assemblies in Ghana is enjoined by the directives of the National Development Planning Commission Act (NDPC Systems Act, Act 480 of 1994).
Strategic planning is implemented by a District Planning Coordinating Unit (DCPU) in each District. The unit is made up of the District Chief Executive (DCE), the District Planning Officer, the District Finance Officer and the Budget Officer the District Coordinating Director. Under the supervision of the National Development Planning Commission (NDPC), competent professionals are brought together (accountants, engineers, surveyors, planners,) in the district to prepare what is called the District Medium Term Development Plan (DMTP). The NDPC prescribes the format of the strategic plan (Local Government Act, Act 462, section 47). The key professional staff of the District Assembly attends

workshop to study the guidelines for the preparation of the plan. The DPCU first collects data from the various parts of the district, then meets with all Heads of Departments, NGOs and other key stakeholders in the district to get their input.

Another workshop is held to select key priority areas of the district by the DPCU based on the information gathered .The DCE chairs this meeting. The key priority areas identified together with recommendations from the Executive Committee of the District Assembly are used by the DPCU to prepare a three year draft Medium Term Plan. The DPCU then meets with the Assembly Members – thirty who represent various electoral areas of the district plus 15 appointed members - Heads of Departments and the Member of Parliament in the district to adopt or reject the plan.

When the draft is adopted, the Assembly Members then go back to their Electoral Areas to bring their electorate up to date with the strategic plan. The plan is then submitted through the Regional Coordinating Council to the National Development Planning Commission for approval.
The District Assembly may, with prior written approval from the NDPC make modifications to an approved district strategic plan (Local Government Act, Act 462, section 47)

The implementation of the strategic plan for the district assembly is done through annual action plans with SMART targets, provision of the needed resources or inputs bearing in mind risks and assumptions. Mechanisms for providing feedback on the strategic plan implementation include regular reporting, reviews, periodic evaluations and audits by the Regional Coordinating Council.

METHODOLOGY

To meet the above objectives, a descriptive survey design was used for the study. This covered the following elements:

- Demographic data on respondents.
- Evaluative tools for measuring the impact of strategic planning on performance of District Assemblies.

The survey instrument was pre-tested with a representative number of respondents with the aim of finding out the quality of responses needed. The instruments were then revised based on the feedback received.

Data Gathering

Primary data were collected by distributing a questionnaire and cover letter to the Members of the Assembly responsible for strategic planning in Ahanta West District. The importance of the survey to the District Assembly was briefly explained to respondents before the distribution. They were encouraged to be honest and thoughtful in their responses.

The items used in the instruments were based on a 5-point Likert scale items - 1 being the lowest and 5 the highest. This allowed the respondents to agree or disagree with a series of statements. Each specific statement in the Likert system was scored. Manual analyses of the data were carried out using simple statistical methods. The frequency, absolute, and percentage score were then determined for each specific statement.

The questionnaire covered demographic data such as age, sex, educational level and position (what the respondent did in the District).

Evaluative tools for measuring the impact of strategic planning on organizational performance were also used. These were divided into five themes or categories covering strategic thinking, team building, common understanding, administrative and executive decision-making, and implementation of the District Assembly's goals and objectives. Semi-structured, open-ended interviews were conducted with a total of 15 respondents who are involved in strategic planning. This method allowed respondents to express their views freely. The interviews usually lasted twenty minutes. Assuring the confidentiality of the interviewee, notes were taken and later analysed.

Secondary data were also obtained by studying documents that seemed to help with an understanding of strategic planning in the Local Government system. These documents were obtained from the Ministry of Local Government and Rural Development, the Ahanta West District Assembly, the District Assemblies in Ghana website, and the Medium term plans of the District Assemblies. Documents studied included those relating to the Local Government structure, development planning as well as strategic plans and annual operating plans.

