

# **Natural Resources, Governance and Growth in Africa: Theory and Practice**

By

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## **Abstract**

*Africa has continued to rely heavily on natural resources in order to achieve sustainable growth and development. Theories of growth such as the Unbalanced Growth theory and Rostow's theory support the need for "big pushing" a booming or leading sector, the productivity of which will further create opportunities for other sectors of the economy and consequently enhance overall growth. However, the natural resource sector in Africa, which can be seen as the leading sector, has failed in this regard. Emerging from this paper is a broader version of Dutch Disease – which I termed 'Africa's Disease'. The Africa's Disease is not only about the declining manufacturing sector occasioned by labour shift towards the booming sector due to the discovery of natural resources (as implied by Dutch Disease). It also entails the neglect of other key sectors of the economy (e.g. agricultural and industrial sectors), high level of corruption, high level of inequality and poverty and increased conflicts. The evident bad governance in most African countries has continued to promote this growth retarding disease. Addressing the problem of bad governance is believed will mark a turning point for Africa's growth and development.*

**Key Words:** Natural Resources, Governance, Conflicts, Growth, Africa

**JEL Classification:** N57, O40, Q32, Q34, Q38

# Natural Resources, Governance and Growth in Africa

## 1.0 Background

The recent paper of Collier and Gunning (1999) should pose a challenge to Africa particularly African leaders, policy makers and researchers. The paper did not almost assume a perpetual slow growth for Africa but also pin pointed some germane issues, which may lead to the conclusion that Africa will never grow. The authors categorized the factors responsible for African slow growth into two broad areas: domestic and external factors and consequently discussed each of the categories based on whether it is exogenous (destined) or policy-induced. Broadly, they explained these problems under four sub-categories: domestic – policy; domestic – destiny, external – policy and external – destiny. Under domestic-policy, the authors attributed factors such as poor service delivery as responsible for Africa's stunted growth over the years. Under domestic – destiny, they emphasized that adverse climate and high ethnic diversity have contributed immensely to its slow growth. On the other hand, they attributed the geographical distribution of Africa's population as the external – destiny factor inhibiting Africa's growth. They stressed that much of the population lives in countries which are landlocked and as such the problems of distance are not only compounded by political barriers, these regions also face higher transport costs for exports. Finally, they attributed exchange rate and trade policies, drawing reference from the World Bank and the International Monetary Fund (IMF), as the primary causes of slow growth in Africa. In their final note, however, the authors acknowledged the fact that the chief problem relates to policies which are ostensibly domestically-oriented notably poor delivery of services.<sup>1</sup> This is a very striking and instructive conclusion that should give all of us a pause. The present paper is, therefore, a contribution to the growing debate on the slow growth of Africa.

There is no gainsaying that majority of African Countries depends on natural resources to achieve sustainable growth and development. The continent is well known as home to some of the largest deposits of natural resources in the world. For example: Nigeria, Angola, Algeria, Libya and several others<sup>2</sup> together

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<sup>1</sup> See Collier, P. and J.W. Gunning (1999): Why Has Africa Grown Slowly? Journal of Economic Perspectives, Vol. 13, No. 3, pgs 3-22 and Collier, P. and J.W. Gunning (1999): Explaining African Economic Performance. Journal of Economic Literature, Vol. 37, pgs 64-111.

<sup>2</sup>Other Oil producing countries in Africa are Cameroon, Chad, Republic of Congo, Egypt, Equitorial Guinea, Gabon, Mauritania, Sudan, Tunisia

produce a substantial portion of the world's crude oil; South Africa and several other African countries<sup>3</sup> are major sources of the world's gold output; Botswana, the Democratic Republic of Congo, and Sierra Leone are major sources of diamonds. Other strategic minerals such as chrome, coltan, bauxite and manganese are major export products from a number of African countries. A good proportion of the world's tropical hard wood, coffee, cocoa and rubber exports are produced in Africa. The foreign exchange earnings from these and other natural resources constitute a major source of Africa's income.<sup>4</sup> Thus, the survival of most African Countries and their people rests on how well they can effectively manage these resources. To what extent has the extraction of natural resources benefited the African society and its people? To what extent has the government in Africa addressed the spill over effects of extraction on the immediate communities? How can African countries use the abundance of natural resources at their disposal to achieve the much awaited growth and development? These questions, among others, form the basis for this study.

Therefore, the broad objective of this study is to critically examine governance and natural resources<sup>5</sup> in Africa vis-à-vis the impact of the resources on societal welfare.

Following this background, the paper is structured as follows: section two provides the theoretical basis underlying natural resources and development; section three provides discussions on natural resources, governance and development in Africa; section four looks at the possibility of achieving sustainable growth in Africa through governance and natural resources; and section five provides the concluding remarks.

## **2.0 Theoretical Issues**

The availability of economic natural resources and revenue generated thereof make it easier for a country to solve its socioeconomic problems among which include reduction of poverty and unemployment. In the early stages of development process, the availability of natural resources can be used to meet basic necessities of the society such as food, shelter, and clothing. In theory, however, this may not come cheap.

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<sup>3</sup> Some of the prominent gold producing countries in Africa include South Africa, Ghana, Tanzania, Zimbabwe, Ethiopia, Namibia, Mali, Burkina Faso, and Mauritania.

<sup>4</sup> See Legwaila (2006). Natural resources and conflict in Africa: transforming a peace liability into a peace asset. Being a paper presented at a meeting organized jointly by the United Nations and the Government of Egypt, Cairo, Egypt, June 17-19.

