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An Empirical Investigation Of The Impact Of Exchange Rate Fluctuations On The Performance Of Selected Listed Firms In Nigeria

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Abstract

This study investigated the impact of exchange rate fluctuations on firm's performance in Nigeria. Having noted the impact of exchange rate fluctuation from the literatures, it become paramount to investigate the impact in the Nigeria context. In this study, seven research questions were formulated which led to the test of seven hypotheses. The major objective of the study was to empirically investigate the impact of exchange rate fluctuations on return of investment. The study makes use of descriptive and ordinary least square methodology. The scope of the study is 2012 to 2016 on a panel data. From the study. The Exchange rate plays a significant impact on Return on Investment as most of the banks are involved in exchange rate transactions. The regression result shows that there is a positive relationship between Return on Investment and exchange rate of 145.4265. This implies that a unit increases in exchange rate of 145.4265 will bring about a rise of 145.4265 in Return on Investment. Since the T-calculated value in the study is 0.287 which is compared to 0.05 i.e .287>0.05 we reject the null and accept the alternative hypothesis that there is a significant relationship between exchange rate and return on investment (firm's performance). Other variables used in the study have a positive relationship with return on investment. In the regression result, the coefficient of determination is very high. It shows that about 67 percent of the total variations in Return on Investment (ROI) are explained by all the independent variables in the model.

Keywords: exchange rate, firm's performance, fluctuation, regression, return on investment

1. Introduction

The impact of exchange rate has a long history in any economy. One of the reasons for the fall of Bretton wood agreements can be traced to the impact of foreign exchange. Most developed nations had in one way or the other guide against exchange rate fluctuations. This implies that the impacts of exchange rate volatility are not a respecter of if a nation is developed or developing. Therefore, at this time where the world is a global village and financial markets are integrated on an online platform, it becomes necessary for nations to put in place strategies that will help in absorbing their exchange rate risk because no nation is isolated from the impact of exchange rate fluctuations.

The impact of exchange rate fluctuations does not only affect country economic activities but also affect the performance of firms in general. An exchange rates fluctuation is also referred to as exchange rate volatility could be described as periods of domestic currency appreciation or depreciation. Calvo and Reinhart (2001) observe that developing countries seem to be more tolerant of foreign reserve fluctuations than exchange rate volatility. This means that as a country experiences exchange rate fluctuations, the authorities use their reserve stock to intervene in the foreign exchange market with the purpose of dampening the exchange rate volatility. This therefore, suggests that the two series may seem to have a long-run relationship. Many empirical works, for example Levy-Yeyati and Sturzenegger (2004) and Calvo and Reinhart (2002) have used reserve volatility as a proxy for intervention. However, this approach has being criticized on the ground that reserve volatility in developing countries cannot be solely attributed foreign exchange transactions, but a number of other factors can cause reserves fluctuations. However, the literature is ambiguous about the direction of the effect of real exchange rate on the level of investment. While a real depreciation of exchange rate raises the cost of imported capital goods, which, in turn, would lead to a fall in domestic investment, a real depreciation arising from raising the firms' performance in the tradable goods sector would stimulate investment in this sector but depress investment in the non-tradable. However, in an economy that is driven by Foreign Direct Investment (FDI) flows and if the capital stock is optima, a real depreciation of the exchange rate will result in a decline in domestic investment.
In Nigeria, the naira exchange rate witnessed a continuous slide in all the segments of the foreign exchange market (that is, official, bureau de change and parallel markets). Given the import dependent nature of the Nigerian industrial sector, the continued depreciation of the naira exchange rate vis-à-vis the currencies of other major trading partners, meant that more resource would be needed to increase domestic output.

A depreciating exchange rate in the absence of domestic sources for input and inadequate infrastructure will raise the cost of production, which will in turn make locally produced goods less competitive compared to the imported counterparts, thus, reversing the benefit of cheaper exports expected from depreciation of any currency. Similarly, the over-dependence of the economy on imported capital goods implies that a depreciating exchange rate would crowd out marginal investment as a result of high investment cost.

The exchange rate is generally regarded as reflecting the worth of an economy in terms of another economy. Foreign exchange is the means of payment for international transactions. It is made up of convertible currencies that are generally accepted for the settlement of international trade and other external obligation. The more the exchange rate depreciates, the lower the value (in real terms) of the goods and services (including salaries and wages of workers) produced in a country vis-à-vis its trading partners. The fact has unfortunately, nationalistic and political colouration to exchange rate management (Nyong, 2005). Those with strong economic

background and conscious of the need to diversify the Nigerian economy away from oil to non-oil exports will support a depreciating currency which is expected to maintain international competitiveness. However, those with nationalistic and patriotic flavour get uncomfortable and jittery where the exchange rate depreciates against foreign currencies, arguing that it cheapens the economy and makes it easy for foreigners or dominate the domestic economy, thereby perpetrating external dependency. For them, a strong and appreciating currency is considered a source of national pride and aspiration, and is indicative that the economy is doing well. The fluctuation and instability in the exchange rate led to frustration of a lot of firms Nigeria, this therefore make firms that basically source their needed raw material from abroad to be on a shaky ground, even those that source their raw material from the country are indirectly affected due to persistence increase in inflation in the economy at large. This also leads to many import competing firms to increases price in response to foreign competitor rise increases to improve profit margins. It is discovered that most of the literature doesn't offer suggestion on how to hedge against this negative effect of foreign exchange fluctuation on firms. This research work will therefore offer suggestions on how to hedge against exchange rate fluctuation. There are four options to counteract their currency exposure in terms of exchange rate fluctuation. The simplest approach is just to monitor the changes, and this can be the best option if companies do not think that they are at a particularly high risk from exchange rate fluctuations. The main objective of the study is to determine the impact of exchange rate fluctuations on firm performance.

2. Literatures

Exchange rate is the price of one country's currency expressed in terms of some other currency. It determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in the international trade. Exchange rate regime and interest rate remain important issues of discourse in the International finance as well as in developing nations, with more economies embracing trade liberalization as a requisite for economic growth (Owolabi 2017). The impact of foreign exchange rate fluctuations is generally deep on firms and there should be good methods of hedging against it. Hence, an organization needs to do careful analysis of these effects on its operations before making a decision on how to deal with it. This chapter will highlight the theories associated with international transactions and exchange rate systems. It will also review empirical evidence from other similar research work done before in order to conceptualize the study. Therefore, organizations have to evaluate the risks of doing business on an international level. But it doesn't always work in their favour. For instance, McDonald's saw sales in Europe increase in 2011, but the yearly profits were actually down as a result of a weakening euro. Indeed, some experts think investors should be cautious this year too given that the US dollar has strengthened so much recently and is expected to continue doing so. As McDonald's generate nearly three quarters of its profits overseas, this could be an issue if they have not hedged (Adegbite, 2017).

In Nigeria, exchange rate has changed within the time frame from regulated to deregulated regimes. Asher (2016) agreed that the exchange rate of the naira was relatively stable between 1973 and 1979 during the oil boom era and when agricultural products accounted for more than 70% of the nation's gross domestic products (GDP). In 1986 when Federal government adopted Structural Adjustment Policy (SAP) the country moved from a peg regime to a flexible exchange rate regime where exchange rate is left completely to be determined by market forces but rather the prevailing system is the managed float whereby monetary authorities intervene periodically in the foreign exchange market in order to attain some strategic objectives (Mordi,

2006 cited in Azeez, Kolopo, &Ajayi, 2012). This inconsistency in policies and lack of continuity in exchange rate policies aggregated unstable nature of the naira rate (Gbosi, 2005). Benson and Victor, (2012) and Aliyu, (2011) noted that despite various efforts by the government to maintain a stable exchange rate, the naira has depreciated throughout the 80's to date. Effects of exchange rate fluctuations in developing countries like Nigeria has received considerable attention and generated much debate. The debate focuses on the degree of fluctuations in the exchange rate had generated internal and external shock in Nigerian Economy. Exchange rate of a country plays a key role in international economic transactions because no nation can remain in autarky due to varying factor endowment (Azeez, et al., 2012).

Oladipupo and Onotaniyohuwo (2011) states that movements in the exchange rate have ripple effects on other economic variables such as interest rate, inflation rate, unemployment, money supply, etc. These facts underscore the importance of exchange rate to the economic well-being of every country that opens its doors to international trade in goods and services. The importance of exchange rate derives from the fact that it connects the price systems of two different countries making it possible for international trade to make direct comparison of traded goods. In other words, it links domestic prices with international prices. Opaluwa, Umeh, and Ameh (2012) opines that following the fluctuations of the naira in 1986, a policy induced by the Structural Adjustment Programme (SAP), the subject of exchange rate fluctuation has become a topical issue in Nigeria. This is because it is the goal of every economy to have a stable rate of exchange with its trading partners. In Nigeria, this goal was not reached in spite of the fact that the country embarked on devaluation to promote export and stabilize the rate of exchange. The failure to realize this goal subjected the Nigerian manufacturing sector to the challenge of a constantly fluctuating exchange rate. Exchange rate policies in developing countries are often sensitive and controversial, mainly because of the kind of structural transformation required, such as reducing imports or expanding non-oil exports, invariably imply a depreciation of the nominal exchange rate. Such domestic adjustments, due to their short-run impact on prices and demand, are perceived as damaging to the economy. Ironically, the distortions inherent in an overvalued exchange rate regime are hardly a subject of debate in developing economics that are dependent on imports for production and consumption (Dada & Oyeranti, 2012).

In recent time, a study was carried out by Muriuki, et al (2013) which developed a model of foreign exchange exposure dependent on three variables, the firm's imports, exports and their effect on profits formulating the problem statement of the effects (if any) that variations in the exchange rate has in the financial performance of the selected listed companies in the Nairobi Stock Exchange for the period covering years 2001 to 2010. The study is to find out whether foreign exchange exposure is minimized where firms have been able to match their foreign currency revenues and costs leaving them with little net exposure.

This research paper was carried out by Enekwe, et al (2013). From current research, the issue of deciding on effective way to stabilize exchange rate of goods and services in manufacturing sector in Nigeria is one of the key elements of a firm's financial strategy. Therefore, proper care and attention need to be given while such decision is taken. Exchange rate of a country plays a key role in international economic transactions because no nation can remain in autarky due to varying factor endowment. The purpose of this paper is to know the effects of exchange rate fluctuations on manufacturing sector in Nigeria over a period of 25 years (1985 – 2010).

3. Methodology

In order to determine if foreign exchange rate fluctuation impact on firms' performance the model for the study is hereby specified as follows:
ROI= EXR, INFL, INT, LIQ, LEV, GVE, DOP

The above model is hereby written in linear form as:

ROI= b_0 + b_1EXR + b_2INFL + b_3INT+ b_4LIQ + b_5LEV + b_6GVE + b_7DOP

Where:
* ROI = RETURN ON INVESTMENT
It is expected that return on investment should be positive

$$f^i(ROI) > 0$$

EXR = EXCHANGE RATE

$$f^i(EXR) > 0$$

It is expected that a favorable exchange rate will positively affect return on investment

INFL = INFLATION RATE
$$f^i(INF) < 0$$

It is expected that high inflation rate will impede return on investment.

INT = INTEREST RATE

$$f^i(INT) > 0$$

It is expected that an increase in interest rate will positively affect interest rate

LIQ = LIQUIDITY RISK

$$f^i(LIQ) > 0$$

It is expected that an increase in Liquidity rate will positively affect return on investment

INT = LEVERAGE RISK

$$f^i(LEV) > 0$$

It is expected that an increase in leverage risk will affect return on investment

GVE = GOVERNMENT EXPENDITURE

$$f^i(GVE) > 0$$

It is expected that an increase in Government Expenditure will affect return on investment

DOP = DEGREE OF OPENNESS

$$f^i(DOP) > 0$$

It is expected that increase in degree of openness should vary in a direct proportion to the return on investment.

Table 1.3: Descriptive Statistics for Dependent and Explanatory Variables

	ROI	EXR	INFL	INT	LIQ	LEV	GVE	DOP
Mean	12.05000	223.5550	11.27500	6.742500	19.78000	19.74750	457.2261	11.13750
Median	11.79000	200.0000	11.40000	6.865000	19.09500	18.29000	412.3790	9.900000
Maximum	23.80000	364.0000	15.00000	7.750000	22.90000	24.85000	671.5750	16.60000
Minimum	4.400000	150.2900	8.000000	5.690000	18.24000	17.95000	205.6780	8.600000
Std. Dev.	6.621688	78.18858	2.592337	0.779931	1.587235	2.380610	144.2428	2.605597
Skewness	0.441666	0.751858	-0.011326	-0.080580	0.775631	1.112467	0.143002	0.991580
Kurtosis	1.962196	2.063800	1.476953	1.454516	2.301121	2.917889	2.448570	2.810608
Jarque-Bera	5.571940	9.412903	6.960553	7.243477	8.684538	14.87123	1.157619	11.90638
Probability	0.061669	0.009037	0.030799	0.026736	0.013007	0.000590	0.560565	0.002598
Sum	867.6000	16095.96	811.8000	485.4600	1424.160	1421.820	32920.28	801.9000
Sum Sq. Dev.	3113.120	434055.3	477.1350	43.18875	178.8714	402.3788	1477225.	482.0288
Observations	72	72	72	72	72	72	72	72

Source: Extracted from SPSS output, 2018.

