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Abuja, September 24, 2010

Dr. Mobolaji Omobowale
Email: yimikaomo@yahoo.co.uk
Ibadan, NIGERIA

Dear Sir,

Subject : ECOWAS Symposium. (Ouagadougou, 3, 4 and 5 October 2010)

Since its inception, ECOWAS has been pursuing its objective of promoting cooperation and integration with a view to achieving economic and monetary union among the West African Member States. Significant progress has been made in several sectors: economic, political, social and cultural.

Currently, most of the African countries have achieved 50 years of political independence and economic and social assessment should be undertaken without any complacency. Moreover, considering that the global financial and economic crisis has not spared any country, ECOWAS proposed to organise a Symposium, in scientific partnership with university academics and research workers, in order to coordinate the reflection and research undertaken by the public and private actors on the theme: "Ending under-development: what new prospects for West Africa?"

This event is a discussion forum aimed at sensitizing and mobilising all public and private actors, as well as those in the Civil Society and the Diaspora, in order to undertake deep reflection on crucial issues of great concern to all our populations: what are the development challenges and how to tackle them? What are the development models, their impact and weaknesses? What is the poverty level and profile? Which type of growth? What institutional framework should direct development? How to accelerate integration as the engine of our development? So any important questions that gnaw at the minds of the citizens and to which it is important to provide innovative and relevant answers.

I am pleased to inform you that the Scientific Committee has approved your proposal for a communication titled "Science and Technology as a Tool for Poverty Reduction and Socio-economic Development in ECOWAS Countries". I invite you to make all useful arrangements to assure your participation in the symposium which will take place in Ouagadougou from 03 to 05 October 2010.

The ECOWAS Commission will bear the cost of your participation (transport and accommodation) and an honorarium of \$500 would be given to you for your contribution.

Please accept the assurances of my highest consideration.

Prof. Lambert N. BAMBA
Commissioner, Macroeconomic Policy

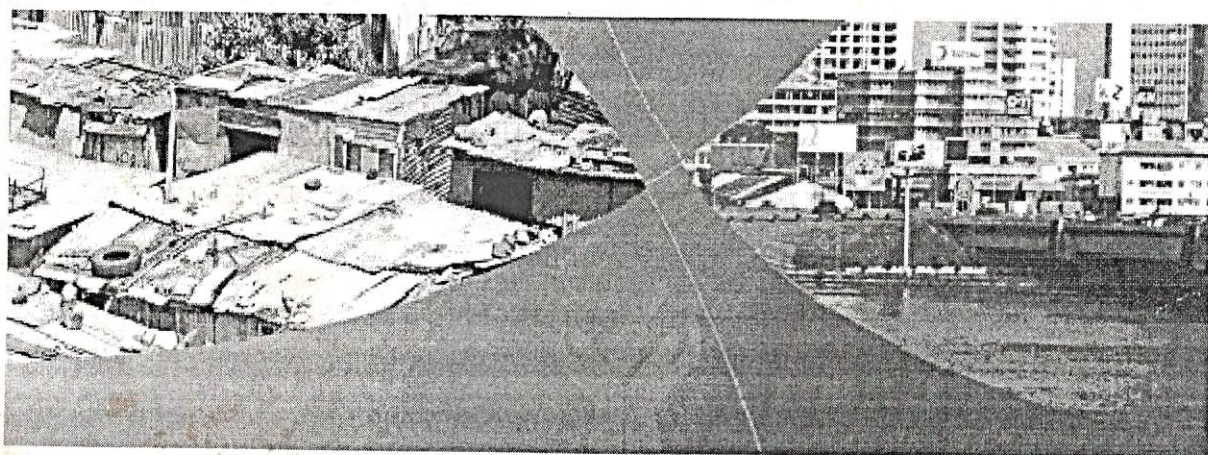


**SYMPOSIUM DE LA CEDEAO SUR LE DEVELOPPEMENT
ECOWAS SYMPOSIUM ON DEVELOPMENT**

Atelier / Workshop 4

Science and Technology as a Tool for Poverty Reduction and Socio-economic Development in ECOWAS Countries

Omobowale, Mobolaji Oluyimika



« Sortir du sous-développement : quelles nouvelles pistes pour l'Afrique de l'Ouest ? »