<sup>5</sup> My focus is basically on natural resources that are fixed in nature and, therefore, deplete overtime due to continuous extraction (i.e. the non-renewable resources).

A theory that is widely referenced regarding the economics of natural resources is the *Dutch Disease*. This theory was first coined in 1977 by The Economist to describe the decline in the manufacturing sector of Netherlands after the discovery of natural gas, and this term has continuously been used in similar situations across the globe. The theory holds that increases in revenues from natural resources will de-industrialize a nation's economy by raising the exchange rate, which consequently makes the manufacturing sector less competitive and by extension lower the output of the sector. According to this theory, two effects are often created in an economy when there is a resource boom<sup>6</sup>: the resource movement effect and the spending effect. A shift of labour force from a non-booming sector to the booming sector<sup>7</sup> is regarded as the resource movement effect. As a result of this effect, significant units of factors of production shift away from the non-booming sector to the booming sector. Apparently, the resource movement effect has been criticized on the ground that the mining sector involves majorly the use of capital-intensive technique and as such may require few people. The spending effect occurs when some part of extra revenue generated by the booming sector is spent either directly by the employer or indirectly by the government through getting extra tax revenue collected from the booming sector.<sup>8</sup>

The Dutch Disease began to receive greater attention after the paper of Corden and Neary (1982). These authors developed an econometric model with a view to obtaining empirical evidence for the Dutch Disease using existing statistical data in the Netherlands. In their model, the Gross Domestic Product (GDP) was the dependent variable, while natural gas export (XQGAS), price of natural gas (PGAS), exchange rate (EXCH), inflation rate (INFL), a dummy variable (to capture the influence of euro launch on the other variables) and labour as the explanatory variables. Using the Ordinary Least Squares (OLS) technique, they found that the Dutch Disease exerts negative consequence as opposed to the general impression of wealth

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<sup>6</sup> By resource boom, I mean the continuous extraction of an unanticipated newly discovered natural resource and/or windfalls as a result of shocks in the price of natural resources.

<sup>7</sup> Non-booming sector can either be agricultural sector or manufacturing sector but the latter is widely used in literature and the booming sector is the mining sector

<sup>8</sup> See Corden (1984)

brought by natural resource discovery. They also found a negative relationship between GDP and natural gas export when the euro is not distinguished.<sup>9</sup>

The extended Solow growth model is another prominent growth theory that captures the natural resources scenario<sup>10</sup>. The Solow growth model in Cobb-Douglas production form is given as:

$$Y(t) = K(t)^\alpha [A(t)L(t)]^{1-\alpha} \quad (1)$$

Where  $Y(t)$  is the amount of output obtained from given quantities of capital and effective labour over time;  $K(t)$  is amount of capital devoted to production at time  $t$ ; and  $A(t)L(t)$  represents the quantity of effective labour (where  $A(t)$  represents knowledge at time  $t$  and  $L(t)$  represents labour at time  $t$ ). The model assumes constant returns to scale and as such neglects the importance of natural resources. If we extend the analysis to include natural resources<sup>11</sup> equation (1) then becomes:

$$Y(t) = K(t)^\alpha R(t)^\beta [A(t)L(t)]^{1-\alpha-\beta} \quad (2)$$

$$\alpha > 0; \beta > 0; \alpha + \beta < 1 \quad (3)$$

$R$  represents natural resources.

Taking the log of both sides and differentiating the resulting equation with respect to time, we obtain:

$$g_Y(t) = \alpha g_k(t) - \beta b + (1 - \alpha - \beta)(n + g) \quad (4)$$

Given that  $g_Y = g_k$ , by solving for  $g_Y$ , equation (4) becomes:

$$g_Y^{b_{gp}} = \frac{(1 - \alpha - \beta)(n + g) - \beta b}{1 - \alpha} \quad (5)$$

Equation (5) denotes the growth rate of output on the balanced growth path. Note that the first term of the numerator is usually positive given ( $\alpha > 0; \beta > 0; \alpha + \beta < 1$ ) and, therefore, growth rate of output can either be positive or negative depending on the extent of resource limitations. This analysis suggests that in the long run, the declining quantities of natural resources exert some drags on growth. Since technological

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<sup>9</sup> Wijnbergen (1984) and several other authors, on the contrary, note that the fall in the output of the non-booming sectors cannot be directly attributable to the increased revenue of a natural resource production.

<sup>10</sup> See Romer (2001) for more expositions on this.

<sup>11</sup> Note that the natural resources here for the purpose of this paper are economic resources on earth that are fixed in nature and, therefore, deplete overtime due to continuous extraction.

<sup>12</sup> Note that  $\dot{K}(t) = sY(t) - \delta K(t)$ ;  $\dot{L}(t) = nL(t)$ ;  $\dot{A} = gA(t)$ ;  $\dot{R}(t) = -bR(t)$

progress<sup>13</sup> spurs growth,  $g_Y^{bgp}$  will be positive if the spur created by technological progress outweighs the drags exerted by natural resources.