Table 1.3 shows that the mean value for firms' performance (ROI) is 12.05, for the EXR and INF were having an average value of 233 and 11.6 respectively. Interest Rate (INT) has an average value of about 6.74%. The minimum value for firms' performance (ROI) is 4.40 while for the maximum is 23.8 the minimum value of EXR 364 while the maximum is 160, INF has minimum value of 10.90 while for the maximum is 15.01, and the minimum value of INT is 11.34 and maximum is 14.81.

It is observed that the EXR has the highest standard deviation among the independent variables that are significant at 5% level and therefore it shows that the INT has the least contribution to the dependent variable. The skewness values were all close to 0 and 1 except for INT implying higher than normal, else the data is considered to be tolerably mild and normally distributed. Therefore the result from the two normality substantiates the validity of the regression result.

On the other hand, the outputs of the descriptive statistics indicated that the maximum of liquidity risk is 51.8% while the minimum one is 54.1%. This indicates that the firm's liquidity position is above average. The degree of openness and the government expenditures shows a mean value of 230.467 and 102.466 respectively. The leverage risk also has a mean value of 409.400, and the maximum and minimum value

of 254 and 746 respectively. But the standard deviation value is 183.27 which the highest value among independent variables.

3.1 Model Specification

In order to account for the determinants of capital adequacy in the banking sub-sector of the Nigeria economy, the model for the study is hereby specified as follows:

ROI= EXR, INFL, INT, LIQ, LEV, GVE, DOP
ROI= b_o + b_1EXR + b_2INFL + b_3INT+ b_4LIQ + b_5LEV + b_6GVE + b_7DOP

Table 1.3 1: Panel Least Square of the Impact of Exchange Rate on Firm Performance.

Dependent Variable: ROI				
Method: Panel Least Squares				
Date: 04/31/18 Time: 13:15				
Sample: 2009 2016				
Periods included: 8				
Cross-sections included: 9				
Total panel (balanced) observations: 72				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	91.48114	1.220011	7.520012	0.0000
EXR	-0.012552	5.230015	-2.400012	0.0000
INFL	-2.123517	2.340013	-9.060012	0.0000
INT	6.494622	8.060003	8.060012	0.0000
LIQ	-4.730966	5.950013	-7.940012	0.0000
LEV	2.447691	3.190013	7.670012	0.0000
GVE	-0.079276	6.930015	-1.140013	0.0000
DOP	-1.345231	4.390013	-3.060012	0.0000
R-squared	1.000000	Mean dependent var		12.05000
Adjusted R-squared	1.000000	S.D. dependent var		6.621688
S.E. of regression	2.500012	Akaike info criterion		-50.48404
Sum squared resid	4.010022	Schwarz criterion		-50.23108
Log likelihood	1825.425	Hannan-Quinn criter.		-50.38334
F-statistic	7.090025	Durbin-Watson stat		2.386536
Prob(F-statistic)	0.000000			

Source: Author's computation 2018

4. Result and Discussion

The Table 1.3.1 shows the relationship between Return on Investment (ROI) and other variables in the model. ROI is known as the dependent variable and other variables in the model are known as the independent variables. From the above regression result, we can deduced that there is a negative relationship between Exchange rate (EXR) of -0.012552 and Return on Investment as most of the banks are involved in exchange rate transactions. This implies that a unit increases in exchange rate of -0.012552 will bring about a corresponding fall in Return on Investment (ROI). The inflation rate (INF) shows a negative of 2.123517 with ROI. This however, corroborate with the apriori expectation that inflation has a negative impact on ROI. The interest rate (INT) has 6.494622 coefficient relationship with ROI. This simply means that one percent increase in INT will lead to a corresponding increase in ROI of 6.494622. We can deduce that liquidity risk (LIQ) has a negative coefficient of -4.730966 with ROI. This

means that one percent increase in LIQ will lead to a corresponding fall in ROI. The relationship between leverage (LEV) and ROI is positive. This indicates that an increase of one unit in leverage risk to ROI will lead to the same increase of 2.447691. The government expenditure (GVE) variable has a negative impact on ROI of -0.079276. This may arise as a result of the negative impact of previous government in Nigeria such as the military rule. The regression result shows a negative relationship between Return on Investment and degree of openness (DOP) of -1.345231. This means that one percent increase in DOP will lead to a corresponding fall in ROI. This does not corroborate with the a priori expectation in chapter three that degree of openness add to economy value and investment. When the economy is open there tends to be foreign direct investment.

In the result, the coefficient of determination is very high. It shows that about 100 percent of the total variations in Return on Investment (ROI) are explained by all the independent variables in the model. The adjusted R^2 also indicates that about 100 percent of the total variations in ROI are explained by the model. The F-statistic is significant at 5 percent critical level. It indicates that the joint variations of the model are significant. However the Durbin Watson value indicates a presence of positive autocorrelation and this might be the reason for result. The F statistic of the model is 7.090025 while the probability of F-statistics is 000000. This implies that there is a significant relationship between exchange rate and Return on Investment. The Durbin-Watson value is 2.386.

4.1 Test of Hypothesis Using T-Test on Table 1.3.1

The t-test value is assume to be the average weighted and can be used to test hypothesis. We assume that T-tabulated is 5% (0.05).

We reject H_0 if T-calculated > T-tabulated. T-calculated can be obtained from the regression table above.

Hypothesis I

H_o: Exchange rate does not significantly affect firms' performance. T-calculated = -2.400012.

-2.400012<0.05 we conclude that EXR is significant and therefore we reject the null hypothesis and accept the alternative hypothesis that Exchange rate significantly affect firms' performance.

Hypothesis II

H_o: Inflation does not significantly affect firms' performance.

-9.060012<0.05 we reject the alternative hypothesis and accept the null hypothesis that Inflation does not significantly affect ROI.

Hypothesis III

H_o: Interest Rate does not significantly affect firms' performance.

-8.060012<0.05 we conclude that INT is significant and therefore we reject the null hypothesis and accept the alternative hypothesis that INT significantly affect firms' performance.

Hypothesis IV

H_o: Liquidity Risk does not significantly affect firms' performance.

-7.940012<0.05 we conclude that LIQ is significant and therefore we reject the null hypothesis that LIQ does not significantly affect firms' performance (ROI) and accept the alternative hypothesis that LIQ affect ROI.

Hypothesis V

H_o: Leverage Risk does not significantly affect firms' performance.

-7.670012<0.05 we conclude that LEV is significant and therefore we reject the null hypothesis and accept alternative that LEV significantly affect firms' performance (ROI).

Hypothesis VI

H_o: Government Expenditure does not significantly affect firms' performance.

-1.140013<0.05 we conclude that GVE is significant and therefore we reject the null hypothesis that GVE does not significantly affect firms' performance (ROI) and accept alternative hypothesis.

Hypothesis VII

H_o: Degree of Openness does not significantly affect firms' performance.

-3.060012<0.05 we reject the alternative hypothesis and accept the null hypothesis that Degree of Openness does not significantly affect ROI.

5. Conclusion

From the above analysis; it was observed that there is significant relationship between exchange rate and return on investment in Nigeria. Exchange rate is considered having negative impact on investment, any ineffectiveness in management strategy will constitute a huge problem i.e. exchanges rate fluctuations can cause huge problem that affect the affairs of the firms. Therefore the findings between exchange rate and firm performance are based on the decisions taken from the test of hypothesis. From the test of hypothesis above, it was deduced that exchange rate affect firm performance hence there is an impact of exchange rate fluctuations on firm performance. The liquidity risk, inflation rate, government expenditures and degree of openness shows a negative relationship with return on investment. The test of hypothesis on all the independent variables shows that the null hypothesis should be rejected and the alternative hypothesis should be accepted.

Based on findings, there is a strong and negative relation between exchange rate and firm's performance in Nigeria. Also an increase in interest rate and inflation rate bring about an instability of investment in the market and thus affect negatively on firm's financial performance. The leverage and liquidity risk measures the risk faced by banks and the degree of openness shows how open the economy is to investment. The use of government expenditure in a study of this nature helped in identifying government impact in encouraging investment in Nigeria. The increase in return on investment which represents firm's performance goes with the impact of some variables.

The study concluded that if negative relationship persist between exchange rate and firm's performance, unfavorable economic environment will occur which broadly affect the Nigeria economic stability. The study therefore recommend government and private partnership for effective management of exchange rate fluctuations in Nigeria.

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Automated Teller Machine And Customer Satisfaction In Tanzania: A Case of CRDB Bank In Iringa

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Abstract

This paper examined the factors that determine customer satisfaction with ATM services offered by CDRB Bank in Tanzania specifically Iringa Municipality. Considering that there are divergent views on dimensions of customer satisfaction as regards ATMs as established by miscellaneous researchers, the current study therefore aimed at determining dimensions that truly associate with customer satisfaction and the effect of each dimension on customer satisfaction specifically in the Tanzanian context. A quantitative study described the relationship between social economic factors, various aspects of ATM services and customer satisfaction was applied to 100 respondents drawn from 340 CRDB customers who are also holders of ATM cards. Results reveal customers usually use basic ATM services such as balance inquiry and withdrawal. The relationship between overall customer satisfaction and convenience, efficient operation, security, reliability, responsiveness and cost were significant at p<0.01. Privacy was found to have a negative significant relationship with overall customer satisfaction at P<0.05. The study suggests that CRDB bank should develop strategies to motivate its customers to use emerging ATM services apart from basic.

Keywords: Customer Satisfaction and Automated Teller Machine

1. Introduction

The growth of computerized banking in a country depends on many factors, some among such factors include; adequate internet access, new online banking features, household growth of internet usage, legal and regulatory frameworks. Computerized banking is expected to offer quicker and dependable services to customers in comparison to those in manual systems of banking. Computerized banking systems not only generate latest viable returns but also get better dealings with customers (Singh, 2009).

In Tanzania ATM industry has witnessed explosive growth in recent times. ATMs represent the single largest investment in electronic channel services for banks. CRDB set the trend when it set up the first ATM machine in Tanzania in 1997 and since then, they have become a common sight in many metros (Mboma,2006). ATMs have gained prominence as a delivery channel for banking transactions in Tanzania as banks have increasingly deployed ATMs to increase their reach. While ATMs facilitate a variety of banking transactions for customers, their main utility has been for cash withdrawal and balance enquiry (Hossain,2010).

Despite the fact that the main utility for the ATM is for cash withdrawal and balance inquiries, CRDB ATM has many services including cash withdrawals, balance inquiries, mini statements, PIN number change, bills payments, transfers between own CRDB bank accounts. With the phenomenal increase in the Tanzania population and the increased demand for banking services therefore: speed, service quality, flexibility and customer satisfaction are deemed as key differentiators for each bank's future success and thus, it is imperative for banks to obtain useful feedback on their actual performance with regard to ATM machines and customer service quality aspects of retail banking, this will in turn facilitate banks in making positive steps towards maintaining a competitive edge usage in ATM services (Mattila, 2001).

Various studies conducted in and outside Tanzania reveal that ATMs significantly contribute to customers' satisfaction. Khan (2010) established the effect of ATM service quality on customer satisfaction by using five key ATM service quality factors: convenience, efficient operation, security, privacy, reliability and responsiveness and discovered a strong relationship between ATM service quality and customers' satisfaction level. Sheshuoff (2000) in a study of customer satisfaction writes that banks introduce ATM in an attempt to create powerful barriers to customers exiting. In general, it has been reported that ATM saves time, provides convenience and accessibility, and has a positive impact on customer satisfaction (Mattila, 2001).

Although Mboma's study is the only one that focused on ATMs in Tanzania (Mboma,2006), unfortunate however, is that it was concluded that flexibility and speed were the only key factors that bring about customer satisfaction. A similar study by Khan (2010) associates satisfaction with five factors, while a study by Adeoye (2012) concluded that customers were not satisfied with the quality and efficiency of ATM services. Furthermore, Hossain (2010) conducted a research on satisfaction of debit card users and found that on average, debit card users were satisfied and further suggested that through improvement on network service, provision of receipt after transactions and prompt problem solving, banks can make their debit card users fully satisfied. Based on the various disagreements on key variables, it can be safely asserted that the question of customer satisfaction with ATM services is debatable and yet to be fully clarified in terms of factors that truly associate with customer satisfaction and the effect of each factor on customer satisfaction needs to be established.

