GLOBALIZATION AND AFRICAN ECONOMICS

Arto Lahti

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1 THE GLOBAL INSTITUTIONS OF PEACE AND STABILITY

1.1 The failure of the world government will hit the poor

Since the World War II[1], the United Nations has had the responsibility for the collective security in our globe. The UN Charter Chapter VII sets out the UN Security Council's powers to maintain peace. The most famous article 42 allows the Council to determine the existence of any threat to the peace, breach of the peace, or act of aggression and to take military and non-military action to restore international peace and security. The UN Charter's prohibition of member states of the UN attacking other UN member states is central to the purpose for which the UN was founded. Theoretically, the UN Charter relies on John Lockes' ideas that postulate social contracts, first among citizens in order to establish an organized political community (state), and second between citizens and rulers about the transfer of power from the former to the latter, defining their mutual rights and obligations[2].

The UN Charter established a constitutional-like order among member states that is governed by the rule of law and viewed as legitimate by all its member states. The UN Charter is based on the assumption that policies of assertive multilateralism promotes better international order and stability than what would exist under traditional balance-of-power politics. The UN Security Council[3] is the organ charged with maintaining peace and security

[1]This conflict split a majority of the world's nations into two opposing camps: the Allies and the Axis and resulted in the deaths of 60 million people. More than 100 million military personnel from 61 nations were mobilized. However, nearly two-thirds of those killed in the war were civilians.
www.en.wikipedia.org/wiki/World_War_II
[2]Clark, Grenville and Sohn, Louis (1966) World Peace Through World Law: Two Alternative, Cambridge, Mass: Harvard University Press.
[3]The Security Council is made up of 15 members. The permanent members (China, France, Russia, the UK and the U.S.) hold veto power over substantive but not procedural resolutions. Ten temporary seats are held for two-year terms with members voted by the UN General Assembly.
www.en.wikipedia.org/wiki/United_Nations_Security_Council

among nations. The decisions of the Council are known as UN Security Council Resolutions. The legally binding nature of resolutions is the subject of continuous controversy. In the case when the Council cannot reach consensus a resolution, it is possible to produce a Presidential Statement that is non-binding in its nature. This kind of complex decision-making is the reason why the UN Charter has been difficult to empower.

In the 80s, the end of the Cold War raised expectations that the so called new world order could eliminate new wars. The time of hegemonic wars of superpowers was over. The problem that still remains is that international conflicts are dramatic and episodic. There are no more traditional wars but terrorism. In the 80s, the Balkan crisis escalated into ethnic cleansing. Since then, there were many multilateral interventions, both by the UN/ EU and by the NATO. The massive interventions by the US and its NATO allies in Bosnia and Kosovo conflicts are examples of military operations through which third parties intervene in civil conflicts to stop the fighting[4]. The problem is that the multilateral intervention of the UN has not prevented militarization and human rights violations. The Serbian government's actions in Kosovo followed the same pattern that was applied by Serb forces in Bosnia[5]. The Serbian government repeated its historical pattern of military actions, and the UN acts in Bosnia can be classified as catastrophic.

Contrary to popular belief, little actual intervention took place. There was a clear contrast between the firm rhetoric of the Security Council resolutions and actions. When enforcement did take place, it was the NATO that acted, not the UN. The reason was the same as many times earlier. The Security Council is reluctant to punish its members of aggressions against civilians. The veto power of permanent members seems to paralyze the decision-making of the Security Council. The interdependencies of the UN member states seem to weaken their capacity to deal with civil conflicts. The UN has simply been unprepared for the complex conflicts like the organised mass murders that characterised the last decades. The legitimacy of the UN to intervene in humanitarian crises is highly dependent on its member states that exercise the legitimate power over their own territories[6]. A new kind of international governance, especially in the field of the protection of human rights is necessary[7].

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[4] Regan, Patrick M. (2002) Civil Wars and Foreign Powers: Outside Intervention in Intrastate Conflict, University of Michigan Press.
[5] Pevehouse, Jon and Goldstein, Joshua (1999) Serbian Compliance or Defiance in Kosovo? Statistical Analysis and Real-Time Predictions, Journal of Conflict Resolution 43, pp.538-546.
[6] Weber, Max (1946) Science as a Vocation, in Gerth, Hans and Mills, Wright (eds.) From Max Weber: Essays in Sociology, Oxford University Press, New York.
[7] On 21 March 2005, UN Secretary-General, Kofi Annan, released his report “In larger freedom: towards development, security and human rights for all”.

The People's General Assembly of the UN has often indicated a consensus that the time is ripe for reformulating the UN's rules of the game. These top-down approaches is more efficient[8]. Some of the UN's organizations, e.g. UNESCO, have succeeded well in networking with non-governmental organizations, NGOs[9]. Relying on its vital principles of human rights and sustainable development, the UN is particularly suited to integrating discrete groups into an international collaboration in institution building. Due to the increasing number of intra-state wars, the nature and means of international peace and democracy missions have changed. In complex intra-state wars not only military interventions are needed but multidisciplinary operations which include a wide range of civilian tasks, from coordinating humanitarian assistance and human rights monitoring to supporting institution building. NGOs not only address vital issues of the world environment, human rights, religious conflicts, migration, and refugees, but also have created new methods of collaboration over borderlines. Interventions to a state in crisis can be unilateral (one state takes action) or multilateral (such as UN or NATO action). There are certain conditions[10] associated with multilateral interventions that will increase the likelihood of success.

An alternative model to multilateral legitimacy is the model of dominance. For many years to come, the U.S is the only one reaching the status as a military superpower with global reach, although China and India are expected to be formidable economic powers in the future. The EU is walking in the shadow of the US and the NATO as long as its member states can implement their political union (the Lissabon treaty) as a necessary condition for conducting a single foreign and security policy. Max Boot[11] has noticed that the small war has further strengthened the U.S. position as the world police. The U.S. military force is the only option in regions where diplomatic or economic incentives fail to persuade (e.g. Irak and Afghanistan conflicts). Boot sees the U.S. as an altruistic agent in international affairs that is solely responsible for the collective security in our globe. The Pax Americana can be seen as a parallel concept with the Pax Romana and the Pax Britannica. However, the Pax Americana contains

[8] Falk, Richard, Ruiz, Lester, and Walker, R.B. J. (editors) (2002) Reforming the International: Law, Culture, Politics, New York, Routledge.
[9]Since the World Summit on Social Development at Copenhagen (6 - 12 March in 1995) at Copenhagen, the U.N. itself has fully recognized the persuasive power of NGOs.
[10]Patrick Regan identifies three historically rooted conditions: mutual consent of the parties involved, impartiality on the part of the intervenors, and the existence of a coherent intervention strategy. Patrick M. Regan (2002) Civil Wars and Foreign Powers: Outside Intervention in Intrastate Conflict, University of Michigan Press.
[11] Boot Max (2002) The Savage Wars of Peace: Small Wars and the Rise of American Power, New York: Basic Books.

return to the UN norms: the peace-keeping, peace enforcement, and humanitarian missions.