Another relevant theory is the one developed by Simon Kuznet (1995). He propounded that at the initial stage of development, inequality continuously increases up to a threshold beyond which it eventually declines. In the analysis of the workability of Kuznet Hypothesis, it is often argued that in the early stages of development, when investment in physical capital is the main mechanism of economic growth, inequality encourages growth by allocating resources towards those who save and invest the most. As a result of this, inequality opens up when workers in the booming sector (in this case, may be the mining sector) receive higher wages than those in the lagging sector (may be the agricultural sector in the African context). By this hypothesis, one may anticipate some level of imbalances to restore balance. Apparently, this hypothesis was further reinforced by the unbalanced growth theory<sup>14</sup> suggesting that for an economy to secure even development in all sectors of economy, initial investments (often called 'big push') in these sectors must be uneven. At the initial stage of development, the theory requires identifying and investing in leading industries the development of which can further create investment opportunities elsewhere (lagging industries) in the economy.

In the light of this, the consideration of natural resource sector as a booming sector may generate some imbalances in the economy the subsequent development of which may restore some reasonable level of balance. Two issues are important in kuznet Hypothesis: the possibility of imbalances in the various sectors of the economy at the initial stages of development and consequently increases the possibility of higher inequality at this stage of development. As the economy develops in market size and institutions, the problem of uneven development and consequently high inequality can be overcome. Although, in the literature, a number of criticisms have trailed this theory, specific prescriptions have been proffered to achieve the decline side of the curve. Government-sponsored mass education movement may open up opportunities for all and reduce the gap in income inequality and the implementation of social policy by the government as the

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<sup>13</sup> Technological progress in this case, is in terms of new methods of resource extraction, and with new technological dimensions

<sup>14</sup> See Hirschman, A.O. (1958), *The Strategy of Economic Development*, New Haven: Yale University Press

country becomes rich may explain a decline in inequality. As the government provides measures such as transfers and other welfare related packages in a way to redistribute income throughout different levels of income earning groups, inequality declines.

Similarly, both the unbalanced growth theory and Rostow's stage theory support the idea of "*big pushing*" leading sectors in an economy to achieve sustainable growth and development. This idea is premised on the fact that if investments are applied to strategically selected sectors, growth then spreads from one sector to another.

In sum, evident from the foregoing theoretical issues include<sup>15</sup>:

- (1) extraction of natural resources comes with some costs to the societies at the initial stage,
- (2) continuous depletion of natural resources exerts some drags on growth in the long run,
- (3) technological progress is inevitable to reduce the adverse effect of drags on growth in the long run,
- (4) there are possibilities of imbalances among the various sectors as the economy grows while assuming the mining sector as the leading industry,
- (5) coordinated investment in the leading sector may create opportunities for other sector of the economy in the long run.

The section that follows explains succinctly what obtains in Africa.

### **3.0 What Obtains in Practice in Africa**

The previous section highlighted the different positions held in theory as to the consequences of heavy dependence on natural resources on the society. Essentially, we have seen that all the theories tend towards the fact that there is a high possibility of uneven development across sectors and a high inequality across individuals although some of these arguments have been refuted in the literature. The pertinent question that quickly comes to mind is: what is the situation like in Africa?

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<sup>15</sup> Note that the mentioned theories have their limitations as far as applicability is concerned and these have been well documented in the literature.

The contribution of Africa to world's natural resources cannot be overemphasized. Table 1 shows trends in Africa's shares of world's oil proved reserves, production and exports between 1980 and 2007. On the average, Africa has 9% of the world's proved oil reserves and in fact recorded 9.5% in 2007. Also, the continent occupies, on the average, 10% of the world's oil production and has 15% of the world's exports. Algeria, Libya and Nigeria have dominated the share of Africa in world's oil reserves, production and export. Tables 2 and 3 and figure 1 show trends in Africa's oil reserves and production by country. Algeria, Libya and Nigeria together contribute on the average 80% of Africa's oil reserves and 70% of oil production between 1987 and 2007.

Table 4 shows the profile of Africa's shares of world's gas reserves and production between 1980 and 2007. On the average, Africa has 8% of the World's gas proved reserves and 5% of the World's gas production. Nigeria, Algeria, Egypt and Libya have dominated the share of Africa's gas reserves and production. Tables 5 and 6 and figure 2 show the profile of Africa's gas reserves and production by country. Nigeria, Algeria, Egypt and Libya together contribute on the average 90% of Africa's gas reserves and production.

**Table 1: Trends in Oil Reserves, Production and Exports in Africa, 1980-2007**

Year	Africa's Oil Proved reserves (Thousand Million Barrels)	World's Oil Proved reserves (Thousand Million Barrels)	Africa to World (%) (a)	Africa's Oil Production (Thousand Barrels daily)	World's Oil Production	Africa's oil production to World (%) (b)	Africa's Oil Exports (Thousand barrels)	World's Oil Export (Thousand barrels)	Africa's oil Export as a % of World Export (c)
1980	53.4	667.2	8.0	6225	62948	10	5259	32324	16.38
1981	56.3	687.6	8.2	4981	59535	8	3905	29033	13.45