FINDINGS

Strategic planning

The questionnaire focused on issues relating to strategic thinking, team building, understanding, executive and administrative decision-making and enhanced implementation of the goals of the District

- ***Strategic Thinking***: In the strategic thinking construct, it was evident that strategic planning has an important impact on members of the District Assembly and the entire inhabitants in the district. All the respondents agreed or strongly agreed that strategic planning enabled the District Assembly to think of how stakeholders' expectation affects its performance.

- ***Team Building***: 78% of respondents agreed or strongly agreed that strategic planning results in the building of strong teams. The Strategic Plan ensures that Assembly Members, Unit Committee Members, staff of the district, etc., work toward the same goals.

- ***Common Understanding***: 21 respondents (43%) agreed and 28 (57%) strongly agreed that the strategic plan has resulted in a common understanding about the goals and objectives of the Assembly and how it will achieve them within a defined time frame. The response rate is significant in the sense that it indicates the degree to which the strategic plan serves to communicate the District Assembly's goals and objectives to its constituents. It also indicates that unless goals and objectives of the District Assembly have been clearly communicated to Assembly Members NGOs departments and staff of the Assembly by means of the strategic plan, it remains very difficult how the District can carry out its mission.

- ***Administrative and Executive Decision-Making***: 29 respondents (53%) agreed and 26 (47%) strongly agreed that strategic planning provides a coherent framework for administrative and executive decision-making.

- ***Implementation of Goals of the Assembly***: Respondents rated the effect of strategic planning on the implementation of goals of the District Assembly high.

Other Comments

26 respondents (53%) acknowledged that the defined qualitative impacts outlined above have contributed immensely to the peace and tranquility in the district. They further indicated that as all the parties involved in developing the district are involved in the planning process, all the relevant stakeholders play their part and the major development goals achieved in the district in areas of education , health ,agriculture, tourism and good governance can be attributable to that. 82% of the respondents interviewed felt that the modest gain achieved in the district and the local governance administration in Ghana generally is due to the fact that these qualitative impacts translate into other quantifiable impacts like physical development in the district.

DISCUSSION

The key finding was that strategic planning can impact on performance of District Assemblies in Ghana in areas like strategic perspectives and team building. It can also result in improved understanding of the Assemblies objectives and overall direction and facilitate implementation of organisational goals and objectives. This idea contrasts with previous studies by the research community in the field, which focused exclusively on the financial payoffs of strategic planning.

These qualitative impacts, though not necessarily immediately visible, are needed to better measure the quantitative impacts. It can be inferred that due to the qualitative impacts a lot of have been achieved and that the resources available in the district have been better used to meet the needs of the people. The relevant State Agencies have common understanding of the development goals of the district so they all work as a team to achieve them.

CONCLUSIONS & RECOMMENDATIONS

Formulating and implementing a strategic plan in itself leaves a lot of unanswered questions. The impact of the plan and more critically the impact of the planning process on performance of District Assemblies need to be measured. In this study we have taken account of the behaviour-based impact of strategic planning on performance of District Assemblies, i.e. beyond the more qualitative indicators we have provided a more holistic view by assessing the impact of strategic planning on organisational performance.

The evidence reported indicates that strategic planning can have a significant impact on performance of District Assemblies. It can result in improved understanding of the organization's objectives and overall direction. It can facilitate implementation of organizational objectives and goals. The methods used in this study could be relevant for use in assessing planning processes in other organizations including NGOs or business entities; in particular for measuring staff perceptions of the impact of a strategic plan and the planning process on their organization's performance. In this way, the organization may be able to provide justifications for the resources that are invested in strategic planning.

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THE LAW

Part 1: The Creation of Social Order in Communities

Dr George Reiff*

The word 'law' often triggers uneasiness among the average citizen. He associates it with the imagination of an alien power separate from him. The sheer word causes us to think about speeding tickets, parking tickets and court procedures – things we do want to do with at all.

There are reasons for this uneasiness. The citizen encounters the law as a hardly transparent and hardly understandable collection of regulations with whom he cannot get along without expert help. In daily life he encounters law mostly as restrictions that limit his scope of activities.