Unlike the model of world government, the model of global policy networks is not based on any political doctrine. The network model can be seen as a reflection of new trends in international relations that shows fragmentation of formerly unitary state structures. The recent appearance of NGOs, such as the Greenpeace or the World watch, in practically all spheres of interest can be interpreted to signal the dynamics in international cooperation. Some NGOs can be harmful to the G8 countries and multinationals, but these organizations, such as The People-Centered Development Forum[12] utilize the power of international media to signal worries about globalization and sustainability[13]. A good reason to favour the network-based and bottom-up approach is the fact that the most formidable, global networks like Attac[14] use this approach. Global networks exchange information and coordinate activity to combat crime and address common problems on a global scale. A New World Order can only be based on the network or bottom-up approach instead of the top-down one[15].

Since the 1990s, when the Balkan crises erupted, the EU has been trying to make the transition from reacting to crises on an ad hoc basis, to anticipating and preparing for such crises. The EU has strengthened the civilian side of conflict management. A key issue is the training and rapid deployment of qualified civilians. The EU has established civilian crisis management capabilities in police, civilian administration, rule of law and civil protection. The EU challenge is to link the institutional approach to the network approach of governance. The EU's special resources and its unique legitimacy as representative of the common interest makes it the outstanding candidate for fulfilling the role of network manager, a role which means arranging and facilitating interaction processes within networks in an open, transparent and balanced manner[16]. The EU brings together the states and societal actors for mobilizing pan-European flows of ideas, knowledge, funding, and people. Attention is given to NGOs[17]. State

[12] www.pcdf.org/
[13]See Korten, David (1995) When Corporations Rule the World, London.
[14] www.attac.org/
[15] Anne-Marie Slaughter points out that not only terrorists, arms dealers, drug dealers, traffickers in women and children, as well as the pirates of intellectual property operate through global networks; government officials, such as police investigators, financial regulators, and even judges and legislators, also work in such networks. Slaughter, Anne-Marie (2004) A New World Order, Princeton, NJ: Princeton University Press.
[16]Kickert, Walter J.M., Klijn, Erik-Hans & Koppenjan, Joop F. M. (1997) Managing Complex Networks: Strategies for the Public Sector, Sage Publications Inc.
[17]Fisher, William F. (1997) Doing Good? The Politics and Antipolitics of NGO Practices, Annual Review of Anthropology, Vol. 26: 439-464.

and civilian actors are involved in networks ranging from the EU-level to decentral sub-national levels in the member states.

In Africa, the major obstacle of institution building is the local armed conflicts[18]. Small arms are the weapons of mass destruction of the poor. The terror over civilians has had a great destructive influence on political and social structures in Africa. The reasons for armed conflict vary. There is a clear need for better analysis of the root causes of conflict and of the early signs of an emerging conflict[19]. In some countries, the government has failed to govern. These governments are unable, or unwilling, to provide security and basic governmental services in their territories. Failed states are first and most humanitarian disasters, where the main victim is the population. Increases in population, collapsing economies, increasing poverty, environmental degradation, injustice, and foreign debts are typical reasons to failed states that are also becoming increased threat factors to international peace and security. Despite all the technological advances, it appears that military means are not any more reasonable to be used. The civilian crisis management initiated by the EU is the best option.

1.2 The neo-liberalism and welfare of the nations

In the Western countries, a Keynesian macroeconomic theory and a social democrat or a Christian democrat ideology dominated since the war until the 1970s. States had strong roles in the economy and major parts of markets were regulated. When the International Monetary Fund, the IMF and the World Bank were created at Bretton Woods in 1944, their mandate was to lend for reconstruction and development of states. The IMF was meant to stabilize currencies and to help countries to avoid economic crises. The World Bank's mission was to finance long-term investments in developing countries, to expand and strengthen their economies. The main instrument is loans for development project and infrastructure investments

[18] During the 1990's, there were 111 armed conflicts in 74 locations. Half of these were major conflicts (more than 1000 battle related military deaths). Conflict has directly killed more than 2.5 million people in the last decade, and displaced and uprooted over ten times this number (31 million people). Wallensteen, Peter and Sollenberg, Margareta (2001) Armed Conflict, 1989-2000, Journal of Peace Research, Vol. 38, No. 5, 629-644, Department of Peace and Conflict Research, Uppsala University.

[19] There are many factors which are early signals of potential conflict: Poverty, economic stagnation, uneven distribution of resources, weak social structures, undemocratic governance, systematic discrimination, oppression of the rights of minorities, refugee flows, ethnic antagonisms, religious and cultural intolerance, social injustice, the proliferation of weapons of mass destruction and small arms. www.ec.europa.eu/world/peace/geographical_themes/conflict/index_en.htm

at low interest to correct for the deficiencies of financial markets. In the three decades after the war, the IMF and the World Bank were appreciated as progressive organizations and loyal allies to the poor countries. In the 80s, their policy was opposite to that. Instead of helping countries to protect themselves, they began to work against obstacles to the market liberalization.

The IMF and the World Bank are blamed to be far too neo-liberalistic. According to neo-liberalism, market exchange is an ethic in itself, capable of acting as a guide for all human action[20]. Neo-liberalism is not a force like gravity but an artificial construct[21]. Friedrich von Hayek, the economist and his student Milton Friedman at the University of Chicago can be classified as contemporary neo-liberals. The Chicago school has succeeded to build an ideological cadre that has taken the hegemony in the IMF and the World Bank in which the U.S. is the major shareholder. The Chicago school has made neo-liberalism to seem as if it could be the normal condition of humankind. Two politicians have often been mentioned as fore pokers of neo-liberalism. In 1979, when Margaret Thatcher came to power, she undertook the neo-liberal revolution in Britain. Thatcher's doctrine is based on the notion of competition. For her the market is the standard solution to increase efficiency. Ronald Reagan was the one whose neo-liberal doctrine made the Chicago school possible to takeover the IMF and the World Bank. Reagan is the president who changed the U.S. income distribution totally[22]. As the result, the U.S America is now one of the most unequal societies.

A central element of the neo-liberalism is the downsizing of public sector**.** Privatization was started from Britain and spread throughout the world. In reality, most of the public services constitute natural monopolies[23]. A public service producer often has the optimal size and the lowest possible costs to consumers. Public services require large investments. Public monopolies have not been inefficient because of the public ownership as neo-liberals claim. When a natural monopoly is privatized, the new capitalist owners tend to impose monopoly prices and lower quality on the public services. This kind of structural market failures has earlier been prevented in the EU by state-owned monopolies. Privatization favours capital and moves wealth

[20]Harvey, David (2005) A Brief History of Neoliberalism, Oxford, UK: Oxford University Press.
[21]Susan George claims that we need workable international taxation, including a Tobin Tax on monetary market transactions, Susan George, A Short History of Neoliberalism, Conference on Economic Sovereignty in a Globalising World March 24-26, 1999.www.globalpolicy.org/globaliz/econ/histneol.htm
[22]In the 1990s, the extremely lucky top 1 % of American families could thank Reagan for a 50 % increase. A decade later, the top 1 percent was 115 times as well off as the bottom decile. Phillips, Kevin (1990) The Politics of Rich and Poor, Basic Books.

from the bottom of society to the top[24]. In the developing countries, state-owned monopolies are often the only way to build up the infrastructure for the public services. The state is the only one that can take the risk of lending from the global financial markets.