1982	58.3	716.9	8.1	4814	57298	8	3645	25932	14.06
1983	58.0	727.2	8.0	4865	56599	9	3605	24696	14.60
1984	57.8	761.6	7.6	5179	57686	9	3960	25093	15.78
1985	57.0	770.9	7.4	5433	57472	9	4180	24488	17.07
1986	58.0	877.9	6.6	5443	60467	9	4495	26647	16.87
1987	58.7	910.2	6.4	5452	60790	9	4315	24923	17.31
1988	59.0	998.4	5.9	5751	63165	9	4620	28201	16.38
1989	59.1	1005.8	5.9	6217	64656	10	4737	30590	15.48
1990	58.7	1003.2	5.9	6725	65477	10	4852	31441	15.43
1991	60.4	1007.6	6.0	6880	65294	11	5281	32338	16.33
1992	61.1	1013.3	6.0	7003	65802	11	5528	33397	16.55
1993	61.2	1014.4	6.0	6961	66058	11	5361	35727	15.01
1994	65.0	1019.2	6.4	7004	67129	10	5327	36587	14.56
1995	72.0	1029.1	7.0	7111	68132	10	5419	37253	14.55
1996	74.9	1050.6	7.1	7440	69939	11	5672	39391	14.40
1997	75.3	1069.3	7.0	7768	72231	11	5845	40890	14.30
1998	77.2	1068.5	7.2	7644	73588	10	5806	41097	14.13
1999	84.7	1088.6	7.8	7583	72377	10	5711	41616	13.72
2000	93.4	1104.5	8.5	7804	74916	10	6025	43371	13.89
2001	96.8	1133.0	8.5	7897	74847	11	5906	44789	13.19
2002	101.7	1180.8	8.6	7994	74478	11	5754	44613	12.90
2003	112.3	1206.3	9.3	8402	77031	11	6327	46752	13.53
2004	113.8	1211.3	9.4	9268	80326	12	6965	49290	14.13
2005	117.0	1220.4	9.6	9846	81255	12	7429	51182	14.51
2006	117.1	1239.5	9.5	9995	81659	12	7929	52561	15.09
2007	117.5	1237.9	9.5	10318	81533	13	8165	54824	14.90

Sources: BP Statistical Review of World Energy, 1980-2007

Note: Figures in columns (a), (b), and (c) were computed by the author

**Table 2: Oil proved reserves by Countries, 1987-2007**

Countries	At the end of 1987 Thousand Million Barrels	% Share of total (d)	At the end of 1997 Thousand Million Barrels	% Share of total (e)	At the end of 2006 Thousand Million Barrels	% Share of total (f)	At the end of 2007 Thousand Million Barrels	% Share of total (g)
Algeria	8.6	14.65	11.2	14.87	12.3	10.50	12.3	10.47
Angola	2.0	3.41	3.9	5.18	9.0	7.69	9.0	7.66
Chad	-	0.00	-	0.00	0.9	0.00	0.9	0.00
Rep.of Congo	0.7	1.19	1.6	2.12	1.9	1.62	1.9	1.62
Egypt	4.7	8.01	3.7	4.91	3.7	3.16	4.1	3.49
Equatorial Guinea	-	0.00	0.6	0.80	1.8	1.54	1.8	1.53
Gabon	1.0	1.70	2.7	3.59	2.0	1.71	2.0	1.70
Libya	22.8	38.84	29.5	39.18	41.5	35.44	41.5	35.32
Nigeria	16.0	27.26	20.8	27.62	36.2	30.91	36.2	30.81
Sudan	0.3	0.51	0.3	0.40	6.6	5.64	6.6	5.62
Tunisia	1.7	2.90	0.3	0.40	0.6	0.51	0.6	0.51
Other Africa	1.0	1.70	0.7	0.93	0.6	0.51	0.6	0.51
Total	58.7	100.00	75.3	100.00	117.1	100.00	117.5	100.00

Sources: BP Statistical Review of World Energy, 1980-2007

Note: Figures in columns (d), (e), (f) and (g) were computed by the author

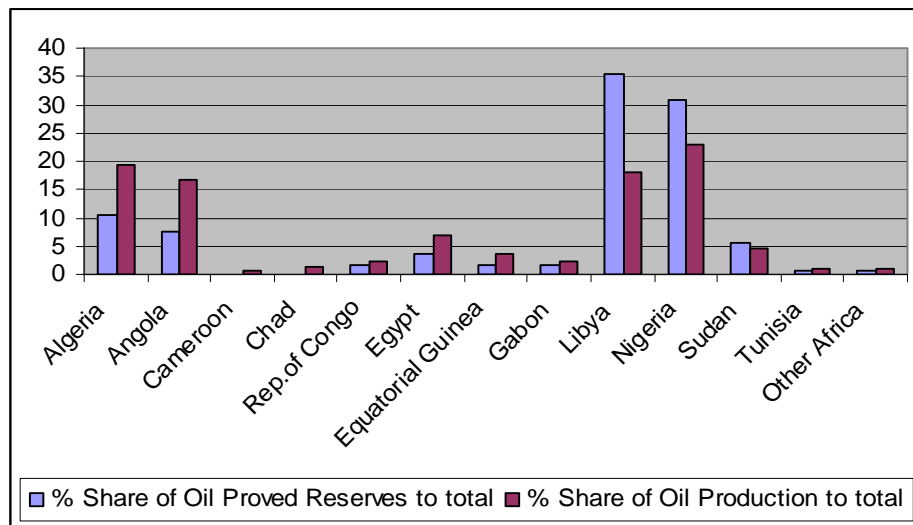
**Table 3: Oil Production by Countries, 1987- 2007**