It may be generally accepted that people need to be examined in order to get a driver's license in order to participate in public traffic or to pay income tax proportional to the income but regulations are often conceived of as a nuisance or even a reason for anger. The average citizen usually does not think about the reasons behind the law; he sees his encounters with the law as unpleasant, like misdemeanors against traffic regulations or disputes with a neighbor.

The uneasiness regarding law is oftentimes based on a lack of understanding regarding the necessity and the performance it renders to society. The aim of this paper is to provide an introduction to law in order to remedy this lack of understanding. It is not a guide booklet into law for daily life but hopes to serve as an introduction for the understanding of the foundations of the legal order. This understanding is necessary in order to be able to understand the meaning of current law. What I report does not require prior learning in the field of law. Rather I simply try to connect common knowledge with more specific knowledge of the working of the law by quoting examples.

The separate modules of the study are interconnected as a short look on the index will show. The first part will demonstrate the fact that human life is created by nature as life within a community. It will be explained that living in societies and communities needs regulations in order to provide orientation for the individual for his own and the other's behavior and action.

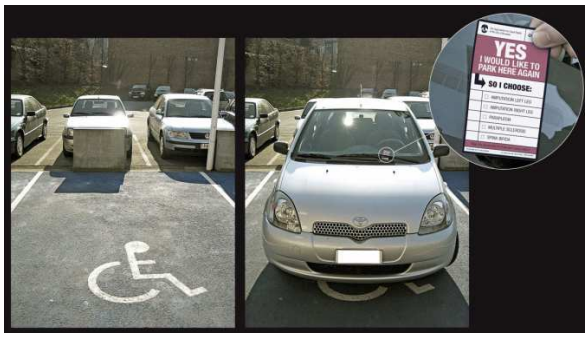
A second part will deal with the special status of legal regulations in comparison with all other regulations of community life.

The third part will explain the requirements for validity of law. It will deal with the connections of implementing law in the Federal Republic of Germany and explain the connection between law and justice. It will show that the law can only serve its purpose in society if its demands for implementation are generally accepted.

In the fourth part, we will look at the social functions of the law. We will consider the effects of law in regards to securing inner peace and social integration. We will see as well that the law is an indispensable instrument for the guidance of inner processes of society.

The fifth part will inquire into the peculiarity of societal interconnections, which are put into order by legal regulations. We will use the example of the Federal Republic of Germany in order to show the difference between public and private law.

The sixth part is dedicated to the use and the protection of the law. Prominent are here the objectives of the judiciary through the courts and the organization of the court system.



Illegal parking constitutes a misdemeanor. A misdemeanor is like crime, an action outside of the law but it does not constitute a criminal injustice and is not punishable by conviction but by fine.

RULES TO LIVE TOGETHER IN SOCIETY

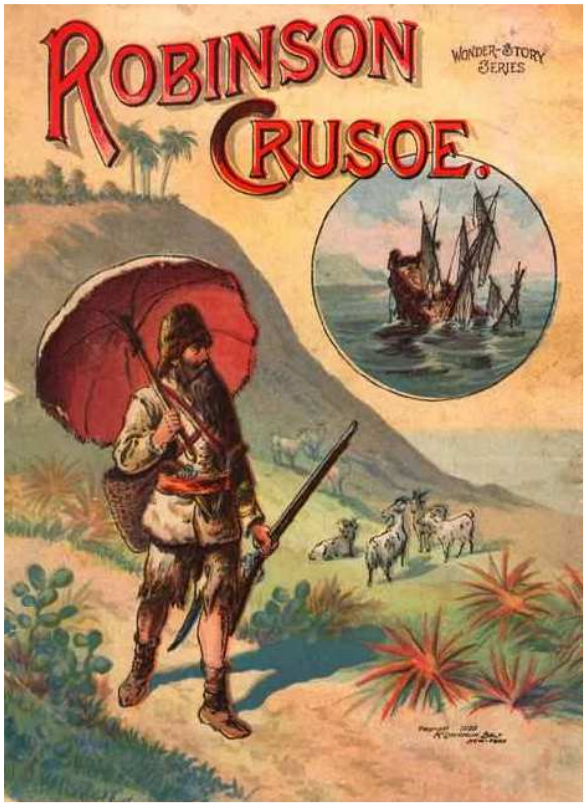
The Meaning of Social Norms

Human life in its very nature is directed towards community life. Humans need each other and are used to each other. The individual can only implement his opportunities of life in relation to others.