« To overcome under-development: which new ways for West Africa »

Ouagadougou (Burkina-Faso)

03 - 05 Octobre 2010

Science and Technology as a Tool for Poverty Reduction and Socio-economic Development in ECOWAS Countries

*Omobowale, Mobolaji Oluyimika**

ABSTRACT

Poverty reduction and economic development have been known to be positively correlated to technological development. On the other hand, studies have shown that government policies directly affect indigenous technological growth and this ultimately impacts the socio-economic well-being of a country. Even though blessed with abundant human and natural resources, Africa has for a long time been a dumping ground for foreign technology and this has stifled any possibility of serious technological growth that can reverse the trend. Economic models from Asian countries like China, India and South-Korea reveal a significant and positive correlation between indigenous technological growth and poverty reduction. To achieve any meaningful development for ECOWAS countries in the 21st century world, there is need for the creation of an enabling environment through favorable government policies and other incentives for indigenous technology to grow. This in turn would create jobs; ensure food security and sustainable development.

KEYWORDS: Policy, Poverty reduction, Economic development, Technological growth, Industrialization.

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1.0 Introduction

The prevalence of poverty has been always been a major issue in many Sub-Saharan African countries and successive governments have over the years attempted to find ways out of poverty and underdevelopment (UNCTAD 2002). This led to the formulation of different policies targeted at economic growth and development but sadly, the results have mostly been far too discouraging.

ECOWAS member states have all been buffeted by one economic/developmental problem or the other ranging from poor infrastructural development, inadequate health services, political instability, civil wars and such like. Figures 1, 2, 3 and 4 (Wikipedia 2010a-d) show the global ratings for “Human Development Index” and “Gross Domestic Product”, “Population Living Below National Poverty Line” and “Population Living Below \$2/day” respectively. ECOWAS countries rank low in all. Considering the abundance of human (manpower) and natural resources in the sub-region in comparison with the level of development, it is rather disappointing to note that ECOWAS countries are still in the group of under-developed nations.

It is a generally accepted fact that African problems would only be best solved by Africans and a very important avenue through which this goal could be achieved is “Technological Development” both indigenous and transferred. In the 21st century world, technology is highly linked with development (Jurica and Josip, 2006). Countries with lower technological output are at the mercy of those with higher and more sophisticated technology. Moreover, foreign exchange in international trade favours countries that are well positioned and industrialized enough to convert raw materials to finished products.