Countries	At the end of 19987 Thousand Barrels	% Share of total (h)	At the end of 1997 Thousand Barrels	% Share of total (i)	At the end of 2006 Thousand Barrels	% Share of total (j)	At the end of 2007 Thousand Barrels	% Share of total (k)
Algeria	1231	22.55	1421	18.29	2003	20.04	2000	19.38
Angola	355	6.50	741	9.54	1421	14.22	1723	16.70
Cameroon	165	3.02	124	1.59	87	0.87	82	0.79
Chad	-	0.00	-	0.00	153	1.53	144	1.40
Rep. of Congo	123	2.25	225	2.89	262	2.62	222	2.15
Egypt	907	16.61	873	11.23	697	6.97	710	6.88
Equatorial Guinea	-	0.00	60	0.77	358	3.58	363	3.52
Gabon	155	2.84	364	4.68	235	2.35	230	2.23
Libya	1003	18.38	1491	19.19	1834	18.35	1848	17.91
Nigeria	1353	24.79	2316	29.81	2474	24.75	2356	22.83
Sudan	-	0.00	9	0.12	331	3.31	457	4.43
Tunisia	106	1.94	81	1.04	70	0.70	98	0.95
Other Africa	54	0.99	64	0.82	69	0.69	85	0.82
Total	5452	100.00	7768	100.00	9995	100.00	10318	100.00

Sources: BP Statistical Review of World Energy, 1980-2007

Note: Figures in columns (h), (i), (j) and (k) were computed by the author

**Figure 1: Contribution by Country to Africa's Share of World's Oil Reserves and Production, 2007**



Sources: From Author's computation using BP Statistical Review of World Energy, 2007

Table 4: Trends in Gas Reserves and Production in Africa, 1980-2007

Year	Africa's Gas Proved reserves (Trillion Cubic Meters)	World's Gas Proved reserves (Trillion Cubic Meters)	% Share of Africa's Gas Proved reserves to World's (l)	Africa's Gas Production (Billion Cubic Meters)	World's Total Gas Production (Billion Cubic Meters)	% Share of Africa's Gas Production to World's (m)
1980	5.99	82.52	7.26	23.1	1449.4	1.59
1981	5.91	86.36	6.85	25.7	1477.1	1.74
1982	6.29	88.92	7.07	30.6	1479.4	2.07
1983	6.29	91.95	6.84	41.4	1484.7	2.79
1984	6.22	95.53	6.51	42.6	1616.3	2.63
1985	6.16	98.49	6.26	46.5	1668.8	2.79
1986	7.40	104.89	7.06	50.2	1716.2	2.93
1987	7.39	106.86	6.92	54.8	1801.1	3.04
1988	7.68	110.90	6.93	58.5	1885.3	3.10

1989	8.48	124.70	6.80	64.3	1945.7	3.30
1990	8.55	128.01	6.68	66.9	1992.9	3.36
1991	9.51	134.11	7.09	71.9	2023.3	3.56
1992	9.89	137.29	7.21	75.3	2035.3	3.70
1993	10.01	139.22	7.19	79.4	2073.8	3.83
1994	9.13	140.09	6.52	75.3	2096.1	3.59
1995	9.93	140.74	7.06	83.3	2135.3	3.90
1996	10.17	144.06	7.06	88.9	2230.2	3.99
1997	10.62	146.46	7.25	99.4	2235.7	4.45
1998	10.77	149.60	7.20	104.8	2286.2	4.58
1999	11.44	152.91	7.48	117.1	2346.8	4.99
2000	12.46	158.51	7.86	126.8	2427.0	5.22
2001	13.13	171.74	7.65	126.9	2483.8	5.11
2002	13.76	172.65	7.97	130.3	2527.9	5.15
2003	13.86	173.67	7.98	139.9	2618.8	5.34
2004	14.08	173.80	8.10	145.8	2703.7	5.39
2005	14.07	174.30	8.07	165.6	2775.5	5.97
2006	14.46	176.22	8.20	181.6	2872.2	6.32
2007	14.58	177.36	8.22	190.4	2940.0	6.48

Sources: BP Statistical Review of World Energy, 1980-2007

Note: Figures in columns (l) and (m) were computed by the author

**Table 5: Gas Proved reserves by countries, 1987-2007**

Countries	At the end of 19987 Trillion Cubic	% Share of total (n)	At the end of 1997 Trillion Cubic	% Share of total (o)	At the end of 2006 Trillion Cubic	% Share of total (p)	At the end of 2007 Trillion Cubic	% Share of total (q)
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	Meters		Meters		Meters		Meters	
Algeria	3.16	42.76049	4.08	38.42	4.50	31.12	4.52	31.00
Egypt	0.31	4.194858	0.93	8.76	2.05	14.18	2.06	14.13
Libya	0.73	9.878214	1.31	12.34	1.49	10.30	1.50	10.29
Nigeria	2.41	32.61164	3.48	32.77	5.22	36.10	5.30	36.35
Other Africa	0.79	10.69012	0.82	7.72	1.20	8.30	1.21	8.30
Total Africa	7.39	100.00	10.62	100.00	14.46	100.00	14.58	100.00