This direction towards community is a characteristic of all human existence, no matter how different and how manifold the forms of human community may be and may have been, starting with the primitive, not much structured societies at the beginning of human history up to the large industrial societies of our days. The quest for the best and the right form of community life are paramount within the history of philosophy and the emanating political ideas now and then. The answer to this question may differ, sometimes even be detrimental. However, one point is without doubt true: the starting point of all thinking is that the human is on one hand a being lacking perfection that could not

persist against the forces of nature and the environment on his own. It is further true that man's abilities can only be developed in community with other humans.

Even an apparent counter argument like the story of the ship-wrecked Robinson Crusoe, simply confirms what has been said. The hero of Daniel Dafoe's novel only survives on this uninhabited island because he has abilities that were developed before in community with other people.



Robinson Crusoe, the main character of Defoe's novel, saves himself after shipwreck on an uninhabited island. There he lives alone for many years till he meets a native whom he calls Friday according to the day of their encounter.

As long as Robinson is alone, there exists no law for him. He can do what he wants. In his relationship to flora, fauna and the inorganic world there is no law. (NB laws against animal cruelty protect animals only once they are conceived as human-like in their suffering). Only with appearance of Friday a human community comes into existence and the necessity for an elementary order of laws.

Legal Norms

Gunther Patzig, in his monograph Moral und Recht states as follows:

'Moral rules and regulations both refer to human behavior. This is their common ground. However, they refer to them in different ways: regulations are decreed at a certain time in a specific society, codes of law are something very positive because they can be documented. We can certainly dispute about a regulation and its interpretation and application in a given case but we cannot dispute the very existence of said regulation. The positivity of the legal norm is also expressed by a certain date when it comes into force and other norms are abolished from a certain date on. In Germany, for example, it was a felony from 1st of September 1939 to listen to radio stations of hostile nations. A corresponding implementation date would be nonsense in the case of moral rules. Nobody would say with any common sense that from a certain day on it would be morally reprehensible to punish children by beating them, or morally permitted to commit suicide. Legal norms are enforceable while moral rules can only sanction through admonition, disapproval and finally cessation of contact. A legal norm that is broken by nearly everybody is undermined and can be made obsolete. However, moral rules stay even though if they are generally not obeyed. The Christian commandment "Thou shalt love thy neighbour as thyself" is a just moral demand, it remains even though only a few people always live according to it and many people never live (and never want to live) according to it. A further difference between legal and moral rules is that the legal rule refers especially to the outer behavior of the people and that it does not prescribe a certain mindset.

The regulations regarding postal and telecommunication services in a given country threaten punishment in case of running a private radio station without permission or delivering letters as a business without permission outside the governmental system. Even if all involved persons are in accord, a second marriage additional to an existing first marriage is punishable by law. Traffic regulations and speed limits often have no visible relation to the moral demand of avoiding danger. Never the less, anybody who does not follow those rules risks punishment. The political crime law, a necessary measure of the state in order to ensure its own existence, knows crimes that are not the result of moral convictions. However, being a criminal out of conviction/religion/philosophy, will not prevent a person being punished according to the laws'. (*Original in German, Gunther Patzig: Moral und Recht, p. 11 and p 14*)

Order

We know several different types of community have been established through history. Their common denominator is that human community life always takes place within a kind of order. The word order denominates a net of interpersonal relationships characterized by a certain set of rules. Where ever people live together, we discover that their behavior in similar situations follows a certain returning order. The sum total of such returning behavior accumulates in the respective society into a typical paradigm and behavior pattern. The validity of such behavior patterns is a

requirement for the continuity of human societies or in other words: the social order.