There is a global trend to greater inequality. The ideological justification for such measures is that higher disposable incomes for the already rich and higher profits will stimulate investments and provide more jobs and welfare. The only result of greater inequality has been disruptive stock market bubbles and financial crises of poor countries. The neo-liberalistic policy of the IMF and the World Bank has deepen crises by downsizing of the public sector and thereby, decreasing domestic market demand. The IMF need to promote international cooperation to make it possible for people in local communities to control their own economic lives[25]. The WTO established in 1995 trumps for free trade. The original mission was different[26]. Developing countries are disappointed at the WTO's failure to create fair rules in international trade[27], the most serious case is agriculture[28]. Some sociologists have claimed that the WTO is the major obstacle of the global justice[29]. The industrialized countries prefer to have bilateral free trade agreements (FTAs) to win market accesses for more favourable rules. This approach is called competitive liberalization. The EU has used bilateral deals as stepping stones to future multilateral agreements. Bilateral agreements are vital for Africa, the Caribbean and the Pacific to maintain their access to the EU and U.S. markets in a form that is compatible with the WTO rules.

A problem area is intellectual property rights, IPRs that are the most critical in the areas of life-saving medicines and seeds of genetically modified products (GMOs) meant for farmers. The liberalization of science-based products and digitalized services in FTAs threaten to drive local firms out of business, reduce competition, and extend the monopoly power of

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[23]A natural monopoly exists when the minimum scale of operations equal the actual size of the market.

[24] In Finland, Fortum, the vertically integrated and state-owned monopoly in electricity production was privatized in the beginning of the 2000s. The result was twice higher prices for consumers and huge options for the managers.

[25] A report released by the Independent Evaluation Office (IEO) of the IMF criticises the role of the IMF in managing aid inflows to Sub-Saharan Africa www.brettonwoodsproject.org/institution/ieo/index.shtml

[26] The WTO is based on John Maynard Keynes's ideas. Keynes uses the name the International Trade Organisation (ITO), supported by an international central bank, the International Clearing Union (ICU). www.progecon.wordpress.com/tag/wto/

[27]Ikenberry, John (2001) After Victory: Institutions, Strategic Restraint, and the Rebuilding of Order after Major Wars, Princeton, N.J.: Princeton University Press.

[28]Farmers in Africa that have difficulties to compete against subsidies in the U.S. and the EU, which has threaten the livelihoods of millions of people dependent on farming in West and Central Africa www.irinnews.org/report.aspx?reportid=57400

multinationals[30]. A risk is how to guarantee poor people's access to essential public services. The US policy is neo-liberal and opens up public utilities in developing countries to foreign investors if the sector is opened to domestic private firms. The US and the EU are pursuing regional and bilateral free trade agreements through FTAs that makes poor countries difficult to get a foothold in global markets. Although developing countries have proved themselves increasingly assertive at the WTO and in FTAs, the balance of power in current negotiations is in favour of rich countries and multinationals. Entrepreneurship is the only way to poor countries to reduce the negative implications of financial volatility, to enlarge democracy, and thereby, to defend human rights and environmental sustainability.

1.3 The EU: The crisis management as an instrument

The EU Council meeting in Helsinki in 1999 marked a breakthrough. The Council decided to establish a European military capacity to undertake the full range of so-called Petersberg tasks incorporated within the European Security and Defence Policy, the ESDP. The EU will deploy 60.000 soldiers in less than 60 days and to sustain them for at least one year and to complement and reinforce the NATO response force. The EU's aim is to launch an operation within 5 days of the approval of a crisis management action and to have forces ready to implement their mission on the ground within 10 days of a decision. In 2000, the EU Council in Nice accepted foundations for the ESDP according to the French initiative. The EU has confirmed its policy to carry out the whole range of crisis (military and civilian) management tasks in Headline Goal 2010[31]. Action Plan for the ESDP specifies a broader range of expertise in crisis management missions. The EU prerequisites appropriate policies and policy tools, and well–defined relations with other intergovernmental organizations, IGOs mainly the UN[32].

Since its creation, the EU has engaged in conflict prevention. The EU uses all aspects of its external policy to prevent conflicts in the world, strongly advocating an early tackling of the potential structural causes of violent conflict. The EU tries to learn of the history. The European security context

[29] Korten, David (1995) When Corporations Rule the World, London.
[30] In some countries like Mexico "liberalized" services are owned by over 80 per cent by multinationals, most of them are US-owned.
[31] They approved by General Affairs and External Relations Council on 17 May 2004 endorsed by the European Council of 17 and 18 June 2004.
[32] Deighton, Anne (2002) The European Security and Defence Policy, Journal of Common Market Studies, Volume 40.

was transformed by the Cold War, the time when the NATO and the Warsaw Pact[33] divided Europe into two blocks. The NATO's European members worked actively to guarantee their own security by the Western European Union, the WEU[34]. Binding the destinies of the two continents in the Washington Treaty in 1949, the US took the undisputed hegemony in the NATO. Because the US was striving for the global leadership[35], it was reluctant to be properly involved in the European security. The crises in Balkan brought about collapsed states[36]. The NATOs and the UN could not prevent the escalation of crisis. The EU's Civil Crisis Management (CRM) is meant for collapsed states to guarantee a quick return to a normal civilian administration. EU's CRM is parallel to the UN's peace operation. The NATO's crisis management and conflict prevention are much narrower than EU's concept that includes civilian capabilities in the four areas: police, rule of law, civilian administration and civil protection. The EU is a global actor. The EU affirms the role of supporting an international order based on multilateralism within the UN. The EU's focus is the CRM.

Compared with the top-down-approach of the UN and the NATO, the EU relies on the network or bottom-up approach. To act fast and effectively, the EU has developed an early warning and rapid reaction system to spot regions in the world where tensions are rising. By an early identification, the EU has a better chance of taking effective action to address the underlying causes of conflict[37]. The EU's own agency in CRM operations is the OSCE, Organisation for Security and Co-operation in Europe[38] that has an extensive field presence, allowing a rapid response regardless of its consensus-based decision-making system. The OSCE has developed an in-house capacity in areas like terrorism as a part of the tool box[39].The CRM experts are not only state experts but those with relevant experience and

[33] Treaty of Friendship, Co-operation and Mutual Assistance between the People's Republic of Albania, the People's Republic of Bulgaria, the Hungarian People's Republic, the German Democratic Republic, the Polish People's Republic, the Rumanian People's Republic, the Union of Soviet Socialist Republics, and the Czechoslovak Republic, May 1, 1955.
[34] Sloan, Stanley (2000) The United States and European defence, Chaillot Papers 39, Institute for Security Studies of WEU.
[35] Cook, Don (1989) Forging the Alliance, *1945-1950,* London: Secker & Warburg, Chapters 9-11.
[36] Milliken, Jennifer (2003) State Failure, Collapse and Reconstruction, Oxford, Malden, Blackwell Publishing.
[37] Lindblom, Lina (2004) Democracy and the Evolution of a Culture of Prevention, Lessons from Guatemala 1993-2003.
www.pcr.uu.se/publications/Minor%20Field%20Study%20reports.htm
[38] The OSCE with its 55 member states succeeds the permanent Conference on Security and Cooperation in Europe (CSCE).
[39] The OSCE has improved and simplified its own management, based on IT off-the-shelf systems, and increased reliance on accountability and responsibility. Within the system, responsibility is delegated to fund managers, heads of missions,

special knowledge. These persons are not easily available for the short-term deployment in international missions. They have their own duties, and they may have little incentive to volunteer for dangerous operations. These persons need to be equipped and requited for international missions[40]. A challenge is to develop a database of trainers from governmental organizations and NGOs that could be mobilised at short notice.