Sources: BP Statistical Review of World Energy, 1980-2007

Note: Figures in columns (n), (o), (p) and (q) were computed by the author

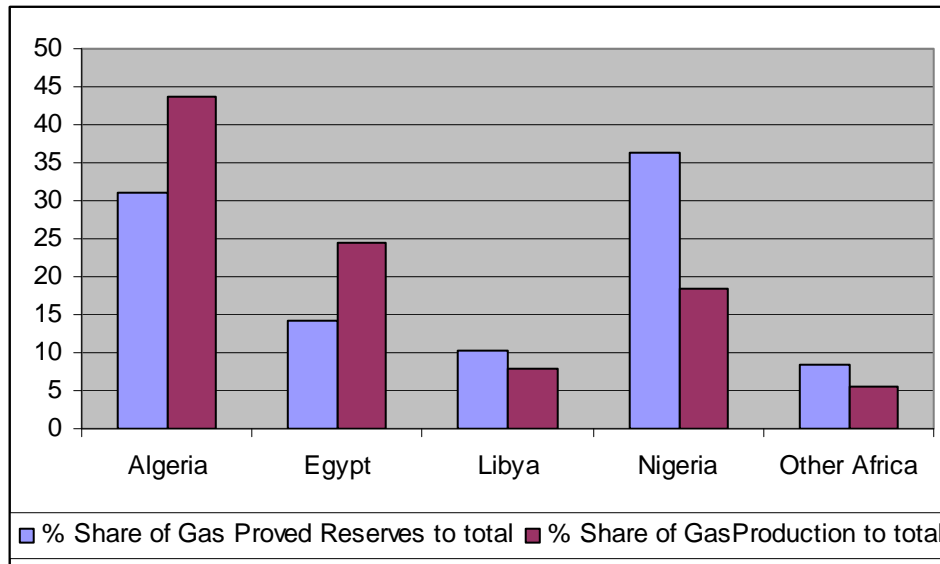
**Table 6: Gas production by countries, 1987-2007**

Countries	At the end of 19987 Billion Cubic Meters	% Share of total (r)	At the end of 1997 Billion Cubic Meters	% Share of total (s)	At the end of 2006 Billion Cubic Meters	% Share of total (t)	At the end of 2007 Billion Cubic Meters	% Share of total (u)
Algeria	41.2	75.18	71.8	72.23	84.5	46.53	83.0	43.59
Egypt	5.3	9.67	11.6	11.67	44.7	24.61	46.5	24.42
Libya	4.5	8.21	6.0	6.04	14.8	8.15	15.2	7.98
Nigeria	3.0	5.47	5.1	5.13	28.4	15.64	35.0	18.38
Other Africa	0.7	1.28	4.9	4.93	9.2	5.07	10.7	5.62
Total Africa	54.8	100.00	99.4	100.00	181.6	100.00	190.4	100.00

Sources: BP Statistical Review of World Energy, 1980-2007

Note: Figures in columns (r), (s), (t) and (u) were computed by the author

**Figure 2: Contribution by Country to Africa's Share of World's Gas Reserves and Production, 2007**



Africa is also rich in mineral resources prominent among which include diamond, gold, phosphate and cobalt. According to Deutsche Bank Research report (2007), Africa has 60% of the world's diamonds, 40% of the world's phosphate and 30% of the world's cobalt resources. Botswana, the Democratic Republic of Congo, and Sierra Leone have major shares in Africa's contribution to World's diamond.

Therefore, the extractive industries (oil, gas and mining) are a dominant source of revenues to many African countries. It is, however, worrisome that despite the large deposits of natural resources in Africa, it has remained the least developed of the continents. More surprising is the fact that before discovery of the natural resources by many African countries (up to first half of the century), Africa ranked above Asia using estimates of per capita GDP of Maddison's (1995). The unimaginable revenues generated from natural resources, coupled with several windfalls engineered the almost total neglect of other sectors of the economy. In spite of their (the resource endowed countries) saving and balance of payments advantages, they appear to have performed worse than most non-mineral economies in their recent record of agricultural growth, export diversification, inflationary control, employment generation, income distribution, technological absorption, political stability and social harmony. They tend to exhibit a much greater degree of external dependence,

remain as enclaves of regional development, have ineffective inter-sectoral integration, reflect backward and forward linkages and a generally exploitative structure of production relations.

Countries such as U.S., Israel and many countries in Asia have been able to prove to the world that modern scientific and technological advances are more than capable to overcome deficiencies of nature. Many of these countries have grown extremely greater than the natural resources endowed nations and have in fact remained aid donors to many resource-endowed countries.

Africa today is faced with destabilized economies, increased poverty and incessant incidence of conflicts, which many believe are attributable to the heavy reliance on natural resources. For example, before the emergence of oil in Nigeria, agriculture was the mainstay of the economy. However, shortly after the discovery of oil, the economy witnessed a drastic policy shift towards the oil sector and ever since successive governments have kept other sectors of the economy at the lowest background. The oil resources in this country have not only created problems about how the revenues generated should be shared but have also fuelled conflicts in many oil host communities in the country. In addition, during the civil wars in Angola, Democratic Republic of Congo, Liberia and Sierra Leone, the rebel groups traded diamonds to fund their activities although there were sanctions by the United Nations to deter this act by the rebels. These diamonds were called conflict diamonds.

The extraction of natural resources has also contributed to the high level of corruption in many African countries. The Transparency International report (2007) shows that out of 179 countries surveyed, most of Africa's major natural resources endowed countries occupied the first forty of very low transparent and, therefore, highly corrupt nations. Among these countries include Nigeria, Libya, and Angola that have major share of Africa Oil reserves and production and Sierra Leone and Democratic Republic of Congo that contribute significantly to diamond production. The revenues generated from natural resources have been grossly mismanaged and misappropriated by many African leaders for their selfish interest putting a large number of the population in a state of penury. These inadequacies and inefficiencies on the part of many African leaders have invited conflicts on the aggrieved party. The case of Niger Delta (the oil producing



region) in Nigeria is worthy of mention. Though, the country generates at least 90% of her revenue from the Niger Delta, the region has remained the least developed in terms of any measure of development. The aggressive activities of the extractive industries in this region have shattered both aquatic and terrestrial commercial opportunities. For example, economic activities such as farming and fishing cannot be carried out in this region due to oil spillage and other associated environmental hazards.. However, the government has not deemed it imperative to open up new opportunities for this region to salvage the worrisome state of the oil region. Due to the rather lackadaisical attitude of the government, the region has continued to witness conflicts by the aggrieved members of the region leading to abduction of oil workers, vandalization of oil facilities and disruption of oil supply by the country.