Rules

The word rule is associated with two different facts that are nonetheless closely related. Firstly, it indicates that human behavior in certain situations tends to follow a certain repeated pattern. Its deeper meaning however is not limited to typical behavior; rather, it expresses as well that members of a society in a given society expect adherence to certain norms of behavior from each other. In that sense we call such behavior "social norms", being rules of behavior which are prescribe the current or future actions of a certain group of people in a certain situation more or less strictly.

Social norms are not given by nature but as the result of human community life and the development of society. History shows great variation in human societal development leading to a variety of differing social norms specific to each group. Social norms are not timeless! They arise and are valid within the process of societal life, but they can perish and be replaced by new rules reflecting the current state of the group's development.

It needs only a few examples to show this generally accepted fact. Everybody knows rules of behavior like tradition, custom or moral.

Tradition

Tradition is understood as repeated action that has been established in community life and which causes a uniformity of actions any particular group. It is tradition to set up a Christmas tree, to present gifts on birthdays or to mutually celebrate a popular event. When considering such traditions, it is not immediately visible that they also contain expectations of social behavior apart from their regular occurrence. Indeed are traditions usually not really binding regulations; are not birthday gifts not only given but also expected? Further, in every smaller village in Germany it is expected that everybody participates in the annual shooting contest and the accompanying festival.

Rural Dressing Regulation around 1150

The picture shows peasants rendering their annual dues in the form of produce like lambs, fowls etc. The Lord to the left wears a long gown; the peasants wear trousers and leather boots. The picture is from the late 14th Century. Prior to the beginning of the 18th Century, there were strict regulations in Central Europe how peasants and citizens had to be dressed. According to the law, it was permitted for the peasant to wear black or grey. Decorative stitches were only permitted on the side. Shoes should be made from bovine leather, shirt from 7 ells of fabric and trousers should be made on flax fabric only. At Sundays he should go to church, but he is only permitted to carry a staff. If he comes with a sword, he shall be cuffed and brought to the church's fence whereupon his hair will be cut. If he is attacked, he can only defend himself with a crutch stick.

The Police Regulations of the City of Frankfurt regarding wearing certain clothes from 1576 state that 'the wearing of velvet trousers by men and young bachelors drew a fine of 10 guilders. Trousers made from velvet, satin and other silks shall be worn only by the aristocrats; commoners cannot adorn themselves with velvet, only with small silken laces and tassels'.

Secondly, a man or young bachelor shall not have his gown, his coat, his vest or other cloths altered by tailors or other persons with cross stitches or inner lining and not wear such cloths: punishment of 10 guilders. Only men whose privilege it has been since olden times may wear golden chains but the value of such chains shall be no more than 150 golden guilders: fine 10 guilders.

No female persons or virgin is permitted to wear a skirt or coat made of golden or silver fabric or velvet and garments shall have neither pearls nor golden or silver cross stitches attached to them: punishment 10 guilders.

The tradition of setting up a Christmas tree is not five hundred years old as the picture of Martin Luther and his family produced in the late 1900s alleges. The Christmas tree custom was only widely introduced after the Franco-German war of 1870/1871. During the war the Christmas trees was set up in all trenches and hospitals upon request of the Prussian King.

Customs

Customs are similar to traditions in that they signify life habits and behavior rules which have been practiced from generation to generation. Belonging to this are table manners, clothing customs (e.g. wearing black for a certain time of grief) and customs of good conduct in business. The social norms of customs differ from mere traditions insofar as their degree of compulsoriness and their demand of adherence is often significantly higher.

The "customs of clothing" (above) show clearly the interchange of social norms through the course of historical development. During long time spans socially compulsory dress codes indicated social rank and the societal strata the individual belonged to. Despite the fact that a certain dress code still plays a role in certain groups of society, like business, their practice is not so compulsory rules in our modern working society.

Moral

Social norms which reflect morals, ethics and virtue are also important. Every society has philosophical or religious attitude norms or behavior norms which demand a high degree of adherence. In the Judeo-Christian tradition those are for example the Ten Commandments. Where is now the compulsory validity of social norms expressed and where is their meaning for society?