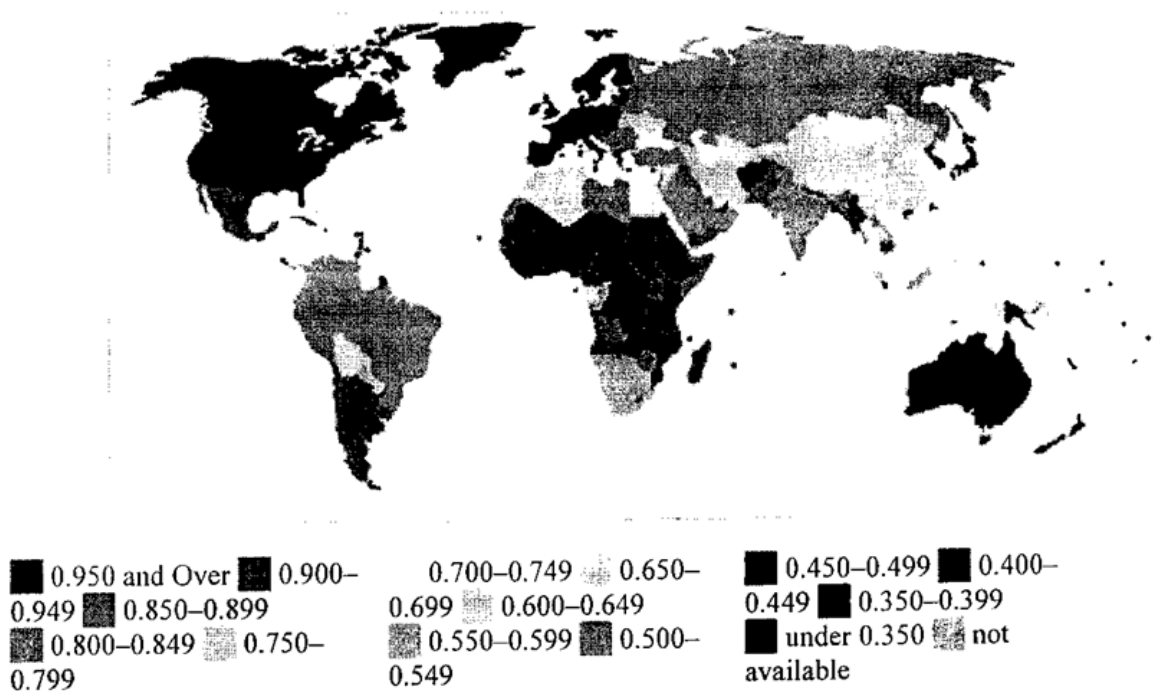


Figure 1: World map indicating Global Human Development Index (Source: Wikipedia 2010a)

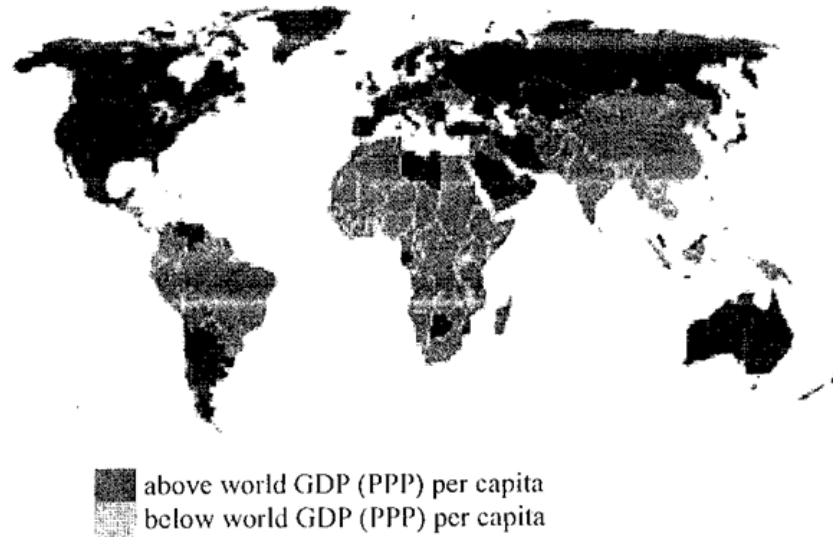


Figure 2: Countries above and below the world GDP currently at \$10,500 (Source: Wikipedia 2010b)

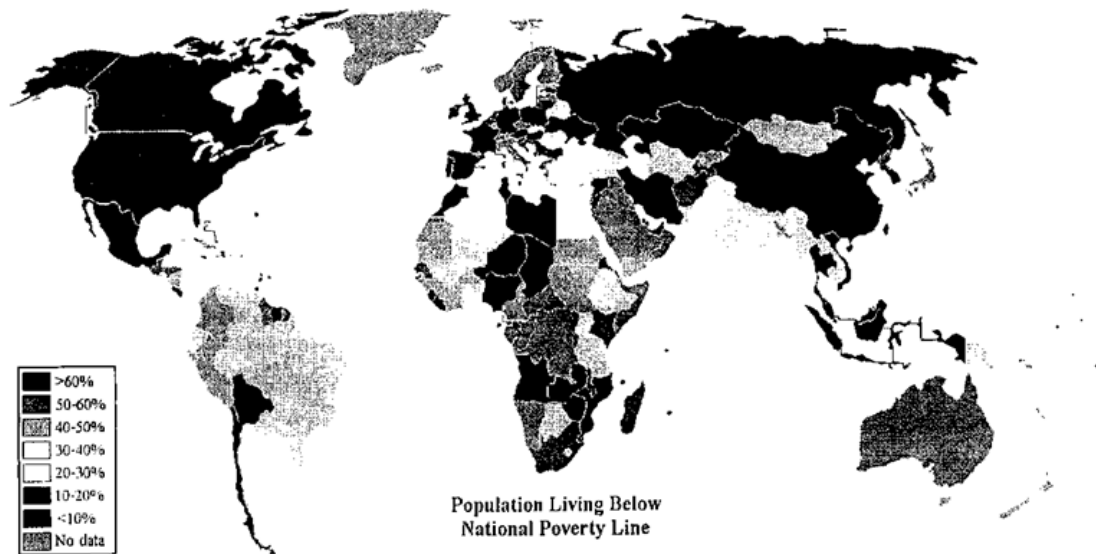


Figure 3: Population Living Below National Poverty Line (Source: Wikipedia 2010c)