2. Literature Review

2.1. Theories guiding the study

This study is based on both the utility theory and service quality model, utility theory states that consumers have different levels of satisfaction for the various types of goods available on the market (Henard and Szymanski, 2001). It is no wonder that amidst a variety of things consumers may have a liking for; there are those they are fond of than others and can probably derive preferences of some sort since they only have a limited amount of wealth and have to make decisions on purchases. This theory postulates that the individual is the best judge of his/her utility; it was therefore upon such postulation that the current study intended to establish ATM card holders' own judgment of their satisfaction with ATM services. It also supported by the Service quality model which views service quality in light of the gap between the expected level of service and perceptions of customers regarding the level of satisfaction with service received.

2.2. Customer preferences on ATM services

Customer preference is defined as subjective individual tastes as measured by satisfaction attached to a variety of goods or services (Henard and Szymanski, 2001). Different organisations including banks provide varied types of goods and services to its customers; it is therefore important to study consumer preference since it will facilitate banks in an effort to combat problems that may occur due to consumer uncertainty, something that may pose as a negative impact on bank strategy. Normally, consumers have different preferences toward services (Pol, 2010). Risk adverse consumers prefer payments with higher levels of protection (Hayashi, Sullivan and Stuart, 2003). Jeon (2012) argued that consumers prefer ATMs located within their vicinity, banks with dependable ATM network and low fees charge.

A similar study addressing consumer preference by Choodambigai (2011) revealed that some customers only utilised ATMs to complete withdrawals while others used the machine for both withdrawals and obtaining statement receipts, others operated the machine to complete both withdrawals and balance enquiries and a couple of customers utilised the machine to withdraw cash, obtain statement receipts and make balance inquiries. Therefore most of the customers prefer basic ATM services which are withdrawal and balance inquiry.

2.3. Effect of customer quality service dimensions on overall customer satisfaction

Lovelock (2000) mentioned secure and convenient ATM services, adequate numbers of ATMs, user friendly systems and functionality as important dimensions/factors for customer retention. Joseph and Stone (2003) conducted a similar study on ATM services and revealed that customer satisfaction is influenced by cost involved in the use of ATMs, efficiency and the availability of reliably functioning ATMs. Studies by Kumbhar (2011) that sought to assess the influence of demographic factors on customer satisfaction with a particular focus on factors like education of customers, their age, income, gender and profession revealed that overall service quality and customer satisfaction on internet banking are approximately the same however, service quality differs dimension wise.

Contrary to findings by Kumbhar above however, Mobarek (2007) and Dilijonas *et al* (2009) suggest that adequate number of ATMs, convenience, secure location and user friendly systems, speed, minimum errors, high uptime, cash backup, cost and service coverage are essential dimensions of service quality aspects of ATM services necessary for the enhancement of customer satisfaction. Islam and Kumar (2007) examined the satisfaction level of ATM card holders of a leading bank in Bangladesh and found a significant relationship between ATM

service qualities and satisfaction. The study identified that location, personnel response, quality of currency notes, promptness of card delivery and performance were positively and significantly related to customer satisfaction. The security, frequent breakdown of machines and insufficient number of ATM were major contributors to customer dissatisfaction. It is therefore evident that researchers hold divergent views as regards the use and effectiveness of ATM and Customer Satisfaction, Al- Hawari and Ward (2006) compiled a list of five major dimensions entailing ATM service quality and these included convenience and secured locations, functions of ATM, adequate number of machines and user friendliness of the system and product.

2.4. Conceptual Framework

The variable of primary interest to this research is the dependent variable which is customer satisfaction. Independent variables are used in an attempt to explain the variance in customer satisfaction. These variables are reliability, security, privacy, convenience, responsiveness, efficient operation, user friendliness, accuracy, trust, convenient location, adequate number of ATMs, functionality of ATM, high uptime, cash backup, cost, flexibility, accessibility, quality of currency notes, and promptness of card delivery. However, all these have to be measured basing on the customer's perception of the service rendered as satisfactory. In the current study, the above variables are grouped into seven major service quality dimensions namely reliability, convenience, responsiveness, security, privacy, efficient operation and cost. This has been adopted from Khan (2010) with minor modifications
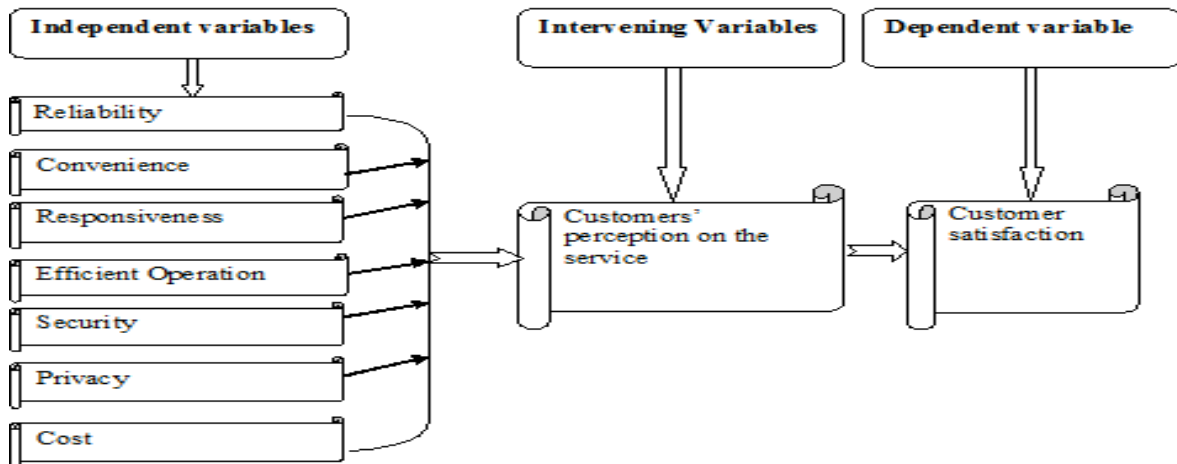

Figure 1 Relationship between ATM service dimensions, Customer perceptions and overall customer satisfaction

3. Methodology

A cross sectional descriptive study was adopted as similarly used by Agbor (2011) who studied the relationship between customer satisfaction and service quality. The study was descriptive considering that it aims at describing the relationship between social economic factors, various aspects of ATM services and customer satisfaction and Saunders *et al* (2009) describes this sort of study as descriptive. Systematic sampling method was used to draw sample of 100 customers counted one to four and each fourth customer was interviewed until the sample of 100 customers was obtained. The researcher collected primary data from ATM card holders

through questionnaires in which respondents transcribed their responses that depicted their perceptions on customer preferences on various ATM services; suggestions on areas for improvement were obtained so as to determine factors for customer satisfaction and effect of each factor on customer satisfaction.

4. Results

4.1. Demographic Information

Findings in Table 1 and 2 provide data on social economic characteristics of the respondents. It includes variables such as age, sex and education levels.

Table 1   Age of respondents vis-a-viz their sex

| | | Age range | | | | | | Total |
		18-24	25-34	35-44	45-54	55-64	65 and +	
Sex of respondents	Female	14	4	12	9	2	2	43
	Male	13	23	1	11	8	1	57
Total		27	27	13	20	10	3	100

Source: Field Data 2017

Table 1, shows that there were more males (57%) than female (43%) however the difference in number of respondents by sex was slightly small indicating that both males and females enjoy equal access of ATM services in the area of study.

The ages of most female respondents ranged from 18 to 24, while ages for 23 male respondents ranged from 25 to 34, it is evident that majority of respondents (64%) were youngsters (below 34). This may be an indication that young people who are more inclined to experimenting new technology may be using this machine service than much older people. CRDB is also well established within Universities compared to other banks; therefore young people who use CRDB ATMs are mostly students. Distribution by age group among males and females was significantly at chi-square (χ^2) = 0.000, p<0.01. Moreover Table 4.1 depict, that respondents from 18 to 65 years of age were involved in this study suggesting that the entire age range is energetic for economic activities.

Moreover respondents were of different education levels, from primary to degree as indicated in Table 2 below.

Table 1 Sex of respondents vis-a-viz their level of education

| | | Education of respondents | | | | | | Total |
		Primary level	Secondary level	Certificate level	Diploma level	Degree level	Other	
Sex of respondents	Female	5	13	14	3	6	2	43
	Male	0	16	10	11	20	0	57
Total		5	29	24	14	26	2	100

Source: Field Data 2017

Most female respondents had obtained certificate level of education while most male respondents were degree holders however; majority of respondents (29) had acquired secondary education. This result is in line with studies by Shao (2007) who discovered that majority of respondents who had access to ATM services had at least secondary school level of

education. Distribution of respondents by level of education was significantly different at chi-square (χ^2) = 0.002, p<0.01.

4.2 Overall customer satisfaction

Overall customer satisfaction covers a broad spectrum and in its broad perspective can be analysed from different angles. Basing on the current study therefore, overall customer satisfaction was assessed based on readiness to continue using CRDB ATM services, willingness to recommend other people to use CRDB ATM and on the perception that CRDB ATM services present good value.

Figure 2: Overall customer satisfaction
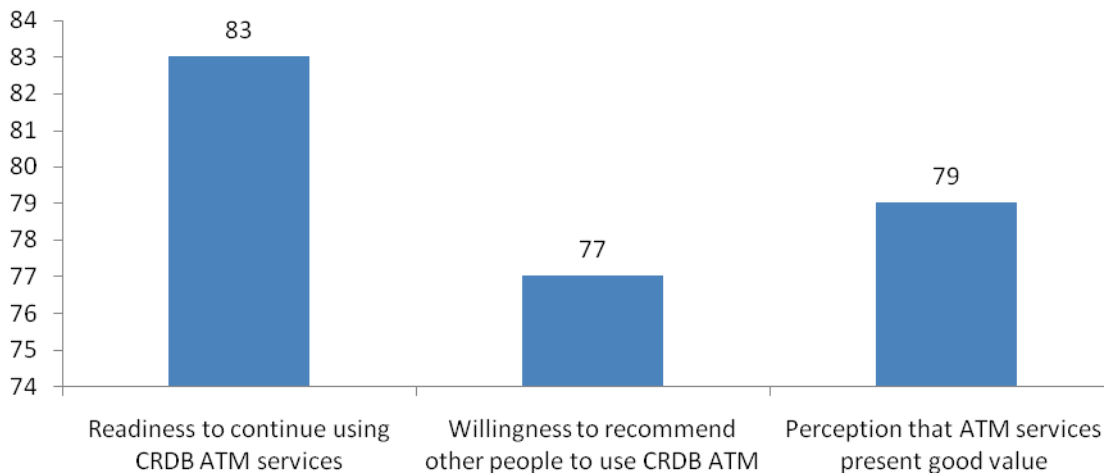
Source: field data (2017)

Results in figure 2 above shows all these parameters scored above 75 percent indicating that customers are highly satisfied with ATM services.

4.3 Customers' preference of different ATM services.

On measuring customer preference of different ATM services; cash withdraw; mini statement, cash deposit, balance inquiry, money transfer, paying bills and PIN change were assessed as presented in Table 3

Table.3 Preferences of customers toward different ATM services

Service	Percentage score
Cash withdraw	74.20
Balance inquiry	65.80
Mini statement	54.20
Cash deposit	43.60
Money transfer	40.80
Paying bills	37.40
PIN change	33.20

Source: Field Data 2017

The responses are summarized in Table 3 and show that cash withdraw was the most preferred ATM service with a percentage score of 74.20 followed by Balance inquiry with percentage score of 65.80 and Mini statement score of 54.20%. Cash withdrawal, balance inquiry and mini

statement are the only services that scored above 50% with the rest scoring less. These results indicate that most customers use ATM services to complete basic transactions like cash withdraw, balance inquiries and mini statement.

4.4. Levels of various dimensions of ATM service on customer satisfaction

The study looked into the levels of various dimensions of ATM services in the overall customer satisfaction. Service dimensions referred to here are convenience, efficient operation, security, reliability, responsiveness, cost and privacy.

Table 4. Levels of various dimensions of ATM service on customer satisfaction

Dimension	Weighted Mean
Reliability	3.67
Security	3.65
Efficient operation	3.30
Responsiveness	3.23
Privacy	3.23
Convenience	2.99
Cost	2.78

Source: Field Data 2017

Results in table 4 above revealed efficient operation, security, reliability, responsiveness and privacy have weighted mean above the neutral point (3) while convenience and cost have weighted mean below the neutral point. Out of the seven ATM services quality dimensions under assessment, five of them scored above neutral point (3) explaining why customers think that CRDB ATM service presents good values, and are ready to offer their loyalty to the bank and at the same time recommend others to use the ATM service.