The exploration of natural resources in many Africa nations hardly ever benefited the population in the affected areas. The case of Botswana with proven record of good governance is indeed salutary. Essentially, I see the challenges facing natural resource management in Africa from three main perspectives: governance, conflicts and technological absorption.

### **3.1 Natural Resources and Governance**

Governance in Africa has been a key subject of discourse among researchers and international agencies. This is not unconnected with the overwhelming evidence on the potential beneficial effects of good governance and the potential adverse effects of bad governance. Collier and Gunning (1999a) while attempting to explain the slow growth of Africa emphasized that African governments have typically been less democratic and more bureaucratic compared to their Asian and Latin American counterparts. It is disheartening to say that the term Africa at times is synonymous with bad governance. Evidences of how bad governance has provoked the economic development in Africa are inexhaustible.

The management of natural resources is no exception in this regard. The fixed and depleting natural resources are extracted day-in-day-out without any cogent plan for the foreseeable future. Many leaders in Africa often use the revenues generated from these resources to actualize their selfish ends. The level of

corruption in Africa has not only attained unprecedented high levels, it has also devastated the development of both the mining and mineral sectors and other sectors of the economy. While the mining and mineral sectors have been the sole survival for the very few high echelon, these sectors have continued to suffer negligence. The idea of Dutch Disease regarding the discovery of natural resources in the context of Africa is not only about the declining manufacturing sector occasioned by labour shift towards the booming sector but also government neglect of other sectors as a result of the discovery. *The Africa's disease*<sup>16</sup> (a version of the popular Dutch Disease) has the following peculiarities:

- (i) Neglect of other key sectors of the economy (e.g. Agricultural and Industrial Sectors) due to the discovery of natural resources;
- (ii) High level of corruption;
- (iii) High level of inequality and poverty; and
- (iv) Increased conflicts.

In other words, *Africa's disease* is tantamount to the negative consequences of the discovery of natural resources in Africa. While majority may not accept this fact, evidences are in literature supporting these adverse effects of the discovery of natural resources in Africa.

Also, while some countries (such as U.K. and France) have grown based on the idea of “*big pushing*” the leading sector of an economy which subsequently opens up opportunities for other sectors of the economy (the Unbalanced Growth Theory), the mining/mineral sector which we may regard as the leading sector in Africa has failed in this regard.

In the same vein, the idea underlying Kuznet hypothesis is that as an economy grows, inequality rises up to a critical point beyond which it then declines. In Africa, however, while the growth has remained

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<sup>16</sup> I have designed this term to single out the peculiar problems associated with the discovery of natural resources in Africa. This conclusion is drawn from past and recent trends in the administration of natural resources in many African countries. You may find the following for reference purpose: (1) Collier, P. and J.W. Gunning (1999): Why Has Africa Grown Slowly? Journal of Economic Perspectives, Vol. 13, No. 3, pgs 3-22. (2) Collier, P. and J.W. Gunning (1999): Explaining African Economic Performance. Journal of Economic Literature, Vol. 37, pgs 64-111. (3) Legwaila (2006). Natural resources and conflict in Africa: Transforming a Peace Liability into a Peace Asset. Being a paper presented at a meeting organized jointly by the United Nations and the Government of Egypt, Cairo, Egypt, June 17-19. (4) CNRST (2001): Science and Technology and Competitiveness of Natural Resources in Africa. Being a paper presented at Second Meeting of the Committee on Natural Resources and Science and Technology Addis Ababa, Ethiopia 30 October - 01 November 2001.

sluggish, its level of inequality has continued to rise in fact with no promising indications that it will ever decline.

The problems associated with natural resources are not about the nature of these resources but rather on the nature of governance of many African countries. The evident government lackadaisical attitude and rather myopic perception of how an economy can be managed has hampered the development that could have resulted from these abundant resources. At least, there are evidences of rapid developments in some countries that are also blessed with abundant natural resources. However, Botswana seems to be the only convincing evidence of development-oriented nature of natural resources. Many other resource-endowed nations in Africa are characterized by bad governance.

### **3.2 Natural Resources and Conflicts**

Schweithelm, Kanaan and Yonzon (2006) define natural resource conflict as situations where the allocation, management or use of natural resources results in (1) violence; (2) human rights abuses; or (3) denial access to natural resources to an extent that significantly diminishes human welfare.

This definition explains what Africa had experienced and still experiences as far as natural resources are concerned. Africa continues to face greater risks of conflicts between the various indigenous communities, the state security forces of the government and the growing extractive industries. For example in the mineral sector, with the exception of Botswana, major diamond producers in Africa have been accused of conflict diamond. Also, in the mining sector, Nigeria which ranked first in terms of both oil production and export in Africa in 2007, is facing serious crises in the oil region. The deterioration of local host communities by the extractive industries coupled with threats from the government for expression of displeasure by these communities over the state of development has aggravated violence in this region.

### **3.3 Natural Resources and Technological Absorption**

Technology plays a key role in the management of natural resources. It is not only useful in the extraction of natural resources but also plays a significant role in the discovery of new resources. The

development of capacities and capabilities especially in science and technology and adaptation of new technologies as at when necessary are essential for the effective management of natural resources. The use of modern and sophisticated technology will not only enhance the supply of these resources but will also make them to be more competitive in international markets.