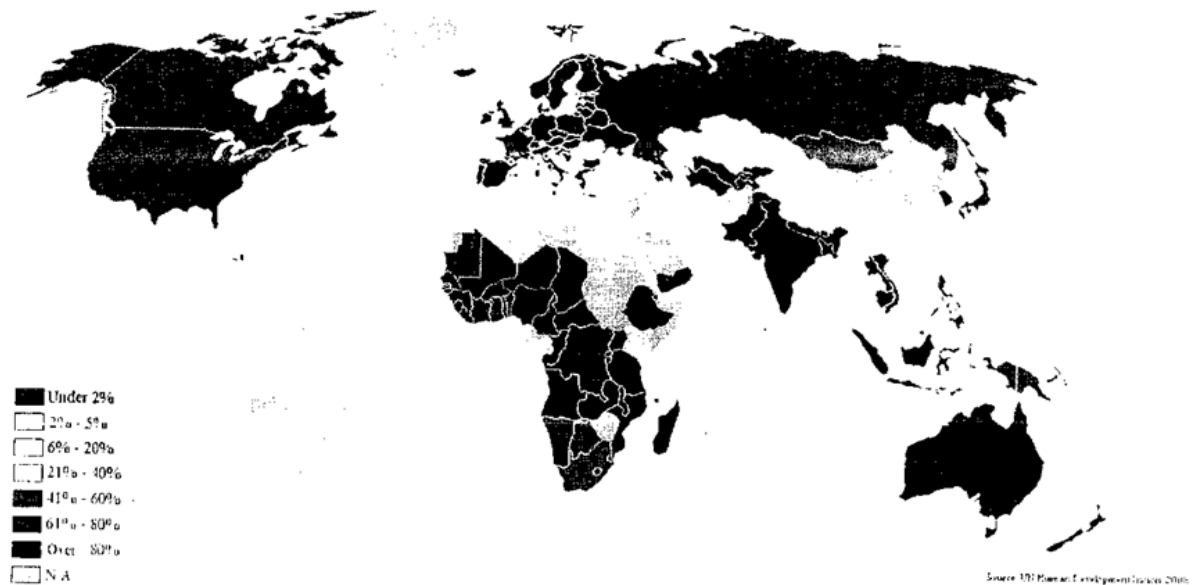


Figure 4: Population Living Below \$2/day (Source: Wikipedia 2010d)

Most ECOWAS countries and indeed, much of Africa are on the losing side of trade balance owing to the fact that technological development is still significantly low therefore, conversion of the abundant natural resources is restricted. Moreover, the level of industrialization is low as many infrastructural needs are not met. Consequently, Africa remains a dumping ground for old, obsolete and sub-standard technology (BAN, 2005; Wanjiku, 2007; Ratemo, 2010).

2.0 Role of Technology in Industrialization and Economic Development- Some Asian Models

Li-Hua and Khalil (2006) described technology as a combination of human understanding of natural laws and phenomena gathered since ancient times to fabricate or produce things that meets our needs and that can perform specific functions. Technology can either be indigenous or transferred. Indigenous technology refers to home-grown or native ideas and concepts which have been used to solve engineering problems. More importantly, indigenization of technology refers to a situation whereby specific processes are developed and used by native inhabitants of a country to meet local demands considering the peoples' economic, social and cultural status as well as the working environment (Ali and Park, 2009). On the other hand, transferred technology refers to those ideas or principles that was developed and perfected elsewhere but which has been adopted in another location to solve problems.

Moreover, Isehunwa and Falade (2005) defined technology as the systematic use of basic scientific expertise to utilize raw materials in meeting the needs of the society. They noted that technology is crucial for national survival and security as it

forms the basis of industrialization and development and it can also be employed as a tool for curbing poverty and improving international competitiveness.