4.5. Effects of ATM service dimensions on overall customer satisfaction

The study aimed to determine the influence/effects of different ATM service dimensions on overall customer satisfaction. Table 5 below illustrates;

Table.5 Regression output on the effects of various dimension of ATM service on overall customer satisfaction

	df	SS	MS	F	Significance F
Regression	7	273.1306	39.01865	35.32509	1.86E-23
Residual	92	101.6194	1.104559		
Total	99	374.75			
		Coefficients	Standard Error	t Stat	P-value
Intercept		3.9251	0.7465	5.258	9.41E-07
Convenience		0.1026	0.0444	2.3095	0.0231
Efficiency operation		0.0820	0.0362	2.2665	0.0257
Security		0.1083	0.0458	2.3668	0.0200
Reliability		0.1196	0.0450	2.6595	0.0092
Responsiveness		0.1067	0.0519	2.0546	0.0427
Cost		0.2482	0.0770	3.2242	0.0017
Privacy		-0.4263	0.0951	-4.4828	2.12E-5
Multiple R		0.8537			
R Square		0.728834			
Adjusted R Square		0.708202			
Standard Error		1.05098			
Observations		100			

Source: Field Data 2017

$$\gamma = 3.9251 + 0.1026 Convenience + 0.082 EfficiencyOperation + 0.1083 Security +$$
$$0.1196 \operatorname{Re} liability + 0.1067 \operatorname{Re} sponsiveness + 0.2482 Cost - 0.4263 \operatorname{Pr} ivacy + \varepsilon$$

Findings in table 5 above imply *that* all independent variables except privacy have a significant relationship with overall customer satisfaction. The relationship between customer overall satisfaction and convenience, efficient operation, security, reliability, responsiveness and cost were significant at p<0.01. Privacy was found to have a negative significant relationship with overall customer satisfaction at P<0.05 as indicated in Table 5 which shows results drawn from regression analysis.

The Regression (R) square of 70% indicates that there is a good model fit since the R square is greater than 50%. This implies that the specified model places overall customer satisfaction at 70.8%.

5. Conclusion

The study concludes that all dimensions (convenience, reliability, responsiveness, security, cost and efficient operation) were found to have strong influence on customer satisfaction, except only privacy was found to have a negative relationship with overall customer satisfaction. The possible reason for this might be the fact that as services become more confidential, some customers feel insecure hence less satisfied with the service. When customers have low knowledge on ATM services and fail to communicate some of their challenges to other customers due to privacy reasons, it may lead to dissatisfactions. It is evident that convenience, reliability, efficient operation, security, privacy, cost and responsiveness are not the only dimensions that influence customers' satisfaction, other factors that contribute to customers' satisfaction include trust, value and image of the bank (Ranaweera and Prabhu, 2003). CRDB management should monitor the environment and identify trends through marketing intelligence.

Moreover since this study determined age as a significant effect on the pattern of use of technology-based services, further research undertakings should explore the association between age and attitude and determine its effects on ATM service quality and customer satisfaction.

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The Extent of Use of Quality Practices By Commercial Banks in Kenya

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Abstract

The study set out to examine service quality practices and customer satisfaction in commercial banks in Kenya. The research was motivated by the fact that there is limited research on effect of service quality on customer satisfaction in commercial banks especially Kenya. The objective of the study was to determine the extent to which service quality practices were adopted by commercial banks in Kenya. The literature review revealed mixed findings because some research employed five dimensions while others used six dimensions and nine dimension thereby giving different results. The study used cross sectional survey research design. Primary data was collected from both the operational manager and bank customers using a likert type scale questionnaire. The census was used to collect data from operation manager while systematic random sampling was used to collect data from customers. The finding was that most of the commercial banks in Kenya uses the servQual dimensions to some extent. On average, all the managers agree to use assurance, tangibility, empathy and reliability in strengthening customer relationship while they were uncertain on the use of responsiveness. It was also found that on average, all the managers were also uncertain to use assurance and responsiveness while on average they agree to practice tangibility, empathy and reliability in appreciating customers. The study recommends that management should pay attention to service quality and other factors which may lead to customer satisfaction.

Keywords: service quality, servQual dimensions, customer satisfaction.

Introduction

Organizations all over the world faces many challenges especially from the environment which include intense competition, changes in technology, changes in tastes and preferences of the customers, innovation and many others. To deal with these challenges firms are focusing their efforts on maintaining loyal customer base through customer satisfaction. For survival and prosperity, organizations must provide quality goods and services. Evaluations of quality in goods are easier when compared to that of services. Service quality distinguishing characteristics include intangibility, heterogeneity, and inseparability (Parasuraman, Zeithml & Berry (1985) Gronroos (1990) describes service quality as having two dimensions that is, a technical or outcome dimensions and a functional or process related dimension. Spreng and Mackoy (1996) also argue that service quality and customers satisfaction are inarguably the two core concept that are at the crux of marketing theory and practice. Reichheld and Sasser (1990) on the other hand state that there is a positive relationship between customer loyalty and profitability. Kanishka (2006) argued that the nature of most service is presence of customer in the delivery process and the perception of quality is influenced by not only the service outcome but also the delivery process. Delivering quality service means conforming to customer expectations on a consistent basis (Lewis & Booms 1983).

Service quality is very important to any organization because it is a route to competitive advantage and profitability. Quality superiority has been found to provide substantial performance related benefits such as customer loyalty, responsiveness to demand, market share growth and productivity (Berry &Parasuraman, 1991). Bank service quality is usually perceived as a critical prerequisite for satisfying and retaining valued customers (Taylor & Baker, 1994). Therefore organizations should first identify what the consumer perceives as service quality in order to successfully leverage service quality as a competitive edge. Service quality will enable organizations to make more sales which will in turn increase the profitability of the firm and hence improving the firm's image.

Several theories help to show the need by firms to survive in this dynamic world. Survival based theory (Spencer, 1985) emphasized on the notion that by following the principle of nature, only the best and the fittest of competitors will win, which in the end would lead to the improvement of the social community as a whole. Resource-based view (Penrose, 1959) states that the source of firm's competitive advantage lies in their internal resources, as opposed to their positioning in the external environment. The resource-based view of the firm predicts that certain types of resources owned and controlled by firms have the potential and promise to generate competitive advantage and eventually superior firm performance. Bain (1968) argues that according to the Market-Based View (MBV) the industry factors and external market orientation are the primary determinants of firm performance.

In Kenya, the banking sector plays a dominant role in the financial intermediation, particularly with respect to mobilization of savings and provision of credit (Were & Wambua, 2013). Though performing their functions they are faced by tremendous changes in innovation and financial service environment as well as liberalization that have increased competition and interminable variety of product. Therefore to reduce the effect of these challenges they are forced to move from a producer oriented definition of competitiveness to one that recognizes the banks' ability to manage the linkage between activities and customers. To achieve this, they have to provide quality services to customers by monitoring and evaluating processes at each stage to ensure that customers get value for any services provided. Quality services leads to Customer satisfaction. This is very crucial as customers remain loyal to company's product if the products meet their perceived taste and preferences.

According to Kenya bank supervision report (Sept, 2014) the banking sector comprised 43 commercial banks, 1 mortgage finance company, 9 microfinance banks, 7 representative offices of foreign banks, 94 foreign exchange bureaus, 7 money remittance providers and 2 credit reference bureaus. The Kenyan Banking Sector registered enhanced improved performance with the size of net assets standing at Ksh. 3.08 trillion, loans and advances worth Ksh. 1.91 trillion, while the deposit base was Ksh. 2.25 trillion and profit before tax of Ksh. 104.54 billion as at 30th September 2014. Over the same period, the number of bank customer deposit and loan accounts stood at 26,603,385 and 4,068,304 respectively. The banking sector's aggregate balance sheet increased by 3.7 percent from Ksh. 2.97 trillion in June 2014 to Ksh. 3.08 trillion in September 2014. The sector's gross loans and advances grew from Ksh. 1.78 trillion in June 2014 to Ksh. 1.91 trillion in September 2014, translating to a growth of 7.3 percent.

Kenya Financial access survey (2013) further indicates that access to formal financial services has increased significantly, with 32.7% of the adult population accessing financial services from the formal, prudentially regulated financial institutions, 66.7% of adults accessed financial services from any type of formal financial provider, The proportion of the financially excluded dropped from 39.3% in 2006 to 25.4% of the adult population in 2013 while the proportion of the population using informal financial services has declined to 7.8% from 33.3% in 2006.

Despite the above positive development, the banks are still faced with the challenges of satisfying customers' needs due to their changing tastes and preferences. Further, banking sector is also faced with challenges of managing processes because some processes do not involve in directly adding value to customers. It is with this respect that service quality ensures that the needs of customers are identified so as to meet or even exceed the expectations of the customers. Also service quality enables the banking sector to concentrate on only those processes that adds value to them so as to be efficient and effective because quality ensures zero defects in making banking transactions.

ADB (2014) argue that despite the stagnation of the number of commercial banks in Kenya since 2008, there is improved quality of financial services and expanded access. However, a KPMG survey (2013) maintains that there is still much further to go to meet the expectations of customers. It further contends that the customers are more interested in service quality in making their banking decisions. Further, bank supervision report (Sept, 2014) observed that the banking sector in Kenya experienced enhanced improvement in performance both in asset size and customer base.

The literature on service quality and customer satisfaction both locally and internationally are expansive. However, almost all studies focus only on an individual institution in the industry rather than the whole industry. Stellah (2013) researched on service quality and customer satisfaction of ABC bank in Uganda; Agbor (2011), researched on the relationship between customer satisfaction and service quality in three service sectors in Umea. Hussein and Aziz (2013) investigated e- banking service quality in one of the Egypt's banks, and Maddern, Maull and Smart (2007) examined customer satisfaction and service quality in UK financial services.

Again, most of the studies looked at service quality in firms other than banks. Duodu and Amankwa (2011) researched on an analysis and assessment of customer satisfaction with service quality in insurance industry in Ghana. Hellen (2014) examined service quality and customer satisfaction in certified public accountant training institutions in Nairobi Kenya. Wanjiku (2014) investigated the effect of service quality on customer satisfaction in the mobile telecommunication industry in Kenya. Manani, Nyaoga, Bosire, Mbati and Kongere (2013) examined service quality and customer satisfaction at Kenya Airways.

Further most of the literature reviewed in this study did not look at only the five dimensions of servqual model as proposed by Parasuraman et al., (1988). Isa (2008) examined the relationship

between service quality perception and customer satisfaction sin Islamic banks using the six dimensions of service quality. It was found that compliance dimension was very crucial to Islamic banking. Stellah (2013), focused on all the dimensions of ServQual model to determine the service quality perceptions as she was interested in determining the various dimensions of service quality.

It was not clear whether the enormous growth of commercial banks in Kenya can be attributed to improvement in their service quality. Again, much has not been done on service quality and customer satisfaction in the banking sector as an industry. It is on this basis that the research investigates the effect of commercial banks service quality on customer's satisfaction in Kenya. Based on the above discussion the following research questions are posed: To what extent have commercial banks in Kenya adopted service quality practices? What is the relationship between service quality and customer satisfaction in commercial banks in Kenya?

This study is relevant to academicians because it adds knowledge to the existing framework of service quality and customer satisfaction. With respect to its academic value, the study accumulates knowledge that eventually outgrows the boundaries of academia and pervades management. This study contributes to existing theories by confirming or adding value to the relationships that are involved in customer satisfaction, service quality and SERVQUAL dimensions.

The study is also relevant to commercial banks because it helps them to redefine their corporate image to the one that is customer focused and emphasizes on service quality to satisfy customers. This study provides results that are useful to managers in banking organizations for strategic planning which enables banks to create a readiness profile in order to pinpoint the strength and weaknesses of their processes towards achieving quality and understand what dangers that can arise if they do not provide quality services to its customers.

To policy makers like the central banks, the finding and results of this study provides invaluable insights and a more reliable guide to monitoring the impact of the operations of the banking sectors while to other stakeholders, it provides invaluable information that allows them to provide useful suggestions to the improvement in service delivery of their respective banking sectors in Kenya.

Methodology

The research employed cross sectional survey design because it allowed the collection of both service quality and customer satisfaction data simultaneously and also helped in identifying association between the two hence making conclusion about the population. Population of the study was all commercial banks operating in Kenya. As at 2014, there were 43 commercial banks (Bank Supervision Report, 2014).