Different organizations, both IGOs[41] and NGOs[42], should engage in a closer cooperation in the future to share the vast experiences that have accumulated over years. The EU Council reports that the CRM mechanism is both increasingly important and becoming more demanding[43]. Although the EU has a number of well-documented successful CRM cases in recent years, still more effort is needed to boost the involvement globally. The major problem is monetary resources allocated in the ESDP and, especially the mission of globally influential CRM. The ESDP is significantly short of funds. It is indeed urgently necessary to increase the ESDP budget and to strengthen national parliamentary scrutiny in this area. The ratification of the Constitutional Treaty gives the EU the instruments it needs to become a global player. The EU must be able to act before a crisis occurs. The EU must retain the ability to conduct concurrent operations thus sustaining several operations simultaneously at different levels of engagement.

The Crisis Management Initiative (CMI)[44] is a NGO aimed to respond to new security challenges by enhancing the conflict prevention and crisis management capacity of the international community[45]. The CMI's strength is its network of politicians, international organisations, firms, research institutes, and individuals. The CMI's mission is to bring together the

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heads of institutions, and to people on the ground. www.cmi.fi/files/background_paper_3_2006.pdf

[40] To better collaboration, the EU will establish: an EU-NGO peace-building advisory group and the Civilian Response Team (CRT) and operational guidelines. Gourlay, Catriona, Feasibility Study on the European Civil Peace Corps. www.isis-europe.org/ftp/download/ecpcstudy%20fortheweb.pdf

[41] An intergovernmental organization (IGO) is an organization, such as the European Community, the World Trade Organization, African Union and Nordic Council of Ministers, with sovereign states or other IGOs as members. Such organizations function according to the principles of intergovernmentalism, which means that unanimity is required. www.en.wikipedia.org/wiki/Non-governmental_organization

[42] The term non-governmental organization (NGO) is used in a variety of ways, depending on the context in which it is used, can refer to many different types of organizations. The number of internationally operating NGOs is 40,000. www.en.wikipedia.org/wiki/Non-governmental_organization

[43] Civilian aspects of the ESDP - reply to the annual report of the Council, DOCUMENT A/1929, June 2006.

[44] www.cmi.fi/files/background_paper_3_2006.pdf

[45] CMI's founder, President Martti Ahtisaari, is the Chairman of the Board, and Ambassador Jaakko Iloniemi is the President of CMI.

relevant actors. The International Peace Academy (IPA)[46] is another NGO dedicated to promoting the prevention and settlement of armed conflicts between and within states through policy research and development. The IPA works closely with the UN, regional and other international organisations, governments, and NGOs, as well as with parties to conflicts in selected cases. Its efforts are enhanced by its ability to draw on a worldwide network of government and business leaders, scholars, diplomats, military officers, and leaders of civil society.

The current international response to crises is ineffective and there is a need to develop a better civilian toolset for the international community to deal more professionally and effectively with failed states and post-conflict societies. Poor governance and the lack of rule of law are the root causes of conflicts. To avoid "reinventing the wheel", it was argued that some kind of a basic strategic framework, adaptable to different situations, should be developed, taking the advantage of information technology[47].

[46]www.cmi.fi/files/background_paper_3_2006.pdf

[47]Dr. Robert Orr, Executive Director, Belfer Center for Science and International Affairs, John F. Kennedy School of Government, Harvard University, argued that there is no support system for political facilitation. The international community relies on supermen to be the strategic actors that rearrange the pieces and get all local parties to pull the hardest for a peaceful resolution. There is no ready international constabulary, nor adequate policing resources to deploy; there is no cadre of deployable civil administrators, nor tools, nor methodologies for building civil administration capacity. www.cmi.fi/files/background_paper_3_2006.pdf

2 AFRICA AND EMERGING GLOBAL ECONOMY

2.1 Overview on the international trade in Africa

Globalization is a modern word for a process that has been going on for centuries. Advances in transportation and communication have increased economic integration. Technologies as the container system and the Internet has lowered trade barriers and eased the movement of goods, services and capital. The rapid growth in financial flows over boarders, particularly private equity and portfolio investments, is, the symbol of globalization. Globalization has also meant expansion, diversification and deepening of trade and financial links between countries, especially over the WTO-time. This is a result of multilateral tariff reduction and trade liberalization. As the crises of the 1990s in Mexico and Asia demonstrated, globalization is threatening, not only to the UN and the WTO but to all kinds of national market institutions and political systems. Since the 1960, the growth of international trade in goods and services has been twice as fast as global output (GDP). The positive result is that developing countries as a whole have increased their role in world trade to about 30 %[48].

Globalization has brought lower prices to consumers all over the world, and investment and employment to newly industrializing countries. China and India have increased their exports rapidly. Other Asian countries follow the same pattern. In the near future, Asia is heavily industrialized and attracts jobs from other continents. This has raised a public concern of the least developed countries, LDCs[49], which lag behind as the rest of the world

[48] The Challenges of Globalization for Africa, Address by Alassane D. Ouattara, Deputy Managing Director of the International Monetary Fund at the Southern Africa Economic Summit sponsored by the World Economic Forum, Harare, May 21, 1997. www.imf.org/external/np/speeches/2001/011901.htm

[49] 1 Afghanistan, 2 Angola, 3 Bangladesh, 4 Benin, 5 Bhutan, 6 Burkina Faso, 7 Burundi, 8 Cambodia, 9 Cape Verde, 10 Central African Republic, 11 Chad, 12 Comoros, 13 Congo, 14 Djibouti, 15 Equatorial Guinea, 16 Eritrea, 17 Ethiopia, 18 Gambia, 19 Guinea, 20 Guinea-Bissau, 21 Haiti, 22 Kiribati, 23 Lao, 24 Lesotho, 25 Liberia, 26 Madagascar, 27 Malawi, 28 Maldives, 29 Mali, 30 Mauritania, 31 Mozambique, 32 Myanmar, 33 Nepal, 34 Niger, 35 Rwanda, 36 Samoa, 37 São Tomé and Principe, 38 Senega, 39 Sierra Leone, 40 Solomon Islands, 41 Somalia,

advances. Many LDCs in Sub-Saharan Africa are logistically isolated from the world trade flows. Global trade by goods is dependent on harbours' efficiency. In African LDCs, a small portion of population is living within 100 km of the coast or of a navigable river compared about 90 % in high-income countries in average. In African LDCs the average freight costs are many times higher than in high-income countries. Especially, agricultural exporters of African LDCs have a risk to fall behind of the global trade by 2030 without an efficient transportation infrastructure. An important area of development is, therefore, the transportation systems as a whole.

The world population is $6.6 billion and Africa's 0.9 billion. Africa's share of world population is 14 % and of trade only about 3 %.[50] The negative implication of international trade distribution is Africa's marginalization of in the integrating global economy. In 2004, LDCs as a group accounted for only 0.6% of world exports, $61.8 billion with 34% growth. Growth figures mask the division of LDCs into three groups of exporters[51]:

1. Oil exporters (Angola, Equatorial Guinea, Yemen, Sudan, and Chad) accounted for 47 % of total LDC exports. Angola earned $18 billion[52]. Oil exports did not provide the way away from poverty if oil incomes fortunate only few and ecological problems escalate.

2. Good manufacturers (Bangladesh, Myanmar, Cambodia, Madagascar, Nepal, Lesotho, Haiti, and Laos) are dependent on exports of ready-made garments. They have lost their positions against China.