Technological development contributes to and is a major driving force for economic stability, growth and independence (Adewoye, 2009; Ali and Park, 2009). For example, Mehta and Punekar (2007) noted that for a developing country to attain meaningful economic growth, indigenous technological advances are vital. Citing the 'Growth Theory', they stated that "technological progress and innovation is the greatest engine of economic growth". Moreover, Mehta and Punekar (2007) reported that countries seeking to become developed must out of necessity encourage a technologically driven economy aimed at making products and providing services which are better, more affordable and at a faster rate than others.

Sikka (1997) using India as an example, noted that indigenous technology is critical to a nation's economic development as it provides an enabling environment for innovation, growth, job creation, productivity and maintaining international competitiveness. He also reported that India since independence has invested a lot in scientific and technological research as the government accounts for over 80% of expenditure in research as well as putting policies in place to support home-grown technology. India is currently the second largest growing economy in the world with a GDP in excess of \$1 trillion and a population of about 1.2 billion people (Wikipedia, 2010e).

Similarly, Rongping (2003) reported that since the 1980's, China put in place a lot of policies which was targeted at the improvement and integration of science and technology with the economy. These policies directly impacted research in science and technology and this in turn improved the economy. Currently, China is one of the most industrialized countries in the world with a GDP of about \$4.9 trillion and a population of about 1.3 billion people. China is also the world's largest exporter of goods as it benefitted from both transferred and indigenous technology (Li-Hua and Khalil, 2006; Wikipedia, 2010f).

South Korea is also a good example of a developing nation that utilized technological development in attaining economic growth and stability. Chung (2005) reported that towards achieving economic growth as well as the eradication of poverty in South Korea, the government formulated policies since the 1960's which encouraged technological transfer and the assimilation and improvement of such transferred technologies. The resultant effect has been that South Korea has become one of the most industrialized nations in the world with a GDP in excess of \$900 billion and a population of only about 50 million people. It is also the world's ninth largest exporter of goods (Wikipedia 2010g).

In a study of the industrial and economic development of Japan and China with special regards to policy formulation and implementation in the area of technology, Fan and Watanabe (2006) reported that technological capability contributed significantly to both countries' growth. It was pointed out that government in the two countries intentionally promoted domestic or indigenous technological capability by putting in place, "*effective technology policies, balancing the import of foreign technology and indigenous development, and*

engaging business/private sector as a major force for improving technological capabilities”.

It is however sad to say that the level of technology, both indigenous and transferred is still significantly low in ECOWAS countries despite the fact that the human and natural resources necessary for growth is available. Moreover, this is reflected in their GDP as shown in table 1:

Table 1: 2009 Estimates of Population and GDP of ECOWAS countries

Country	Population (in millions)	GDP (in billion US dollars)	Real GDP (%) 2009
Benin	9	13	3
Burkina-Faso	16	9	5
Cape Verde	0.4	2	2
Cote d'Ivoire	20	36	3
Gambia	2	2	4
Ghana	24	36	5
Guinea	10	10	-1
Guinea-Bissau	2	1	4
Liberia	3	2	5
Mali	13	15	3
Niger	15	11	3
Nigeria	149	352	4
Sierra-Leone	5	5	2
Senegal	14	23	5
Togo	16	5	1

Source: Nwakego (2010)

3.0 Policy issues in Indigenous Technology Growth-the Nigerian Example

As it can be seen from the Asian models, Policy formulation and implementation can either make or mar a nation's economy/development. Nigeria as a developing country had its fair share of the effects of the interplay of these factors in its private sector growth and development. Whereas, some other developing countries like China, India and Korea have through consistent policy formulation and implementation developed their economies to the extent that they are now major

exporters of goods and services, same cannot be said of Nigeria. This because most policies implemented in the past did not achieve the overall purpose for which they were formulated (Onakuse, 2007). Moreover, application of indigenous technological capacity is still very low as there is high level of dependence on foreign technology and expertise even in some areas where it has been established that indigenous technology is either already available or that enough technological knowhow has been transferred to tackle problems (Isehunwa and Falade, 2005).