A census of all the 43 banks was considered. One operation manager was selected from each bank who assisted in filling questionnaire on service quality practices. As the customer population is large, the following equation developed by Cochran (1963) was used to select the customers from the banks, given as

n= $\frac{Z^2 P(1-P)}{e^2}$

Where n is the sample size, Z is the abscissa of the normal curve that cuts off an area α at the tails, e is the acceptable sampling error and p is the estimated proportion of an attribute that is present in the population(or maximum variability assumed to be 0.5).

The study assumed 95% confidence level and variability to be 0.5. From the normal distribution table, the corresponding Z value is 1.96 and the significance level will be 5% giving the e value to be 0.05. This give the customer size as

n= $1.96^2 * 0.5 (1 - 0.5)/0.05^2$ =384 customers

This implied that 9 customers were selected from each 43 banks. A systematic random sampling technique was used to select the respondents. The technique was chosen because the sampling frame is not numbered and the bank customers are not exactly known. The study employed primary data that was collected using structured questionnaires. There are two questionnaires, one for operation managers and the other for customers. Each questionnaire has two sections that is A and B. For operation managers, section A entails demographic information and section B is about the service quality practices as per ServQual dimensions(reliability, assurance, tangibility, empathy and responsiveness).For customers, section A includes demographic information and section B involves the indicators of customer satisfaction like customer loyalty, strengthened relationship and degree of appreciation. A five-point Likert scale ranging from strongly agree=1 to strongly disagree=5 will be used to measure the items. One questionnaire was administered to each bank.

The data collected on the extent to which service quality practices based on SERVQUAL model are adopted by commercial banks in Kenya will be analyzed using descriptive statistics mainly the mean, standard deviation and Karl Pearson's correlation coefficient.

Results

The research sought to investigate the extent to which commercial banks have adopted service quality practices as per the ServQual dimensions like reliability, assurance, tangibility, empathy and responsiveness which was proposed by Parasuraman et al., (1985). The respondents were required to indicate the extent to which they agreed with the service quality practices. The responses were subjected to descriptive statistics and the findings were presented as follows:

Extent of Adoption of Tangibility

The findings on adoption of tangibility are presented in table 1.

Table 1: Tangibility

Tangibility Activities	Mean	Std.Deviations
1.Our bank has modern Equipment	1.87	1.074
2.The physical facilities at our bank are visually appealing.	1.50	0.731
3.Employees at our bank are neat in appearance		
4. Materials associated with the service at our banks are visually appealing	2.67	1.446
5. Our bank has convenient opening hours	2.53	1.358
	3.27	1.388
Average	**2.1000**	**.72919**

Source: Research data, 2015

It can be observed from the study results in table 1 above that the use of modern equipment by operational managers has a mean of 1.87 and a standard deviation of 1.074. This corresponds to approximately 2 on a likert scale implying that most of the respondents agreed on the use of modern equipment in quality improvements. On average, the respondents also agreed that the physical facilities of their bank are appealing. This is supported by a mean of 1.50 and a standard deviation of 0.731. Neat appearance of employees has a mean of 2.67 and a standard deviation of 1.446. This confirms that most of the respondents were not sure on the neat appearance of employees in improving quality. Materials associated with the service are

visually appealing has a mean of 2.53 and a standard deviation of 1.358 an indication that most of the respondents were not sure on the use of visually appealing materials in quality improvement. Finally our bank has convenient working hours has a mean of 3.27 which implies that most of the respondents are completely unsure on banks having convenient working hours.

Extent of Adoption of Empathy

The empathy result is as shown in table 2:

Table 2: Empathy

Empathy Activities	Mean	Standard Deviation	N
Our banks always give customers individual attention	2.37	1.351	30
Our banks have operating hours convenient to all customers	1.97	1.129	30
Our banks have customer best interest at heart.	2.23	1.278	30
Employees of our banks understand the specific needs of our customers	3.10	1.517	30
Average			

Source: Research Data, 2015

It can be observed from the study results in table 2 above that our banks always give customers individual attention has a mean of 2.37 and a standard deviation of 1.351. This implies that most of the respondents agreed on banks giving individual attention to customers. Our banks have operating hours convenient to all customers have a mean of 1.97 and a standard deviation of 1.129. This confirms that the respondents agreed on banks having operating hours convenient to customers. Our banks have customers best interest at heart has a mean of 2.23 and a standard deviation of 1.278 which confirms that most of the respondents agreed on banks having customs interest at heart. Employees of our banks understand the specific needs of our customers has a mean of 3.1 and a standard deviation of 1.517 implying that most of the respondents were not sure on whether the employees understand the specific needs of customers.

Extent of Adoption of Reliability

The findings on adoption of reliability are presented in table 3 below:

Table 3: Reliability

Reliability Activities	Mean	Standard Deviation	Sample Size
When our bank promises to do something by a certain time, they do.	**2.10**	**0.999**	**30**
When a customer has a problem, our bank will show a sincere interest in solving it,	**2.8**	**1.349**	**30**
Our bank will provide the service right the first time.	**1.50**	**0.651**	**30**
Our bank will provide the service at the time they promise to do so.	**1.70**	**0.777**	**30**
Our bank insist on error free records	**2.63**	**1.497**	**30**
Average			

Source: Research data, 2015

The findings from the study reveal that most of the respondents agreed that their banks normally fulfill promises. This is supported by a mean of 2.10 and a standard deviation of 0.995.The banks are having interest in solving customer problems has a mean of 2.80 and a standard deviation of 1.349. This corresponds to approximately 3 on a likert scales implying that most of the respondents were not sure on whether banks were having interest in solving customer problems.

Our bank will provide service right the first time has a mean of 1.70 and standard deviation of 0.651.Corresponding to approximately 2 on a likert scale indicating that on average most of the respondents agreed on providing service right the first time by their banks.Our bank provides service at the time they promise has a mean of1.50 and a standard deviation of 0.777. This confirms that most of the respondents agreed on timely provision of service by their banks. Our bank insists on error free records has a mean of 2.63 and a standard deviation of 1.497 indicating that most of the respond

Extent of Adoption of Responsiveness

The findings on adoption of responsiveness are presented in table 4 below.

Table 4: Responsiveness

Responsiveness Activities	Mean	Std. Deviation	N
Employees of our bank tell customers when service will be performed.	4.00	1.083	30
Employees of our bank are always willing to help customers.	3.13	1.279	30
Employees of our bank gives prompt service to customers.	3.20	1.297	30
Employees of our bank are never too busy to respond to customers' request.	1.97	1.189	30
Average			

Source: Research data, 2015

It can be observed from the study results in table 4 above that employees of our bank tell customers when service will be performed has a mean of4.00 and a standard deviation of 1.083. This implies that most of the respondents disagreed about employees telling customers when services will be performed. On average, the respondents were not sure on whether employees were willing to help customers. This is supported by a mean of 3.13 and a standard deviation of 1.279.

Employees of our bank give prompt service to customers has a mean of 3.20 and a standard deviation of 1.297 which confirms that most of the respondents were not sure on the prompt service offered by employees to customers. Employees of our bank are never too busy to respond to customers request has a mean of 1.97 and a standard deviation of 1.189 an indication that most of the respondents agreed on employees responding to customers

Extent of Adoption of Assurance

The findings on adoption of assurance are presented in table 5 below.

Table 5: Assurance

Assurance Activities	Mean	Standard Deviation	N
The behavior of employees in our banks will instill confidence to our customers	2.33	1.516	30
Our customers feel safe when making transactions.	3.17	1.234	30
Employees of our bank are consistently courteous of our customers	3.20	1.031	30
Employees of our bank have relevant knowledge on how to answer customers.	2.37	1.245	30
Average			

Source: Research data, 2015

The findings from the study reveal that most of the respondents agreed that the behavior of employees instills confidence to customers. This is supported by a mean of 2.33 and standard deviation of 1.516. Our customers' feels safe when making transactions has a mean of 3.17 and a standard deviation of 1.234. This corresponds to approximately 3 on a likert scale implying that most of the respondents were not sure whether customers feel safe when making transactions.

Employees of our bank are consistently courteous of our customers has a mean 3.20 and a standard deviation of 1.031 This implies that on average most of the respondents were not sure on employees being courteous with customers. Employees have relevant knowledge on how to answer customers has a mean of 3.27 and a standard deviation of 1.245, an indication that most of the respondents were unsure on employees having relevant knowledge to answer customers

Conclusion, recommendation and Suggestions for Further Research

The result was that the practice of ServQual dimensions was found to be different among different commercial banks in Kenya implying that the degree of use of ServQual dimensions varies depending on the indicators of customer satisfactions. For example on average all operations managers agreed to use ServQual dimensions on customer strengthening relationship. They agreed to use assurance, tangibility, empathy and reliability in strengthening customer relationship while they were uncertain on the use of responsiveness. Also on average they are uncertain on use of the ServQual dimension on customers' degree of appreciation. They were uncertain to use assurance and responsiveness while on average they agree to practice tangibility, empathy and reliability in appreciating customers. However, on average, all the managers agree to use tangibility, empathy and reliability but uncertain to practice assurance and responsiveness in creating customers loyalty.

The research was carried out on service quality and customer satisfaction in commercial banks in Kenya. Based on the findings the study recommends also areas to be researched further. First quality is a function of so many forces. Study recommends research on staff motivations on customer satisfaction. The effect of the size of the company and customer's satisfaction and other factors other than service quality on customer's satisfaction

Service quality leads to customer satisfaction, which in turn increases the organizational performance through profitability. It is on these regard that this study recommends that much to be done on the effect of service quality on organizational profitability.

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Why Africa Needs The Cop Project Badly

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Abstract

To meet the demands for rising living standards in this century, Afican countries need to upgrade its energy supply. They can only do it with massive support from the COP project, which would reduce the global warming risk, globally. Solar power parks like Quarzazate is the future for the African continent.

Keywords: African energy and CO2 emissions, fresh and clean water, lakes and rivers, new and old renewables, coal or oil and gas dependency, Super Fund.

INTRODUCTION

In the climate change process, the African countries suffer badly from the biggest externality in human history (Stern, 2007, 2015). They are not among the big emitters of greenhouse gases or CO_2: s. But they have to adapt their societies and economies to temperature rise that will most probably go over + 2 degrees, and maybe even + 3 degrees. How to cope? If temperature raises goes even further towards + 4-6 degrees, life will be threatened. How can people work under too hot circumstances? Water? The wildlife?

Yet, African governments have promised to contribute towards the COP21 objectives of decarbonisation by transforming their energy systems. How to pay? Even if African nations carry out their responsibilities under the UN Treaty, there is no guarantee that the big emitters of CO_2:s will not renege. And then we have the danger of the new methane emissions.

There is a basic catch-22: The African continent uses less energy per capita than the other global continents, which entails that total emissions of CO_2s are lower than in Asia, America and Europe. Yet, Africa badly needs more energy, as it is the capacity to do work that result in income and wealth (Sachs, 2015). If Africa could increase its energy share globally, it could reduce poverty and first and foremost secure its water supplies.

ENERGY ON THE CONTINENT

The countries on the African continent do not belong to the great polluters of CO_2s in the world. Only a few of them have large CO_2s like Egypt, Algeria, South Africa and Nigeria, but they do not rank among the really large 29 polluters in the world. This basic fact reflects their level of affluence, as energy and GDP are closely related. Consider Figure 1 with the global energy scene.
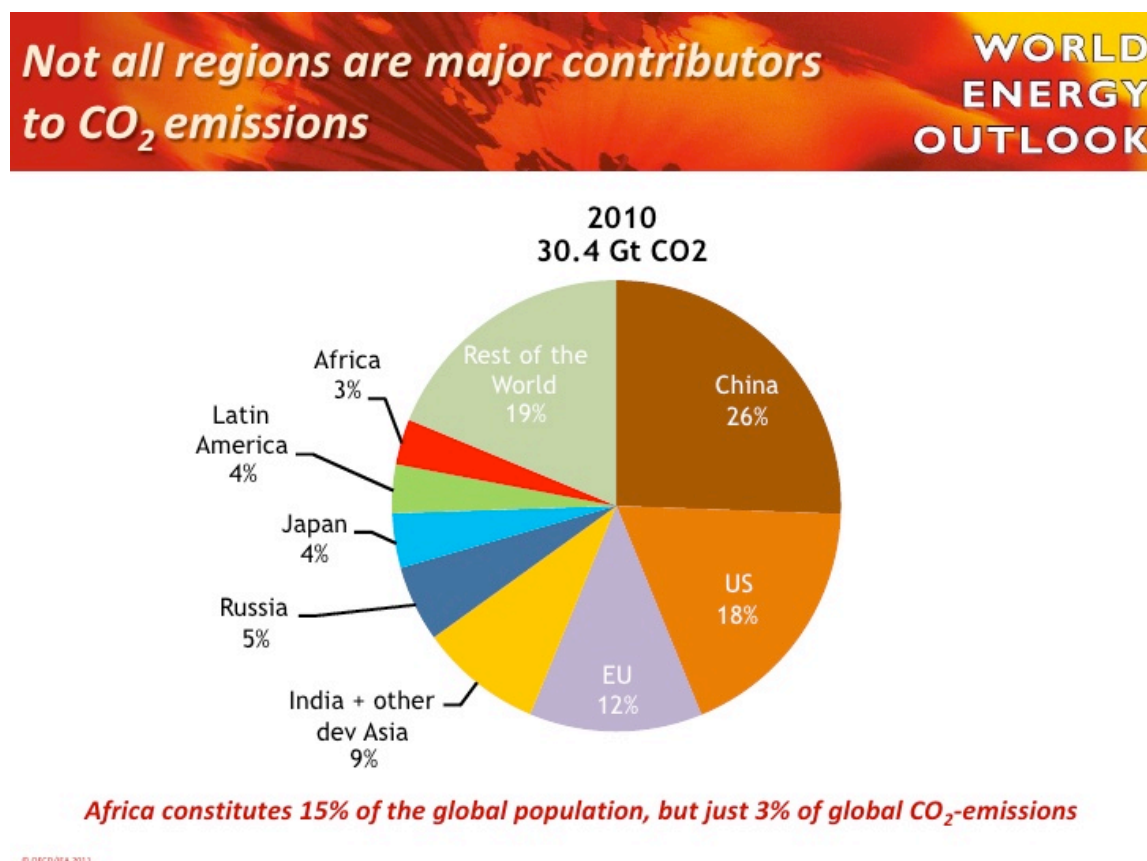
FIGURE 1. Global energy