3. Commodity exporters (37 LDCs) that produce primary agricultural products have difficulties to overcome trade barriers created by the subsidies in the EU and the US and by the unfairness of the commitments of trading partners, particularly of multinationals.

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42 Sudan, 43 Timor-Lesté, 44 Togo, 45 Tuvalu, 46 Uganda, 47 Tanzania, 48 Vanuatu, 49 Yemen, 50 Zambia. www.un.org/special-rep/ohrlls/ldc/list.htm

[50] Source of trade statistics in this chapter: www.wto.org/English/res_e/statis_e/its2006_e/its06_byregion_e.htm

[51] Despite the global growth, 852 million people, mostly of LDCs, suffer from hunger and malnutrition, 1.1 billion do not have access to clear drinking water, and every hour 1,200 children die from preventable diseases. The poorest 40 % of the world population, who live on less than 2 dollar a day, account for 5 % of global income. The richest 10 %, that is 620 million, account for 50 % of global income. ECONOMIC OBSERVER, 35, World export and status of LDCs by Bijan Lal Dev. www.economic-observer.com/October-November06/article5.pdf

[52] This figure contains also mining. The World Trade Report 2006. www.wto.org/English/res_e/reser_e/world_trade_report_e.htm

The LDCs' merchandise exports have three distinct weaknesses[53]: a narrow range of products, a lack of diversification of export markets and low technology content (Table 1). The UN's aspiration[54] is the duty-free and quota-free market access to global markets on a non-reciprocal basis for all products originating from LDCs. The US treatment of LDCs has blamed to be dependent on politics. Japan favors oil importer LDCs. The EU's weakness is its unfair agricultural policy that stops imports from African LDCs. The average level of preferential (reciprocal and non-reciprocal) exports from LDCs to the leading industrial countries is marginal. In 1995, the EU-15-countries absorbed 40% of LDC exports. During the WTO-period from 1995, the LDCs' share has dropped to 30%. The US has increased its relative share into 23%. Japan's share is 4.2%, when Thailand has **5%**. China has increased its relative share from 3.5% to 17.8%. China's politics is to favour LDCs both in trade and investments.

Table 1: Share of markets in LDCs merchandise exports, 1995-2004

Rank	1995	2000	2004
1 EU-15	39.6	31.1	29.2
2 US	20.5	26.4	22.7
3 China	3.5	10.7	17.8
4 Thailand	3.9	3.7	5.0
5 Japan	6.5	3.3	4.2
6 India	2.7	2.5	2.9

Source: UNSd, Comtrade data base and WTO.

The trade pattern of African countries is often based on food or mineral products. This kind of factor-based exports provide only a scare value added to African firms that have the difficulty to utilize the up-to-date technology. The technological gap between African firms and average global firms is major in technical know-how services. The industrial structure in Africa is polarized into big and small firms. Most industrial sectors are dominated by big, diversified firms that are the major end-users of raw materials and capital inputs in Africa[55]. Because of their size and diversity, big firms are the basic structure of industrial clusters. Small firms are the

[53] ECONOMIC OBSERVER, 35, World export and status of LDCs by Bijan Lal Dev. www.economic-observer.com/October-November06/article5.pdf
[54] Millennium Development Goals. www.un.org/millenniumgoals
[55] www.africa-business.com/features/succeed.html

complementary structure. The weak development of pan-African markets of industrial goods and services is the main reason to the lack of innovative, growth firms. Without dynamics of growth firms, global economic turmoils have affected Africa with severity.

Africa has the same structural problem as the leading industrial countries a century ago. Because of the undeveloped inter-regional trade, the integrated, big industrial firms do not utilize Africa's small and medium-sized firms as subcontractors. The share of inter-regional trade of each region's total trade[56] was 73.2% in the EU, 55.8% in North America and 51.2% in Asia in 2005. In Africa the same ratio was only 8.9%. The inter-regional trade is based on trading differentiated goods and services, not only commodities. Like Helpman and Krugman have found, countries are trading, not because they are different, but because they are similar[57]. This refers to the demand-driven explanation. Linder[58] has noticed that demand plays the key role in trade. Demand-based international trade arises from consumers' taste of variety. This aggregate taste for variety arises because different individuals have a different specification of their ideal variety. Countries with similar preferences are expected to have the same structures of industries. Africa needs differentiated goods and services as export articles. The capability that is needed is marketing skils. African growth firms should learn to utilize the diverse supply and demand curves. This selection is visualized in figure 1.

[56] This figure contains also mining. The World Trade Report 2006. www.wto.org/English/res_e/reser_e/world_trade_report_e.htm

[57] Helpman, Elhanan and Krugman, Paul (1985) Trade policy and market structure, MIT Press, Cambridge, MA.

[58] Burenstam Linder, Staffan (1961) An Essay on Trade and Transformation, Almqvist & Wickley, Stockholm.

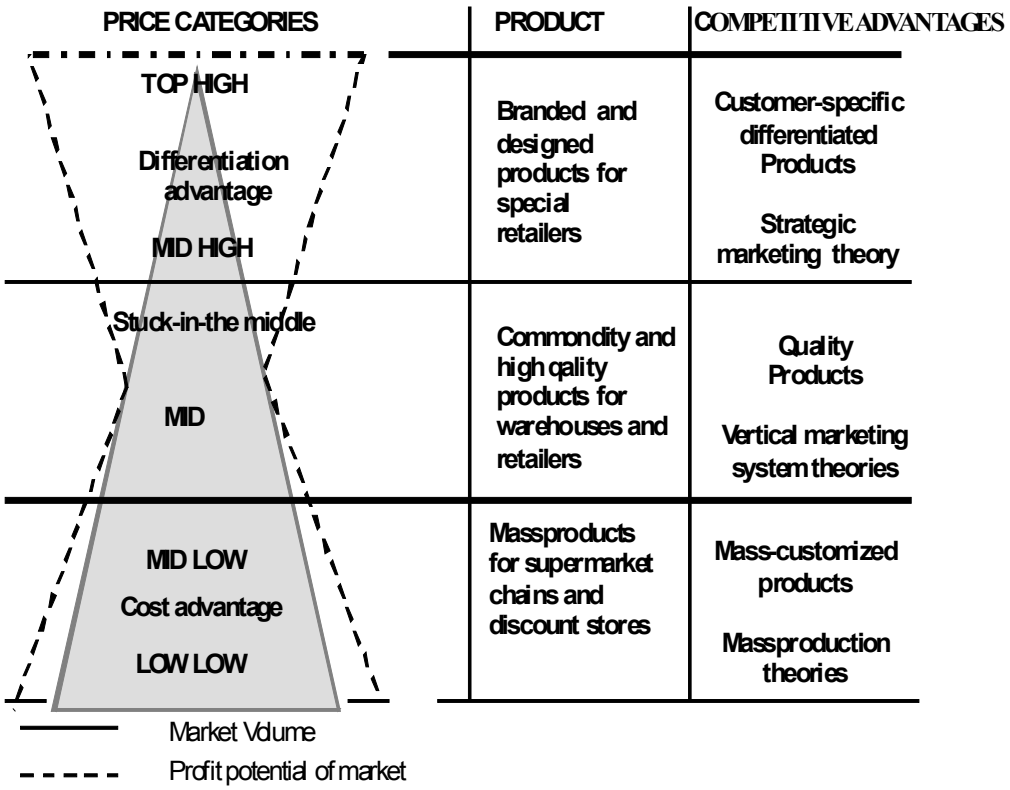

Figure 1: Differentiation as the strategic marketing selection

The demand-based benefits are the main driver of trade. Increasing trade of differentiated articles gives consumers in various countries a wider choice of goods and services to select. Africa needs export articles with high value added, because the price of some commodities is falling[59]. Africa needs to deepen its consumer orientation in the near future. The global economy will expand to $72 trillion in 2030. Global trade in goods and services will rise to $27 trillion in 2030. Trade as a share of the global economy will rise from 1/4 to 1/3. Roughly half of the increase is likely to come from developing countries. Developing countries will supply 65% of manufactured imports to rich countries, compared with 40% today. Some developing countries will play the key role, notably the BRIC countries (Brazil, Russia, India and China). Their growth rate will be over 6%, much higher than the average[60]. Another premise for the positive scenario is more equal distribution of economic prosperities between countries. The report's