However, the level of technological absorption in Africa is still very low and this has consequently constrained an optimal exploration, utilization, supply and conservation of natural resources in Africa.

#### **4.0 Will Africa Ever Develop then?**

No doubt, skeptics have increasingly continued to emerge on whether Africa will ever grow. Prominent researchers in this regard among which include Jeffrey Sachs, Andrew Warner, Paul Collier and Jan Willem Gunning have suggested that the nature and structure of the continent have disadvantaged it from developing. For example, Sachs and Warner (1995) attributed slow growth of Africa to “*the curse of the tropics*”. They opined that adverse climate causes poor health, and so reduces life expectancy below what obtains in other regions, which puts it at a disadvantage. The same authors also argued that Africa’s population is atypically landlocked and so face intrinsically higher transport costs for export. In fact, Paul Collier has several submissions on why Africa continues to experience slow growth<sup>17</sup> nevertheless he accedes to the fact that establishment of good policy environment can put Africa back on the path of sustainable growth and development. Collier and Hoeffler (1998) find that a dependence on natural resources strongly increases “loot-seeking” activities and the risk of civil war which has been a widespread phenomenon in Africa.

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<sup>17</sup> The following have been suggested for your readings on Collier’s submissions regarding Africa’s development: (1.) Collier, P. and J.W. Gunning (1999). Explaining African Economic Performance. Journal of Economic Literature, Vol. XXXVII, PP. 64-111. (2.) Collier, Paul and Anke Hoeffler (1998), ‘On economic causes of civil war’, Oxford Economic Papers, Vol. 50 (4), pp. 563–573. (3.) Collier, Paul (2000), ‘Africa’s comparative advantage’, in Industrial Development and Policy in Africa: Issues of De-Industrialisation and Development Strategy, ed. H. Jalilian, M. Tribe and J. Weiss. Cheltenham: Edward Elgar. (4.) Collier, Paul and Jan Willem Gunning (2000), ‘The potential for restraint through international trade agreements’, in Investment and Risk in Africa, ed. Paul Collier and Catherine Pattillo, pp. 338–351. Basingstoke and London: Macmillan, New York: St Martin’s Press. (5) Collier, Paul and Jan Willem Gunning (2000), ‘African trade liberalizations: alternative strategies for sustainable reform’, in Trade and Fiscal Adjustment in Africa, ed. David L. Bevan, Paul Collier, Norman Gemmill and David Greenaway, pp. 36–55. Basingstoke and London: Macmillan, New York: St Martin’s Press.

Africa has the potentialities to achieve sustainable growth and development owing to the deposit of resources in the continent. The idea of being landlocked is not tenable for poor growth in Africa. At least, countries like Austria, Switzerland, Luxembourg and even Botswana in Africa are also landlocked with proven records of improved growth trends. Realistically, Africa has not optimally managed its potentials for growth. The key problem, which I attributed to bad governance, has crippled the development of Africa. My idea of bad governance as being the key problem is not unconnected with the fact that this menace promotes corruption, high inequality, high poverty, poor institutions, high unemployment, poor health and a host of other problems. With good governance, leadership begins to attach significance to welfare-oriented policies and programmes and becomes more transparent and accountable for the public resources.

Frankly, the state of Africa's development will further deteriorate if it continues to swim in the river of bad governance. At the second meeting of the committee on natural resources and science and technology (CNRST) for Africa held at Addis Ababa, Ethiopia in 2001, suggested as the way forward for the development and utilization of natural resources in order to deal with overall development issues facing the continent include:

1. Promote good governance, peace and stability;
2. Create an enabling policy environment
3. Strengthen human capacity building;
4. Improve supporting infrastructure;
5. Improve technology acquisition and development and pay particular attention to new and emerging technologies;
6. Strengthen technological systems of innovation;
7. Facilitate financial resources mobilization, and promote investment;
8. Enhance private sector participation, strengthen public-private partnerships, and optimize the role of governments;
9. Promote regional cooperation and integration.

These laudable suggestions are indication of the present worrisome state of natural resource management in Africa. More critical to me is the pursuit of good governance, the actualization of which will promote development-oriented programs and policies.

## **5.0 Concluding Remarks**

This paper attempts to discuss natural resources, governance and development in Africa drawing evidence from economic theories and experiences of Africa over the years. Evident from the discussions is the fact that the heavy reliance on natural resources coupled with bad governance has heightened the level of corruption, worsened high inequality and poverty problems, led to total neglect of other sectors of the economy and continued to fuel conflicts and by extension constrained growth of the continent. The resulting problems I termed *Africa's disease* (which is a new version of the Dutch disease) explaining the peculiar consequences of the discovery of natural resources in Africa.

The development of Africa rests majorly in the hands of Africa itself. No amount of natural resources or aid can restore balance to Africa if the problem of bad governance continues to survive in the continent. Addressing the problem of bad governance is believed will mark a turning point for Africa's growth and development.

## **Suggestions for Further Research and Investigation**

The description of problems associated with Natural Resources management in Africa as being a broader scope than the popular Dutch Disease in this paper has thrown a challenge for further research and investigation. Future studies can empirically validate or refute this conclusion. This will not only enrich literature on natural resources management and growth in Africa but will also provide a more scientific basis for our agitations for sustainable growth and development in Africa.

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