Source: https://www.iea.org/newsroom/news/2016/august/iea-data-shows-global-energy-production-and-consumption-continue-to-rismle.ht
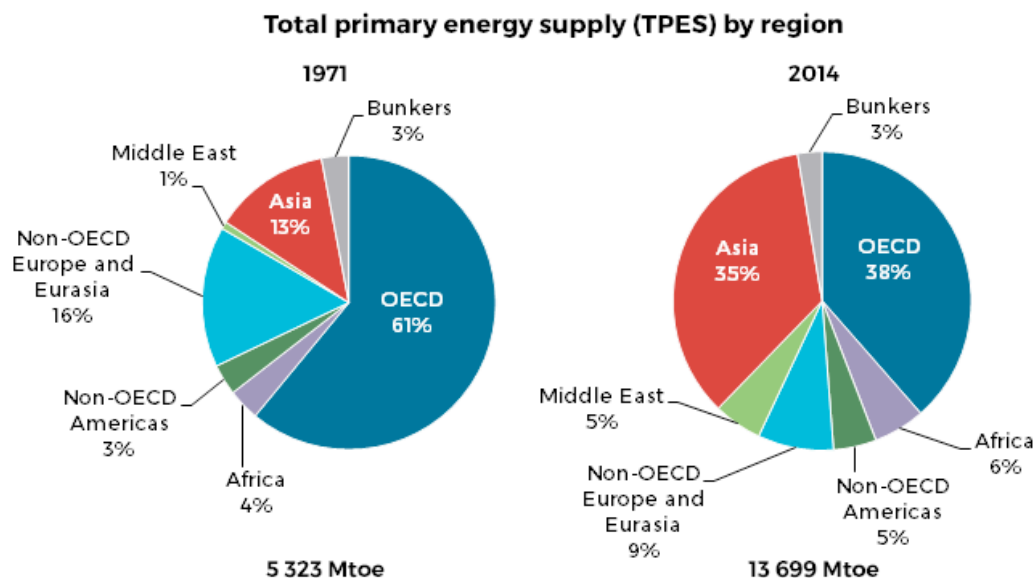
It is small wonder that the African continent is the poorest, given its low share of global energy consumption. The population of Africa is increasing fast, meaning that much more energy is needed for economic and social development, but the COP21 decarbonisation project must be respected!

African countries are unique in the sense that they do not contribute much to climate change, but they could stand to suffer enormously from global warming – the external effects of climate change. They range from excessive heat, constant need of air-conditioning (also augmenting emissions), droughts, ocean acidification, food shortages, and insupportable working conditions for peasants, etc. Yet, African governments can argue that they need much support for energy transformation, given the low share of global emissions for the continent – see Figure 2.
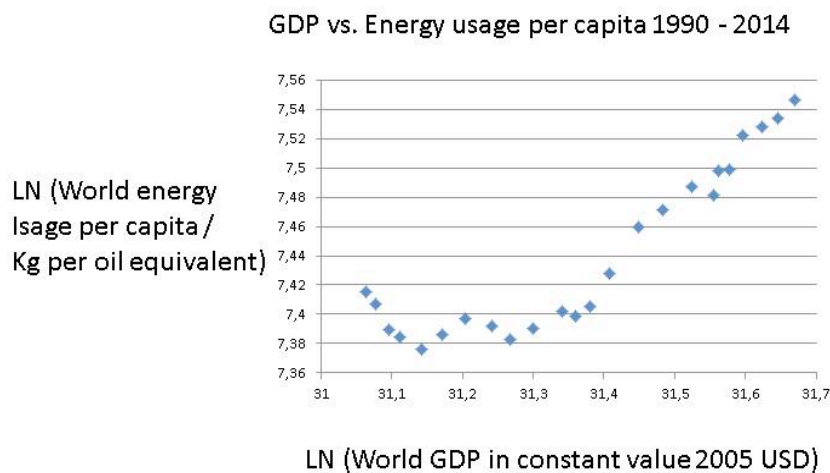
FIGURE 2. Global emissions of CO2

Source: http://www.slideshare.net/internationalenergyagency/birol-18th-meeting-of-the-africa-partnership-forum

Economic development in poor countries as well as economic growth in advanced countries tends to trump environmentalism. This sets up the energy-emissions conundrum for mankind in this century: Affluence requires energy, as energy is the capacity to do work that renders income – see global Figure 3; but as energy consumption augments, so do emissions of GHG:s or CO2:s (Appendix 1). How to fundamentally transform global energy consumption?

FIGURE 3. GDP against energy per person (all countries)

GDP vs. Energy usage per capita 1990 - 2014

LN (World energy Isage per capita / Kg per oil equivalent)

LN (World GDP in constant value 2005 USD)

What is at stake for most people who understand the risks with climate change is not the *desirability* of decarbonisation in some form or another. They crux of the matter is *feasibility*: How to promote decarbonisation so that real life outcomes come about? The COP21 framework, and its three objectives, namely:

a) Halting the increase in carbon emission up to 2020 (Goal I),
b) Reducing CO2:s up until 2030 with 40 per cent (Goal II),
c) Achieve more or less total decarbonisation until 2075 (Goal III),

will prove too demanding for most countries, I dare suggest - also for African nations in dire need of the promised Super Fund.

African governments must now start energy-emissions policy-making within the framework of the UN Convention on Climate Change. Positively, they can argue that energy consumption is far too low on the African continent. The population is rapidly growing and needs massive electricity supply. Simple global energy-emissions fairness requires this.

Negatively, African nations are much dependent upon coal – wood coal except South Africa that uses stone coal – and oil and gas in the oil producing countries and Egypt. Most African countries employ wood coal and its derivatives, which maintain the continent in poverty. The COP21 project should be used by African governments for rapid electrification by means of NEW renewables, like e.g solar power.

The energy-emissions conundrum applies also to the African continent, as CO2:s is rising, driven by economic development. The situation in 1990 for 13 major African countries was as depicted in Figure 4.

FIGURE 4. GDP-CO2 link in 1990: y = 1,34x; R² = 0,87

GDP – CO2 for 13 African Nations 1990
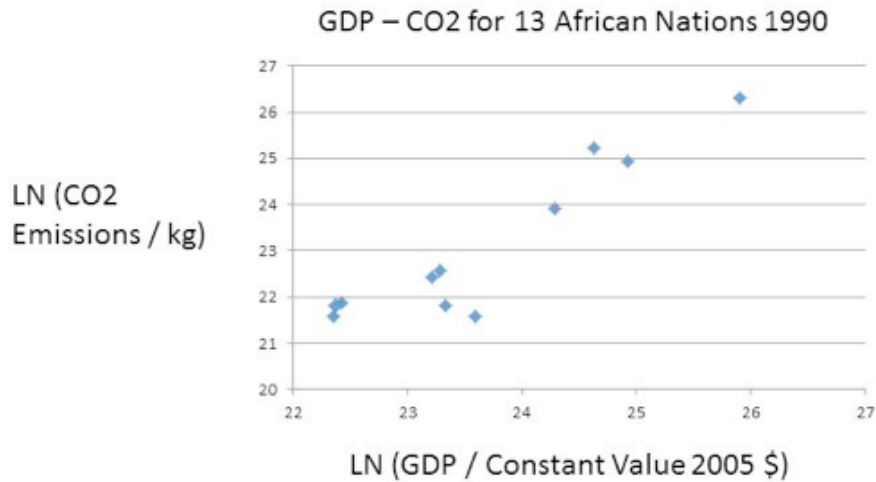
20 years later, emissions have increased following economic development. Surely, the UN would be interested in seeing CO2:s low in Africa, but then it must help with a fundamental energy transition from solids and fossil fuels to NEW renewables. (Figure 5).

FIGURE 5. GDP-CO2 link 2014: y = 1,47x; R² = 0,93

GDP – CO2 for 13 African Nations 2014
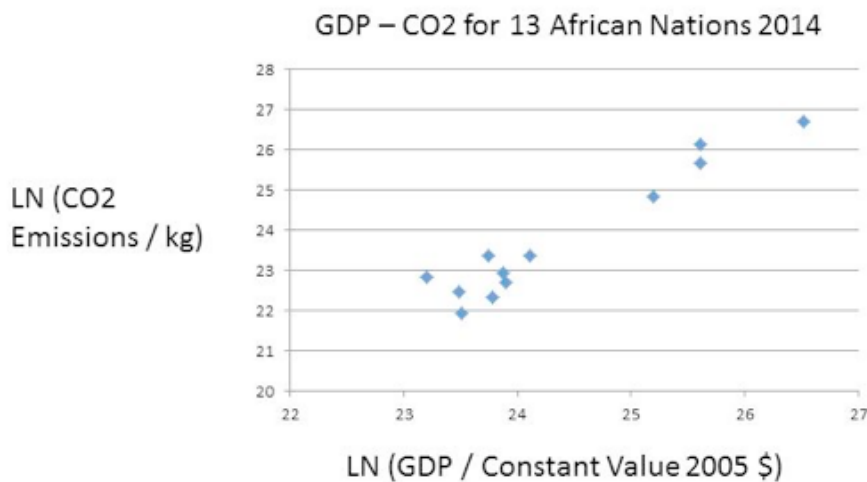
ENERGY DEFICIT CONSEQUENCES

African countries are poor because they have too little energy. Thus, they have much less GHGs than Asia. Yet, they need the COP project of the UNFCCC to renew their energy sources and move from fossil fuels and traditional renewables to solar power. Hydro power depends upon water availability that shrinks with global warming.

African energy deficit is conducive to a dire environment with enormous damages and risks. Consider the following global Figures. Figure 6 shows how low energy leads to unsafe environmental.

**FIGURE 6**: Energy and environmental risk exposure
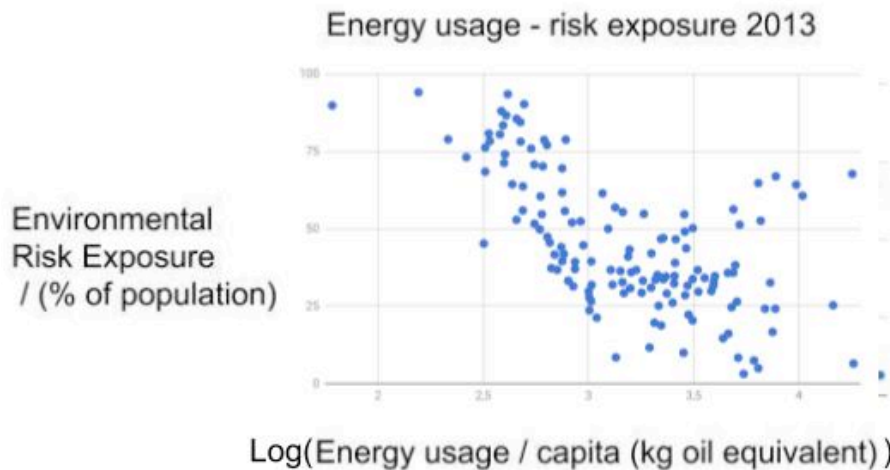
Source: Environmental Performance Index, Yale University, https://epi.envirocenter.yale. IEA Statistics © OECD/IEA 2014 (http://www.iea.org/stats/inde

Low energy use leads to poverty, malnutrition, deceases, lack of potable water, insufficient sanitation, etc.