[59] According to Unctad the decreases in prices from 1977 to 2001 has been: 2.6 % for foodstuffs; 5.6 % for tropical beverages; 3.5 % for oilseeds and oils, but only 1.9 % for metals, which, unlike food and beverages, are never produced by small producers. www.mondediplo.com/2007/01/03economy

[60] The positive scenario is possible only if the global economy succeeds to avoid the most disruptive shocks as climate catastrophes. Rising output means that annual emissions of greenhouse gases increases 50% by 2030 in the absence of widespread policy changes.

prediction is that the number of people living on less than $1 a day could be cut in half, to 550 million in 2030, although the Earth's population is expected to rise to 8.0 billion.[61] Africa has a risk of disruptive human and environmental shocks. The Aid for Trade by the World Bank is important as well the policies that provide public goods (security, pure water, education, etc.) for all citizens.

The continuing integration of markets will make jobs around the world subject to competitive pressures. The global labour force will increase to 4.1 billion in 2030[62]. When trade expands, technologies will rapidly diffuse to developing countries. This means that the supply-based theories of the comparative advantage in international trade should be completed with the demand-based theories. When the US and the EU dominate the patterns of consumption, the global trends are coming from developing countries, China playing the decisive role. Reich[63] predicts that the middle class are in a crisis in the Western countries, the most severe in the US. The report predicts the rebirth of the global middle class. In 2030 the new global middle class (purchasing power of $4,000-17,000 per capita) will be 1.2 billion people in developing countries, 15% of the world population[64]. These new consumers are looking for differentiated articles with value added. Their aggregated preferences are different from those in Western countries. The new global middle class plays a major role in the world economy.

Industrial countries, especially the EU and the US, have not favoured Africa's exports relative to Asia. Therefore, the global trade has failed to bridge the divide between the rich industrial countries and Africa. The reason is that the global market mechanism is biased for the good of big countries. Referring to the new growth theory, the catalysts of economic growth in Africa are investment in education, infrastructure, technology, and entrepreneurship. In addition to economic aspects, the sustainability of politics is vital. Poor countries cannot deal with these problems by bilateral diplomacy. Tackling the dark side of globalization demands international co-operation and multilateral actions. The dilemma is that the IGOs like the World Bank have not succeeded to create the necessary institutions for

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www.google.com/search?hl=en&q=Global+Economic+Prospects+managing+the+next

[61]The World Bank's Global Economic Prospects 2007
www.google.com/search?hl=en&q=Global+Economic+Prospects+managing+the+next

[62]The World Bank's Global Economic Prospects 2007

[63]Reich, Robert (1992) The Work of Nations – Preparing Ourselves for 21st Century Capitalism, Vintage Books, New York

[64]The World Bank's Global Economic Prospects 2007

entrepreneurship in the LDCs in Africa. There is a need to incorporate a theory of institutions into economics from peferial countries point of view[65].

The EU's mission of preventive crisis management policies is the right one. The economic dynamics if difficult to maintain in the countries where the major part of population lack the basic global public goods, especially pure water, medicines to infectious diseases, piece and security. The common denominator of the Bretton Woods institutions (the WTO, the IMF and the World Bank) is claimed to be their lack of transparency and democratic accountability. The new network-based world order has produced regional initiatives and small-scale cooperatives, industrial projects and even women's organizations that embody the realities of poor countries' road to development. These institutions open up democratic, transparent, and participatory networks and can initiate methods by which international investment funds can meet human and environmental needs and ensure adequate global demand by channelling funds into sustainable investment.

The poor African countries should focus on bottom-up approaches to create social capital between global markets and entrepreneurs and communities. Globalization reinforces interdependencies of states in various continents. Africa should deepen the spatial linkages of states in a mutually beneficial way. When China and India have large domestic markets, Africa's 54 countries are difficult to reach. Finding the right customers and business partners in Africa is a time-consuming process. Most of the business sectors in African countries are small and firms have established methods of procurement that differ from one sector to another. There are only few agents who serve a particular sector on an exclusive basis, but, because they are well established within the sector, they deal in many other sectors[66]. Pan-African markets are the best available home market for African firms to start globalization. Demand-based international trade arises from consumers' taste of variety. Countries with similar preferences are expected to have the same structures of industries. Therefore, Africa needs market integration at the regional level. The first stage might be regional trade or custom unions.

The region with big opportunities and problems is the West Africa, the 15 countries stretching from Senegal to Nigeria. Examples of problems are conflicts, corruption, brain drain, lack of investments and AIDS. The West Africa is an important source of oil and gas, although the region's entire GDP is relatively small. Infrastructure costs are high because the public

[65]Douglass North has stated that the state can never be treated as an exogenous actor.

[66] www.afritopic.com/afritopic-business-contacts.htm

water, electricity and telephone systems are inadequate. There is need for the West African Union (WAU)[67] to facilitate trade, limit corruption, promote entrepreneurship and, thereby, break the barriers of growth. A strong export sector is needed restructure the rest of the economy as the response to increasing competition and transparency. Most countries in West Africa are highly dependent on international markets. If the export growth stagnates and the inflow of resources from abroad is constrained, the economic progress of the production region is jeopardized.

The WAU should work to get a more favourable access to foreign exchange, capital and technology. As to the distribution of economic power, it is the rich countries who determine the terms of trade because in the short run, the Africa needs products and services from rich countries more than the latter needs the output of Africa[68]. African countries are price takers in trade negotiations and trade policy formulations. The existence of great disparities and one-sided dependence reflect the moral of globalization. Even the oil rich countries are no exceptions in this regard. In that sense, the globalization of trade can be seen as a new world order of marginalization and recolonisation. Given the common history of Africa and the West it is ironic that the latter is propagating the virtues of freedom to Africans[69].

2.2 Africa has a negative path-dependence in terms of Douglass North

Africa needs export articles with high value added, because the prices of consumer commodities are falling both in agriculture and clothing. For most of African countries, a stronger export sector is needed to restructure the rest of the economy as the response to global competition. Africa's governments may have a negative path-dependence in their governance mode selected. Cooper[70] believes that African countries' politico-economic dysfunction is based on their long histories as gatekeeper states and this is one of the reasons why Africa has not succeeded stimulate economic growth. In Cooper's thinking, the colonial gatekeeper function maintains

[67] The Challenge of Globalization in Africa, Remarks by Stanley Fischer, International Monetary Fund, at the France-Africa Summit, Yaoundé, Cameroon, January 19, 2001.
www.imf.org/external/np/speeches/2001/011901.htm
[68] www.allafrica.com/stories/200706130610.html
[69] Globalization (2002) Globalisation, Its Implications and Consequences for Africa by S.T. Akindele, T.O. Gidado, O.R. Olaopo, Department of Political Science, Obafemi Awolowo University Ile-Ife, Osun State, Nigeria.
www.thecore.nus.edu.sg/post/africa/akindele1a.html

Africa's dependence on revenues from taxes on trade, on licenses of monopoly rights, etc. The post-colonial states inherited this gatekeeper role, reflecting path-dependence in terms of Douglass North[71]. Cooper believes that the fierce competition for the control of gatekeeper's position inside post-colonial states in Africa has resulted in the collectively irrational political instability in Africa after the independence in the 1960s.