Example can be made of the “Cassava Initiative” of 2002, a recent policy in Nigeria which favoured industrial growth and improved the local economy of the country initially through foreign exchange earnings, job creation and indigenous technological development. However, its prospects were short-lived as a result of policy instability owing to a change in government leadership. The “Cassava Initiative” which was formulated to boost cassava production and processing for consumption and industrial purposes was announced by President Olusegun Obasanjo led government in July 2002. The initiative sought to generate about US\$5 billion in export earnings within 5 years (Philips *et. al.*, 2007).

Nigeria, being the highest producer of cassava in the world has the potential of earning a lot of foreign exchange from by-products of processed cassava which includes traditional food products, feed, food-grade flour, ethanol, starch and some other industrial chemicals. The programme was greeted with high hopes and expectations as many Nigerians went into cassava farming in all the cassava producing areas of the country. With a huge harvest in the horizon coupled with the need for immediate processing of harvested cassava, personnel in the agro-allied equipment fabrication industry had a huge demand on their hands for the construction of cassava processing machines. Consequently, jobs were created for farmers, agro-allied equipment fabricators as well as people involved in processing of cassava.

A key factor in the cassava initiative was the mandatory inclusion of 10% of cassava flour into all products from flour based industries. This created a huge local market for the producers. However, a change in government in 2007 made way for a drastic reduction in the percentage of flour included in flour based products to 5%. This created a major setback for the stakeholders. (Hassan 2009) Even though the initiative has not been officially phased out, the kind of drive it had at the time of the administration that started waned considerably when the new government took over. Experts from the International Institute for Tropical Agriculture made it known that even though cassava production increased from 23 million metric tons in 2002 to about 49 million metric tons in 2008, inconsistent government policy became an obstacle to the ideals of the initiative and was indeed a disaster to the progress made initially (Hassan 2009).

4.0 The Way Forward

Considering the above-mention facts, and drawing lessons from the experiences of other emerging world markets, it is highly recommended that the following suggestions should serve as a guide towards formulating and implementing

policies/vision statements targeted at poverty reduction as well as economic revival and development in ECOWAS countries:

- i. Vigorous approach towards identification and improvement of indigenous technology;
- ii. Systematic approach towards encouraging transfer of both simple and advanced foreign technology;
- iii. Proper funding for highly innovative science and technology research as a driving force towards economic policy formulation;
- iv. Consistency in implementing government policies
- v. Cross-linkage of ideas and innovations from all countries in the ECOWAS sub-region;
- vi. Creation of an enabling environment for the purchase of locally produced goods.

5.0 Conclusion

The United States Agency for International Development (USAID) in 2010 pointed out that the two major factors hindering development in Nigeria are “deeply entrenched poverty and unemployment”. Similarly, many other African countries still survive on foreign aids and loans, an action that mortgages the futures of the African populace. It is therefore imperative to note that ending poverty and underdevelopment in ECOWAS countries can be achieved through effective research and development of technology in the sub-region, both indigenous and transferred. Policies which would create suitable and favorable conditions to enhance technological development should be formulated and effectively implemented as this would ensure a speedy reversal of the current situation of widespread poverty and economic depression.

REFERENCES

- Adewoye (2009): Contemporary Issues in Sustainable Development-Challenges of Science, Technology and Innovation in Sustainable Development: Lessons for Nigeria, The Post-graduate School, University of Ibadan, Nigeria, pp. 1-29.
- Ali M. and K. Park (2009): The Spiral Model of Indigenous Technological Innovation Capabilities for Developing Countries; 6th International Student Conference, Izmir University of Economics, Izmir Turkey.
- Basel Action Network, BAN (2005): High Tech Toxic Trash Exported to Africa; <http://www.minesandcommunities.org/article.php?a=1816>, Date Accessed: 20/06/2010.
- Chung S. (2005): Technology Innovation and Economic Growth, the Korean Experiences; World Bank Workshop. http://info.worldbank.org/etools/docs/library/144056/Technology_Innovation_and_Economic_Growth.pdf, Date Accessed: 12/05/2010
- Fan P. and C. Watanabe (2006): Promoting industrial development through technology policy: Lessons from Japan and China; Journal of Technology in Society, Vol. 28 Issue 3, pp. 303-320.
- Hassan T.A. (2009): National Cassava Initiative: Gone with the wind?; Daily Trust Newspaper online Edition, <http://news.dailytrust.com/index.php?option>, Date Accessed: 14/05/2010.
- Isehunwa S.O. and G.K. Falade (2005): Framework for Sustainable Indigenous Technology Development and Capacity Building in Nigerian Petroleum Industry; Paper delivered at the Annual International Conference and Exhibition of the Society of Petroleum Engineers, <http://www.onepetro.org/mslib/servlet/onepetropreview?id=SPE-98835-MS&soc=SPE>
- Jurica S. and T. Josip (2006): Historical Perspective of the Role of Technology in Economic Development; University of Zagreb, Faculty of Economics and Business Working Paper Series (Paper No. 06-10).
- Li-Hua R. and T.M. Khalil (2006): Technology Management in China: a Global Perspective and Challenging Issues; Journal of Technology Management in China, Vol. 1 No. 1, pp. 9-26.
- Mehta S. and R.M. Punekar (2007): Exploring Indigenous Innovations: Ascertaining the Scope for Design Interventions for their Successful Commercialization,