Exodus 34:4, 29-34: 'So Moses cut two tablets of stone like the first. And he rose early in the morning and went up on Mount Sinai, as the Lord had commanded him, and took in his hand two tablets of stone. And he wrote on the tablets the words of the covenant, the Ten Commandments'… When Moses came down from Mount Sinai, with the two tablets of the testimony in his hand as he came down from the mountain, Moses did not know that the skin of his face shone because he had been talking with God. …Aaron and all the people of Israel saw Moses, and behold the skin of his face shone, and they were afraid to come near him… But Moses called to them, and Aaron and all the leaders of the congregation returned to him, and Moses talked with them... Afterward all the people of Israel came near and he commanded them all that the Lord had spoken with him in Mount Sinai.

Compulsion

A social behavior norm renders itself compulsory by being followed regularly and by the fact that ignoring it ends up in a form of social punishment. The community imposes negative sanctions against the one who acts against the rules. Anyone who persists in acting against rules of politeness will be soon avoided by others. Disapproval can be directed at one who does not help a friend in dire straits and who therefore violates a morally given behavior norm. And the merchant who tries to dupe his customers is risking being boycotted.

The degree of compulsion attached to a norm results either in individuals conforming to the required behavior or being subjected to the disapproval of others. The severity of the disapproval depends on the importance of the social norm in question for the respective society and the extent of the violation.

In a modern society each individual has various social relationships with others: he is member of a family, he is member of a religion, he works in a company, he has a circle of friends or he is active in a sports club. In all of these relationships he is a part of a social order in which certain rules of behavior are valid. He has to adapt to those rules if he wishes to avoid the negative effects that result from deviate behavior. In the work place the rule of collegiality is valid; he who is permanently acting selfish and never willing to help others will soon be an outsider among colleagues. Every social order contains therefore an element of force because the individual is not free to behave as he pleases.

Social norms are not just boundaries which prevent us from following a certain pathway; they also show us the way to follow in social life. Orientation coming from social norms frees the individual from the pain to decide each and every situation anew with all the different possibilities of behavior and responses. The compulsoriness of social norms reduces the pressure of decision making for the individual and gives him in turn a sense of security in his behavior. This applies for everybody. The individual can expect that the rules of behavior he is following himself will be followed by others, too. Social norms make inter-human actions predictable.

Everybody knows what to expect when dealing with others. Social norms give the individual secure expectation within social life. Social norms, therefore, structure the behavior and the expectations of all

individuals. They make possible an orderly human community.

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ACHIEVING SUSTAINABLE PEACE IN ACHOLI SUB-REGION IN UGANDA

Dr Oyat Christopher*

Northern Uganda, the Acholi Sub-region in particular, has experienced one of the most violent and traumatic conflicts in the history of Uganda. The conflict, which started in 1986 and continued for over twenty years, caused a lot of suffering namely, but not limited to, loss of property, loss of lives, and mutilation of people's body parts. All of this occurred under the watch of various stakeholders: the United Nations, the Government of Uganda and the African Union/OAU among others (Refugee Law Project Report, August 2009).

PEACE AND RECONCILIATION

Peace is the absence of war and other forms of direct violence that cause human suffering at individual, national, regional and international levels (Walter Rodney, 1972). Looking at the situation that has unfolded in Uganda, and especially in the Acholi sub-region, it is clear that the lives of the population would not have been placed in great danger if the various regimes that have ruled this country, including well placed individuals and international actors, had invested in peace and reconciliation initiatives from the commencement of independence in 1962, and remained committed to them.