The major challenge in the light of Douglass North is how African leaders can break the negative path-dependence of the colonial time. The first generation of Africa's leaders after independence could not do that. Kwame Nkrumah, the charismatic leader of Ghana and a fore speaker of independent Africa was one of them. Kwame Nkurmah was born in 1910 in the Gold Coast. In 1935, he started his studies at Lincoln University in the US that is the oldest black college. He returned to the Gold Coast in 1949, organized a new political party, and became the leader of Ghana's movement toward independence from Britain. In 1957, when the new nation, Ghana was established, Nkurmah became the prime minister, and later the president. Under Nkrumah's leadership, Ghana took bold steps to industrialization, e.g. to fabricate of shoes and mangoe products.[72]

The most challenging project was the Akosombo Dam in the Volta River to produce hydroelectric power. The major financers were the World Bank, Britain and the US. The costs to build the dam were underestimated in ex ante calculations. The vertical integration towards the aluminium industry was not economically reasonable since costs to open bauxite mines were too high. The foreign owned smelter[73] started to import bauxite from Jamaica. In the early 1970s when oil prices unexpectedly rose by near 1.000%, the Volta River Dam was needed to decrease Ghana's dependence on imported oil. The dam was officially opened by Nkrumah on January 22, 1966. Soon later, when he travelled to China, army officers took power at home. Nkrumah ended up taking up exile in Guinea. He died in exile in Romania in 1972.[74] In 2000, he was voted the millennium of Africa by the BBC World Service.

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[70] Cooper, Frederick (2002) Africa since 1940: The Past of the Present, Cambridge University Press.
[71]North, Douglass (1993) Institutions, Institutional Change and Economic Performance, Cambridge University Press, Cambridge.
[72]www.sjsu.edu/faculty/watkins/ghana.htm
[73]A consortium of aluminum companies headed by U.S. Aluminum Maker Edgar Kaiser signed a historic agreement to raise $178 million to build an aluminum smelter. Ghana's chief resources are the hydroelectric power potential of the Volta River and a large supply of bauxite ore. Kaiser drew up his own plan, which boosted power capacity by 40% aluminum capacity by 10%; over the British estimates—and cost only $600 million.
www.time.com/time/magazine/article/0,9171,895111,00.html
[74]www.pbs.org/wgbh/commandingheights/shared/minitextlo/prof_kwamenkrumah.html

Nkrumah initiated many ambitious infrastructure projects in railways, roads, canals, agriculture, education and public services. The Tema port is today the most important export-import-harbour. He built hospitals, introduced free basic education for all children, and built the University of Ghana, the Cape Coast University, and the University of Science and Technology[75]. Nkrumah is best known for his commitment to Pan-Africanism. In the mid 1960s, when over 30 African countries were independent there were many charismatic leaders in Africa, including Jomo Kenyatta in Kenya, Julius Nyerere in Tanzania, Kenneth Kaunda in Zambia, and Kwane Nkrumah in Ghana. The most influential was Nkrumah who initiated the Organization of African Unity (OAU) that was founded in 1963 by 30 nations. Nkrumah's vision was the United States of Africa that as such was a good vision.

Unfortunately, Nkrumah was not an economist. His administration placed Ghana in a serious depthness. Nkrumah moved to industrialization at the expense of Ghana's cocoa sector, accounting for 75% of all exports. In the colonial time, the cacao export was prosperous. Taxes on it accumulated hundreds of millions dollars. The British Commonwealth was a good market that Ghana had preferential access to. It could have been possible to develop the cacao sector. Nkrumah did the opposite. He granted monopoly rights to the Cocoa Marketing Board that grew in size, staffing, and power. The same model was repeated to all important export products, timber, diamonds, and foodstuffs[76]. Nkrumah believed in African socialism meaning that it is based on the state's control over the key export industries.

In about ten years, Nkrumah's policy destroyed Ghana's economy from being one of the richest countries in Africa in 1957. Ghana was one of the poorest in 1966. When Nkrumah left Ghana, the cocoa sector was in a severe crisis and the national economy was near to collapse.[77] Nkrumah as many others of Africa's political leaders failed to impose their authority internally to activate their citizens into high-valued entrepreneurship. Pan-Africanism was a good target but African socialism was a mistake. Nkrumah used too much time in politics. He should have completed industrialization. After the World War II, Finland could balance between the two ideological blocks and concentrate on the development of export capacity. Nkrumah had the same option. As Frederick Cooper found, the first generation of Africa's leaders pursued the same policy as the British colonies. They tried to break the monopoly of multinational corporations through

[75]www.guyanaundersiege.com/Leaders/Nkrumah1.htm
[76] www.pbs.org/wgbh/commandingheights/shared/pdf/prof_kwamenkrumah.pdf
[77]www.sjsu.edu/faculty/watkins/ghana.htm

nationalization policies. The economic device he used was itself a colonial invention, the marketing board, a public monopoly agency responsible for exporting.

During Nkrumah's time, from the 1960s to the 1970s, sub-Saharan Africa grew by 20% in GNP per capita[78]. The quick rise of oil prices triggered a recession in the oil-dependent countries. The demand for Africa's export goods stagnated and the hopes of rapid development were lost. Governments in oil exporting countries had pockets full of oil dollars that were not needed for investments in the oil industry. Before the oil crisis, the Breton Woods system from 1944 intended to govern monetary relations of independent nation-states was collapsed in 1971. There was no system of rules to limit the enormous speculations with national currencies for instance in so-called Eurodollar markets[79]. Multinational banks that were flushed with oil dollars reacted to drawback their debts from Africa, because of the higher profit-risk-rations in the money markets. In the 70s, many industrial multinationals earned a major part of their profits in speculative money markets, at least temporarily[80]. The time of speculation was not at all possible to forecast. Nkrumah as a leader of post-independent Africa could not do it and no-one of economists. A successful leader needs a common sense to expect that uncertainty is the prevailing contingencies in our world.

Africa's debt-problems became serious, when the World Bank and the IMF adapted a more neoliberal policy and provided highly priced loans to African countries in their acute cash crises. African regimes could not pursue their industrialization programs as overdebted when the Structural Adjustment Programs, SAPs were officially launched in 1980. These programs that the World Bank and the IMF forced Africa to undertake to qualify for loans involved the opening of African economies to multinationals, privatizations of state-owned firms, restrictions on government spending, and withdrawing of government support from the domestic industries. The 1980s and the 1990s are widely known as the lost decades, due to the economic disaster in Africa, thanks to wrong governmental policies and the SAPs. The World Bank expected SAPs to

[78] Cooper, Frederick (2002) Africa since 1940: The Past of the Present, Cambridge University Press.