Typical of many African nations is the lack of stable electricity, which hampers everything and reduces environmental viability. Figure 7 has the global picture.
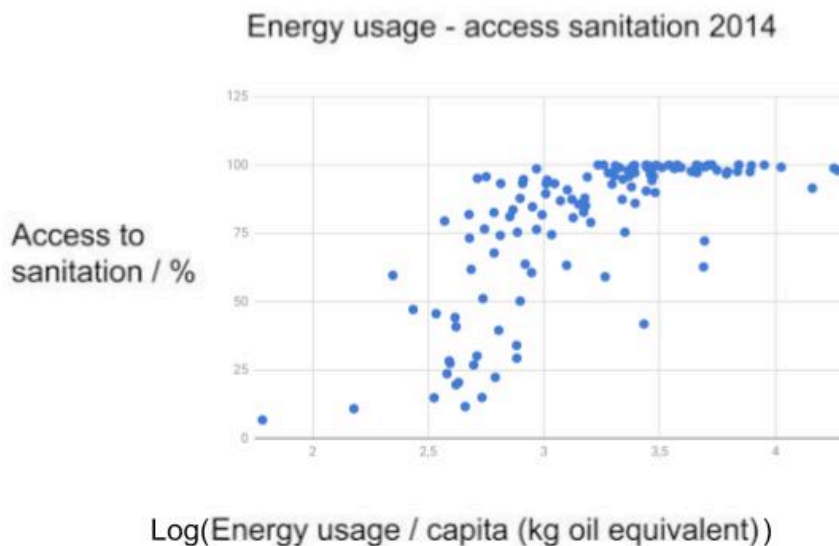
FIGURE 7. Energy and electricity access
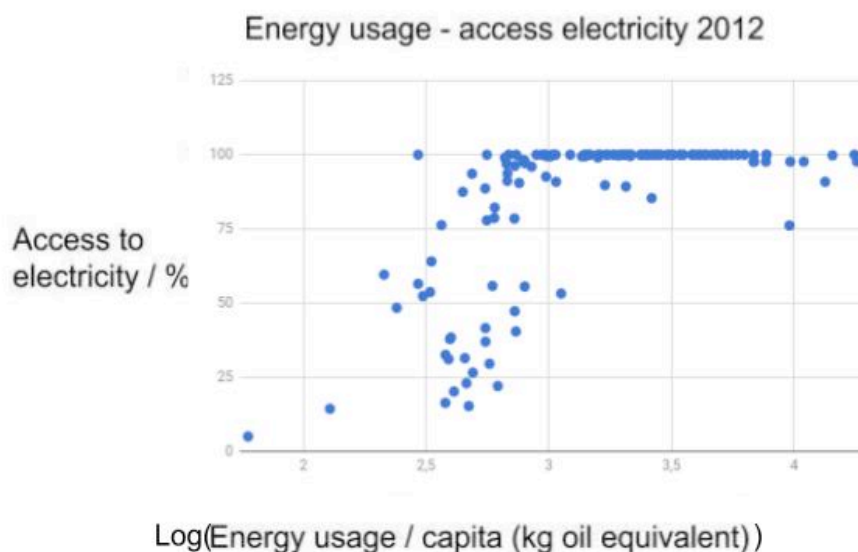
Source: Environmental Performance Index, Yale University, https://epi.envirocenter.yale. IEA Statistics © OECD/IEA 2014 (http://www.iea.org/stats/inde

The access to safe and stable electricity is crucial for health, schools, food, water, etc.

FIGURE 8. Links of energy with proper sanitation.

Source: Environmental Performance Index, Yale University, https://epi.envirocenter.yale. IEA Statistics © OECD/IEA 2014 (http://www.iea.org/stats/inde

Especially, the rapidly growing African mega-cities lack entirely sewage plants. Thus, dirty water is put into the big rivers or lakes where other cities downstream or close by take their potable water.

Africa needs much more energy of a new kind.

WATER PROBLEM IN AFRICA

Environmental policy-making and implementation is inherently about politics, from its start to the finish, if it exists. Governments, national, regional and local have the responsibility for the environments and it may find partners – communities, civil society and business – in the policy cycle relating to ecology issues. Coordination failure is often occurring due to myopia, opportunism and conflicts between states or governments in a country.

Environmental degradation is to be found for most lakes and rivers around the globe. But the extent of damage varies tremendously. What are often harmful for lakes and rivers are the construction dams for electricity generation.

The key question in relation to the degradation of lakes and rivers is: Will they shrink dramatically? Global warming and human exploitation work together to diminish lakes and rivers around the world, in several spectacular cases also on the African continent..

The most spectacular case of lake shrinking or disappearing today is Lake Chad in the centre of Sahara. It is now 1/5th of its size in 1970, when a public investigation and control mechanism was launched by the five neighbouring countries, to no avail. The lake is now only 7 meters

deep and will disappear soon. The reason: human overuse for drinkable water and irrigation. Outcome: Population movements, or environmental refugees in politically instable countries.

The River Nile is loosening water due to the construction of several dams in Ethiopia and Sudan. Egypt has expressed concern for its water supply in the near future, but there is no formal intergovernmental regulation of this water conflict. The mighty Nile will soon no longer be so powerful, as the water flow from both the White and Blue Nile diminishes due to dams as well as the Mediterranean Sea eats into its delta with inflowing salt water. Outcome: increased water scarcity in Egypt with food shortages; severe political conflict between Egypt, Ethiopia and Sudan; more electricity for Ethiopia and Sudan.

In Africa, one may also wish to mention the river Niger and the Lake Victoria, when speaking of ecological disasters in the future. Both are deteriorating, Niger River due to dams and Lake Victoria due to human exploitation and global warming.

The situation is hardly much better in other parts of Africa: lakes are under deterioration because of human activities on the one hand – overfishing, waste and sewage disposal, and take out of water for various purposes – as well as global warming on the other hand; rivers increasingly come under pressure from dam construction, sewage and waste, as well as water take outs. This negative evaluation holds for among others the large lakes of Lake Malawi and Lake Tanganyika as well as for great rivers like The Congo, The Chobe, the Zambezi, etc. The River Congo has to cope with logging in addition to human pollution. Thus, legal or illegal harvest of the rain forest in the huge Congo Basin opens up roads that may be used for further exploitation.

Given the predicament of rivers and lakes in Africa, one may predict a shortage of fresh, clean, drinkable water soon with negative repercussions for food.
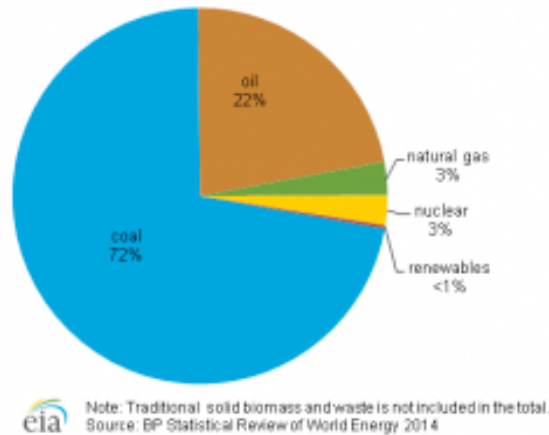
ABSENCE OF MODERN ENERGY SOURCES

With the possible exception of the Quarzazate solar plant in Morocco, African countries relies mostly upon fossil fuels and traditional renewables like wood coal. Hydro power has become more important, but its sustainability may be doubted. Water resources are often shared between nations, causing tensions between states. Let us look at a few examples.

Coal

The RSA has a modern economy running on mainly coal (Figure 9). In transportation, it uses petroleum. This makes the RSA a major CO_2 polluting nation. It wants to spread electricity to all shanti-towns, but with what energy source?

FIGURE 9- Energy consumption in RSA

Figure 1. Total primary energy consumption in South Africa, 2013

Note: Traditional solid biomass and waste is not included in the total.
Source: BP Statistical Review of World Energy 2014

Does the RSA have the resources and motivation to cut the coal consumption radically and move to solar energy for instance? Or could the RSA renege on COP21 – the always available option in collective action endeavours?!

Figure 10 shows the necessity of more energy for raising livings standards.

GDP – Energy for South Africa 1990 -2015
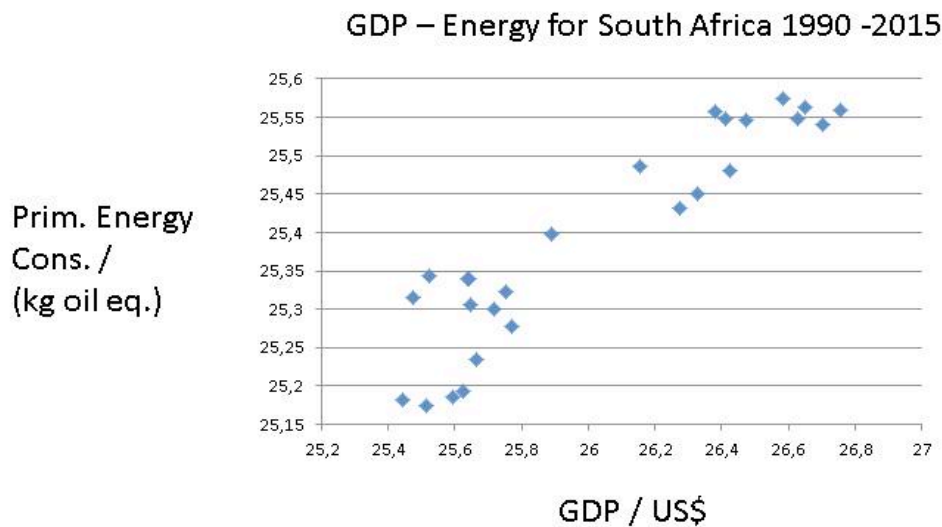
The promises made to the deprived population includes lots of energy demanding projects in health, housing, schooling, etc. Only a massive investment in solar power parks can deliver this, requiring support from the Super Fund in the COP effots.

Oil

Some African countries produce lots of oil and consume some of it themselves. One country almost only relies upon oil and gas.

Algeria

Algeria is a major exporter of natural gas and oil, Thus, we expect that it relies exclusively on fossil fuels, like Mexico, Iran and the Gulf States. Figure 11 verifies this expectation.

FIGURE 11. Energy mix in Algeria

Source: http://euanmearns.com/post-peak-algeria/

Although Algeria may have great trust in the availability of future fossil fuels resources in the country, it still faces the demand for a 40% reduction of its CO2 emissions from the COP21. Emissions have thus far followed the economic progress very closely– see Figure 12.

FIGURE 12. Link GDP-CO2 in Algeria

Algeria has much youth unemploymens an must care for its growing population. It needs a new energz source, namely solar power parks in Sahara.

Gas

Egypt has a huge population with high unemployment and mass poverty besides a high level of political instability, resulting from religious conflicts. But surely it has electricity from ins giant Assuam dam and the Nile? No, it does not count for much for Egypt, where most people live in the Nile delta. CO2:s are on a sharp upward trend for Egypt dur to energy demand rising quickly (Figure 13).

FIGURE 13. Energy-GDP link for Egypt

GDP – Energy for Egypt 1990 -2015
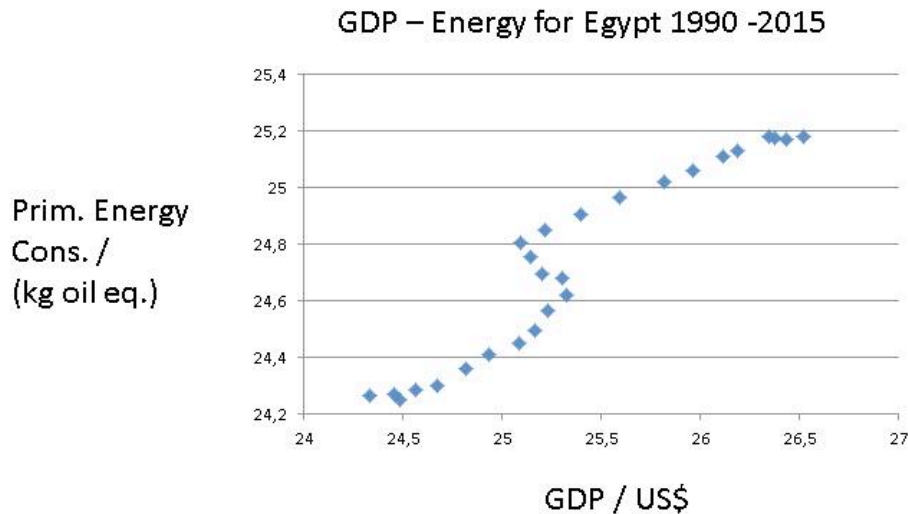
Egypt has an enormous growth in population. Its water resources are challenged by upstream countries. It builds a new capital, but CO2:s are rising sharply (Figure 14).