- <http://shashankmehta.com/Research%20Papers%20pdfs/Exploring%20Indigenous%20Innovations%20-%20Ascertaining.pdf>. Date Accessed: 10/06/2010.
- Nwakego L.E. (2010): Potential of ECOWAS Economic Community in Africa; <http://www.afrbiz.info/?p=3804>. Date Accessed: 24/05/2010.
- Onakuse S. (2007): Policies, Programmes and Sustainable Development in Nigeria-A Critique; *Africana Journal*, Vol 1 No. 1, pp 41-45.
- Phillips T.P., D.S. Taylor, L. Sanni and M.O. Akoroda (2007): A Cassava Industrial Revolution in Nigeria-The Potential for a new Industrial Crop; IFAD and FAO Global Cassava Development Strategy, <ftp://ftp.fao.org/docrep/fao/007/y5548e/y5548e00.pdf>, Date Accessed: 16/05/2010.
- Ratemo J. (2010): Is Kenya a technology dumping ground?; <http://www.ictcradle.com>; Date Accessed: 12/05/2010.
- Rongping (2003): Development of Science and Technology Policy in China; http://www.nistep.go.jp/IC/ic040913/pdf/30_04ftx.pdf, Date Accessed: 16/05/2010
- Sikka P. (1997): Financing the Development and Commercialization of Indigenous Technology in India; *Journal of Current Science*, Vol. 73 No. 5, pp. 406-410.
- UNCTAD (2002): Economic Development in Africa-From Adjustment to Poverty Reduction: What is New?; <http://www.unctad.org/en/docs/pogdsafricad2.en.pdf>, Date Accessed: 12/05/2010.
- USAID (2010): Sub-Saharan Africa-Nigeria (Overview); http://www.usaid.gov/locations/sub-saharan_africa/countries/nigeria; Date Accessed: 15/05/2010.
- Wanjiku R. (2007): Is Africa a Dump for Electronic Waste?; <http://beckyit.blogspot.com/2007/06/is-africa-dump-for-electronic-waste.html>, Date Accessed: 23/05/2010.
- Wikipedia (2010a): "Human Development Index"; http://en.wikipedia.org/wiki/Human_Development_Index, Date Accessed: 17/05/2010.
- Wikipedia (2010b): "Gross Domestic Product"; http://en.wikipedia.org/wiki/Gross_domestic_product, Date Accessed: 17/05/2010.
- Wikipedia (2010c): List of Countries by Percentage of Population Living in Poverty; http://en.wikipedia.org/wiki/List_of_countries_by_percentage_of_population_living_in_poverty, Date Accessed: 17/05/2010.

Wikipedia (2010d): Percentage population living on less than \$2 per day 2009; [http://en.wikipedia.org/wiki/File:Percentage_population_living_on_less_than_\\$2_per_day_2009.png](http://en.wikipedia.org/wiki/File:Percentage_population_living_on_less_than_$2_per_day_2009.png), Date Accessed: 17/05/2010.

Wikipedia, (2010e): 'India'; Wikipedia Encyclopedia, <http://en.wikipedia.org/wiki/India>

Wikipedia, (2010f): 'China'; Wikipedia Encyclopedia, <http://en.wikipedia.org/wiki/China>

Wikipedia (2010g): "South Korea"; http://en.wikipedia.org/wiki/South_Korea, Date Accessed: 17/05/2010.