According to the International Organization for Migration Report (December, 2003) about 1.5 million people in Northern Uganda were displaced into squalid internally displaced persons camps (IDPs) in 2003 as a result of the conflict. Displacement led to high levels of HIV/AIDs infection, gross violation of human rights and limited access to basic social services (UNICEF Annual Report on Uganda, 2006). From this experience we might ask the following significant questions:

- What has the UN been doing all this time?
- What has the African Union/OAU been doing all this time?
- What has the Government of Uganda been doing, e.g. why did the Government of Uganda pass the law on internal displacement only in 2004, and not earlier?
- What has the Governments of Sudan and the Democratic Republic of Congo been doing all this time?
- What has USA Government been doing all this time?
- How committed has Joseph Kony, the leader of Lord's Resistance Army[1], and his team been in forging peace?
- What have been the main obstacles in the realization of sustainable peace, reconciliation and development in Uganda?

These are strategic questions that require frank, open and sincere answers, but from what is known to date, various stakeholders within and without Uganda have not fully played their respective roles as effectively and proactively as common justice and decency would deem necessary.

CHALLENGES AND LESSONS

Premised on the understanding of the political dynamics and history of Uganda since independence, the following are crucial issues to be reckoned with if we want to realize sustainable peace and reconciliation:

- African countries like Uganda must appreciate and fully embrace the role and contribution of traditional leaders and institutions in managing and averting violent conflicts in our society. Governments should support and strengthen these institutions and their respective leaders in good faith (Refugee Law Project, No1, July 2009).
- Sometimes it makes sense not to use the penal code as a mechanism for realizing sustainable peace and reconciliation. Institutions such as the International Criminal Court should not be used at all times and in all conceivable situations to address impunity. Genuine and sustainable peace and reconciliation can be realized by, for example, using traditional and African alternative and restorative justice systems by relying on institutionalized traditional leaders. Note that Western orchestrated legal models of ushering peace and addressing violence have been known to exacerbate violent conflicts in many countries in Africa! (Refugee Law Project, Working Paper No1 July 2009).

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[1]The Lords Resistance Army is headed by an Acholi tribesman called Joseph Kony. The Army has been actively fighting the Ugandan Government since 1986, causing untold misery amongst the people of Northern Uganda. In the 1990s the Army operated from Southern Sudan until 2008 when they were defeated. Presently they are operating in the Democratic Republic of the Congo and the Central African Republic.

- Equitable sharing of national resources can go along way towards ensuring sustainable peace and reconciliation. Poverty is a potential source of violent conflict. In Uganda, regional balance in terms of viable opportunities for livelihood, and well worked out formulae for the allocation of the best jobs can assist in ushering in sustainable peace and reconciliation (Refugee Law Project No1 June 2009).

- In peace, reconciliation and negotiation processes, communication is crucial in managing relations between conflicting parties. Communication channels for passing information should be transparent and respected. Delegated peace team members, in consulting with various stakeholders, should recognize that they have a duty and responsibility to put issues of concern 'on the table', so that the media houses and other stakeholders know about the deliberations and resolutions made for eventual implementation.

- Meddling in the affairs of designated peace team members by outside parties can only help to fuel mistrust and diminish confidence levels. Selected parties should enjoy full authority on behalf of other stakeholders. The core peace team members can and should only be advised on the courses of actions to be taken by the interested outside forces, individuals, institutions and organizations.

- Genuine political education schools should be established based on inclusive and faithful discussions and resolutions. An Act of Parliament should precede and consolidate this position. Approved course outlines should form the basis for lectures. Qualified and non sectarian lecturers, properly appointed by a legitimate body should be the ones to lecture course units. In Uganda the *National Council for Higher Education (NCHE)* should be responsible for accrediting and approving the course content of the established schools. This will avoid or at least minimize political hood winking and sectarianism.

- Recognized religious denominations and leaders should be enabled to support peace building and reconciliation initiatives by Government and other non-state actors. Prospective NGOs can build and strengthen the capacities of religious institutions and leaders so that they become more proactive in matters of peace and reconciliation.

CONCLUSION

Building sustaining peace and reconciliation is not the sole responsibility of one or two persons or the monopoly of the state and/or international institutions; it is the duty and responsibility of all. It should be approached and nurtured as a process with soberness, discreetness, frankness and openness if genuine headways are to be realized. Sustainable development can only be realized when all stakeholders understand the meaning, purpose and implications of nurturing peace and reconciliation agenda.

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