FIGURE 14. GDP-CO2 for Egypt: y = 1,02x; R² = 0,99

GDP – CO2 emissions for Egypt 1990 - 2015
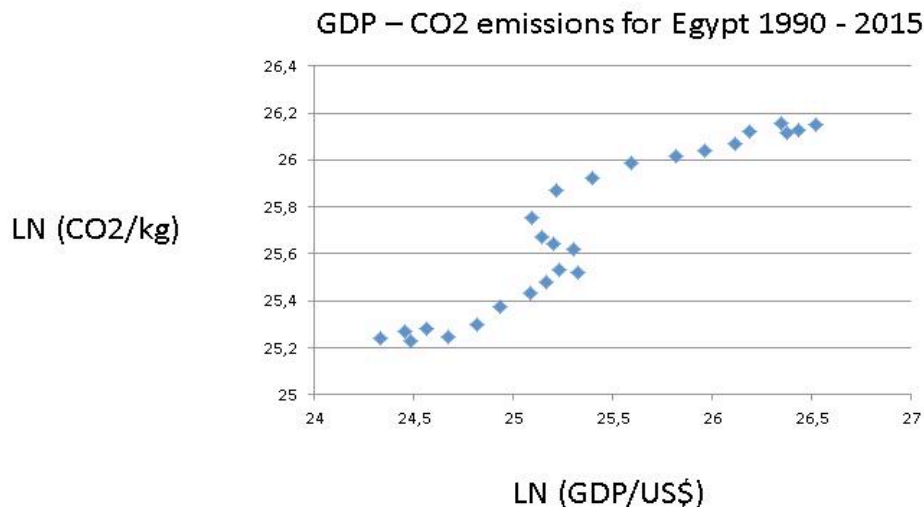
It will be very difficult for Egypt to make the COP21 transformation, at least without massive external support. But where to build huge solar power plants in a country with terrorism, threat or actual? The share of hydro power is stunning low for a country with one of largest rivers in the world. Actually, the water of the Nile is the source of interstate confrontation between Egypt, Sudan and Ethiopia, because the latter two have started to exploit it recently.

Wood Coal and Hydro Power

In the climate change discussions and policy-making, it is often stated that renewables should be preferred over non-renewables. Yet, this statement must be strictly modified, as there are two fundamentally different renewables:

d) Traditional renewables: wood, charcoal and dung. They are not carbon neutral. On the contrary, employing these renewables results in severe pollution, not only outside but also inside household;

e) New renewables: solar, wind, geo-thermal and wave energy that are indeed carbon neutral, at least at the stage of functioning.

In the poor African countries with about half the population in agriculture and small villages, traditional renewables constitute the major source of energy.

Kongo Kinshasa

One understands the hefty use of wood coal in this giant country, so plagued by political instability, anarchy, anomie and civil wars with foreign involvement (Figure 15).

FIGURE 15. DR KONGO
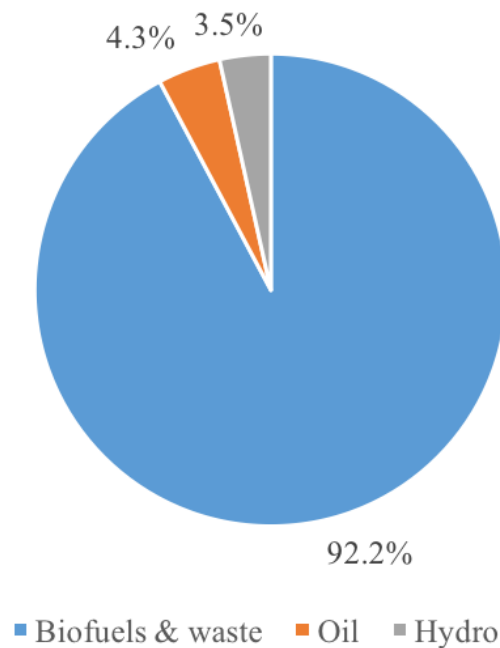
**Source:** Democratic Republic of Congo - Energy Outlook, Kungliga Tekniska Hoegskolan

One notes how little of hydro power has been turned into electricity in Kongo, but economic development and political instability, civil war and anarchy do not go together normally. At the same, one may argue that an extensive build-up of hydro power stations would pose a severe challenge to the fragile environment in the centre of Africa. Kongo can now move directly to modern renewables like solar power.

Sudan

The energy consumption of Sudan reflects this situation – Figure 16. The countries relying upon traditional renewables to an extent up to 50 per cent or higher will have to reflect upon how to bring these figures down sharply with modern renewables. It is an entirely different task than that of countries with too much fossil fuel dependency. Hydro power has increased in Sudan, which is a positive. But the water of the Nile can last only so long for three large energy power hungry nations, with Egypt fearing for water shortages in agriculture and potable water.

Sudan is dismally poor with deep-seated internal conflicts ethnically. How to move to large solar panel plats in a country with so much political instability resulting huge numbers of death from domestic violence?

**FIGURE 15.** Sudan's energy mix

http://500wordsmag.com/science-and-technology/the-case-of-photovoltaics-in-sudan/
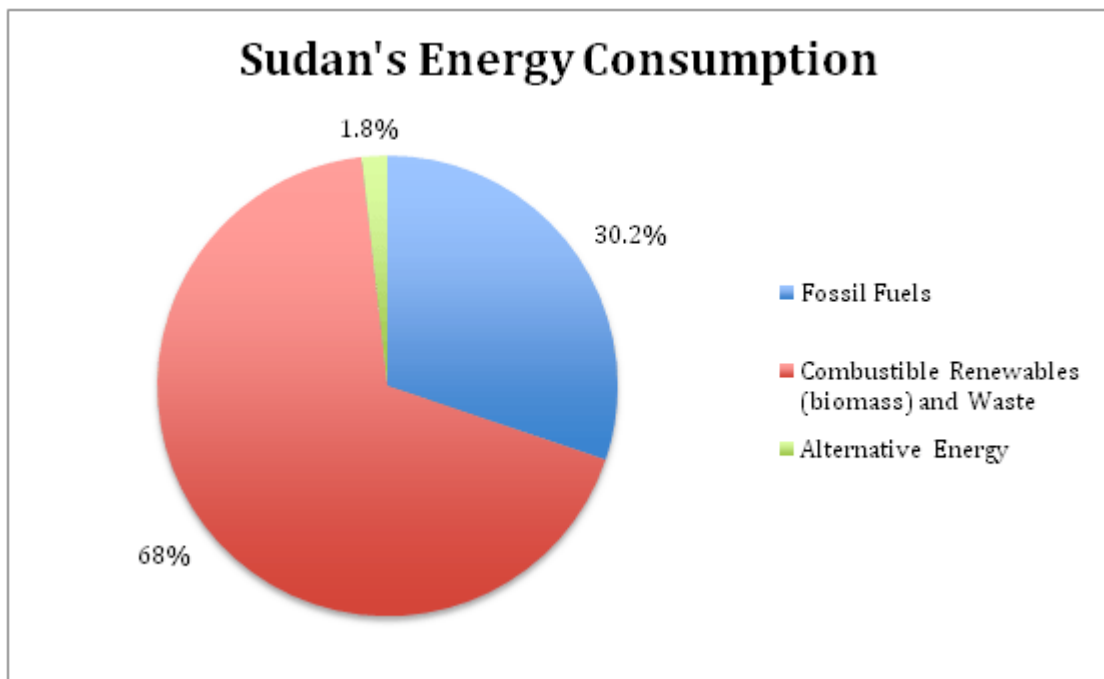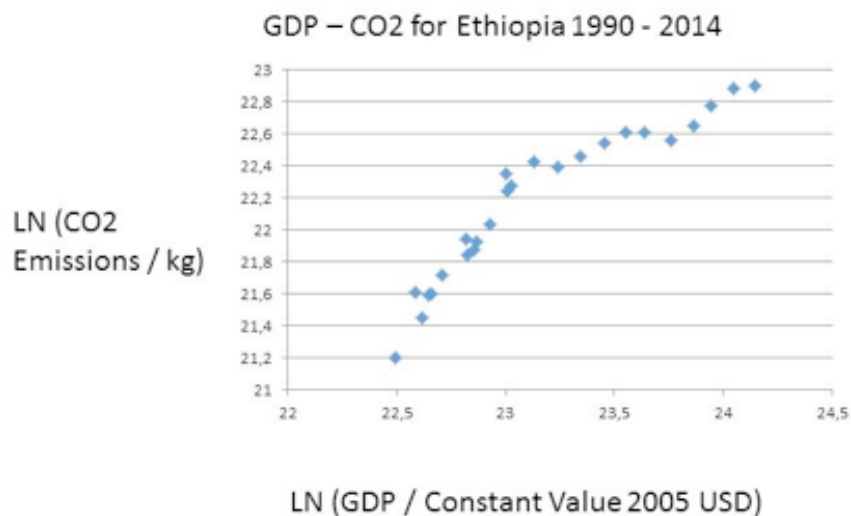
Ethiopia

The reliance upon traditional renewables is so high in neighbouring Ethiopia that electrification must be very difficult to accomplish over the large land area. Figure 17 displays a unique predicament, although a few hydro power stations have increased hydro power substantially since 2008.

FIGURE 17. Ethiopia: Energy mix
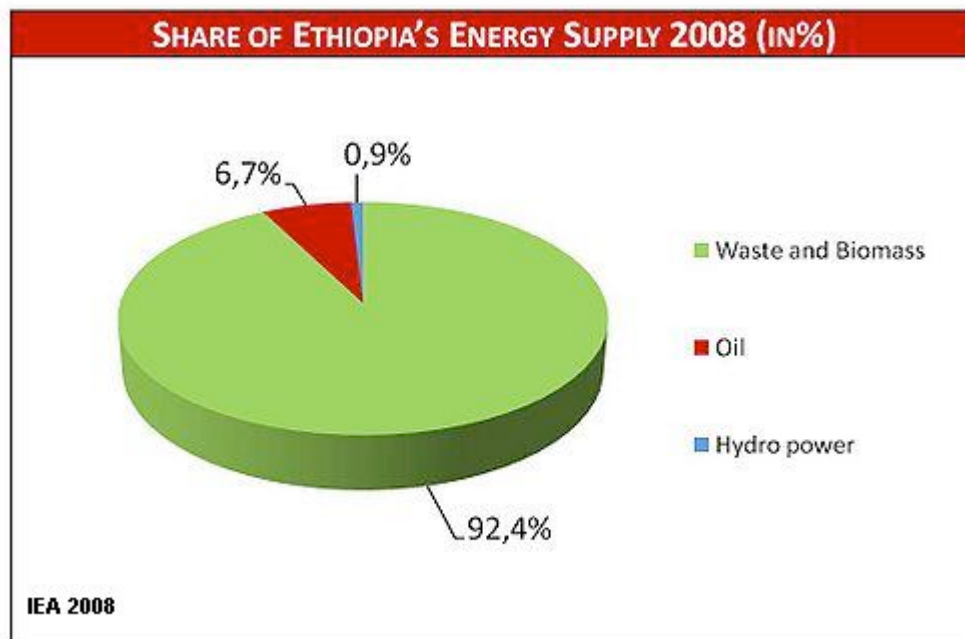
Are there any advantages with such a skewed energy mix? No, because even mainly rural Ethiopia delivers with lots of CO_2: - see Figure 18.

FIGURE 18. Ethiopia: GDP and CO_2: y = 0,90x, R² = 0,88

The zest with which Ethiopia is pursuing its control over water resources becomes fully understandable. What we see is the same smooth linear function plotting CO_2:s upon GDP, as is obvious in countries based upon fossil fuels – see below. For Ethiopia, to comply with COP21

goals is going to pose major challenges, especially if economic development is not going to be reduced. The country needs massive help, both financially and technologically.

The Grand Ethiopian Renaissance Dam in Ethiopia and the Merowe Dam in Sudan bring electricity to Africa. Hydro power could be much more exploited in several African countries, but time is running out. Global warming reduces rivers and enhances draughts. Solar power is the future for all nations, whatever pattern of energy consumption they now have.

CONCLUSION

Poverty and especially water shortage on the African continent reflects the energy situation. Yet, as African nations increase energy, they must at the same time reduce CO_2: s. The COP project is a great opportunity for African peoples, but the promise of support must really be forthcoming. New energy must be directed to secure water resources, construct sewage plants, halt overfishing and safeguard access to potable water. The use of wood coal in connection with deforestation is very bad. A sustinable future for Africa (Sachs, 2015) is offered by massive investments in solar power, and time presses (Stern, 2007, 2015).

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