[79] Eurodollars are U.S. dollar-denominated deposits at banks outside of the US. This market evolved in Europe (specifically London), hence the name, but eurodollars can be held anywhere outside the United States. The eurodollar market is relatively free of regulation; therefore, banks can operate on narrower margins than their counterparts in the United States. As a result, the eurodollar market has expanded largely as a way of circumventing regulatory costs.
www.offshorebanking.co.cr/offshoremoneymarketaccounts/index.htm

increase economic growth and reduce poverty. Two decades of SAPs led people in sub-Saharan Africa into absolute poverty, living on less than one dollar a day. The average GNP of sub-Saharan Africa shrunk by 2.2% annually in the 1980s and in the 1990s, Africa's per-capita income had receded to about the same level as it was in the 1960s[81].

Africa has the worst income distribution in the world, with 59% of rural and 43% of urban people surviving on less than one dollar a day[82]. Drastic declines of public investments in education, health care and water systems have led to human catastrophes and finally to Africa's financial dependency on rich countries. In spite of that the World Bank and the IMF continue their policy to force Africa's governments to continue neoliberal policy[83]. The worst of all mistakes made worldwide was the subsidies given to farmers in the US and EU, especially in the sensitive articles like cotton[84]. The excess yields of big farmers are frequently dumped in Africa by the governmental agencies. The dumping causes commodity prices to decrease in the world markets[85]. These subsidies cause terrible suffering for many of the 20 million African farmers and their families who depend on cotton for a living. The socio-econological costs of the US/ EU subsidies in agriculture are too high. Africa's exporters need to be granted a privileged access to the EU/ US markets, because they have real handicaps of poor soils, etc.[86]

When the EU and the US have been locked in their internal politics, China has been the most active African friend over the past two decades. In 2006, trade between China and Africa was over $50 billion. China's major imports oil from Angola and Sudan, timber from Central Africa, and copper from Zambia. In order to smooth its path to African oil and mineral resources, China has invested in Africa's infrastructure in 3 themes: building projects, Chinese medical teams, and scholarships for Africans to study in China[87].

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[80] I was doing my first master of economics theses of the theme "Currency Risk in a Multinational Company and Mathematical Optimisation" in Kone Ltd in the mid of 1970s when the currency markets were extremely turbulent.

[81] www.aercafrica.org/documents/rp90.pdf

[82] UN Economic Commission for Africa (2000) Transforming Africa's Economies: Economic Report on Africa 2000. www.uneca.org/eca_resources/Publications/books/ERA2000/ERA2000.htm

[83] UNCTAD, "Economic Development in Africa: Trade Performance and Commodity Dependence", 2003.

[84] www.un.org/ecosocdev/geninfo/afrec/vol17no1/171agri4.htm

[85] The highest figures have been given by the International Cotton Advisory Committee that has estimated that cotton prices could have been 70% higher in 2001-2002 without governmental supports www.zmag.org/content/showarticle.cfm?ItemID=13230

[86] Africa and China: A Strategic Partnership? Judith van de Looy, ASC Working Paper 67/2006, African Studies Centre, Leiden, The Netherlands

[87] China has a long history in health diplomacy in Africa. From then onwards, some 15,000 doctors and health workers have been sent to more than 47 African countries. Approximately 180 million patients have been treated by Chinese doctors over the years. Thompson, D. (2005) 'China's Soft Power in Africa: From

The construction of the 1800-km Tanzania-Zambia railway in the 1970s, costing over $450 million, was a strong demonstration of China's good will.

China has been pragmatic. Trade is always central. Unlike the West, China's loans and aid to Africa have no prerequisites. In its pragmatism, China dominates the world export market. The U.S. and the EU depend on China for their economic well-being. Today, increasing numbers of Chinese companies are developing connections in Africa with the aim of increasing trade between China and the African continent.

the Beijing Consensus. to Health Diplomacy', www.asiamedia.ucla.edu/article.asp (24 March 2006) www.ascleiden.nl/Pdf/wp67.pdf

3 TEXTILE AND CLOTHING INDUSTRY

3.1 China is the winner of the WTO rules in textile and clothing

In 1974-1994, up to the end of the GATT, textile and clothing quotas in international trade were negotiated bilaterally and governed by the MFA (Multifibre Arrangement that was a departure from the GATT rules of non-discrimination. The MFA allowed developing countries as the group to increase their low-cost exports to the OECD countries. The MFA quota itself was not a guarantee for sales, but provides an opportunity to enter the OECD markets[88]. Some producers utilized transhipments through third countries in order to avoid quotas or use falsified documents. [89] China became a member of the MFA in the 1980's, when its exports were marginal. In 1995, in the end of the MFA, China's clothing exports were $24 billion (the total world trade that was $158 billion) and textile exports $13 billion (of $152 billion)[90]. As table 2 shows, Finland and Sweden were the big losers in employment in Textile, Clothing, Leather and Footwear industries and Mauritius the biggest single winner in the years 1980-1993.

Table 2: Winners and losers of in employment

Winners (+ % of employment)		Losers (- % of employment)	
Mauritius	344	Sweden	65
Indonesia	177	Finland	61
Morocco	166	Poland	51
Jordan	160	Syria	50
Jamaica	101	France	45

Source: International Labour Office, Geneva[91].

[88] The Changing Pattern of International Trade in Textiles and Clothing, Implications of the Introduction of the Agreement of Textiles and Clothing (ATC) on The Developing Countries Producing/ Exporting Textiles and Clothing by Antero Hyvärinen, Senior Market Development Officer, ITC, Geneve.
[89]The Changing Pattern of International Trade in Textiles and Clothing…
[90]www.wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2000/01/06/000178830_98101903374851/Rendered/INDEX/multi_page.txt
[91]The Changing Pattern of International Trade in Textiles and Clothing…

In 1995, when the WTO Agreement on Textiles and Clothing (ATC) took effect, a large share of exports from developing countries to the OECD markets was subject to quotas. Under the ATC covering yarns, fabrics, made-up textiles and clothing, the WTO members committed themselves to remove the quotas and, thus, integrate their imports into the WTO. Most of the WTO members left the integration of "sensitive" products (49% of quotas) to the last moment (31.12.2004). The integration took place over one night leading turbulence in markets. Industry associations of the U.S. and Turkey signed the Istanbul Declaration in order to extend remaining 49 % of quotas for 3 years and over 50 WTO member countries joined to that[92]. China argued against saying that such moves would undermine the credibility of the rules-based global trading system under the WTO. An emergency meeting of the WTO Goods Council in October 2004 remained the ATC liberalization framework unchanged.

In 2001-2005, the annual growth rate was high and the number of textile and clothing exporters in global markets grew from 21.000 to 65.000[93]. Chinese firms invested in new production capacity in anticipation of the elimination of quotas. In January-June 2005, China's growth rate in the U.S. market in one category was 1,765%[94]. In 2005, China's exports to the U.S. increased primarily in volume, revealing a steep cut in prices, the price war, including knit shirts, trousers, underwear and so forth. The pattern was the same in the EU markets. During 2005, when the quotas were eliminated, China's exports increased 21%. In the end of 2005, China's share of exports was 24%[95]. The EU implemented bilateral consultations with China. The Memorandum of Understanding (MoU) between the EU and China set 10-12.5 % to the upper level to China's export growth to the EU in 10 categories for next years[96].

Under the ATC, a safeguard mechanism was available (2005-2008) to deal with serious damages of domestic producers. The active state to use this was the U.S.[97]. The U.S. used the China WTO Accession Agreement rather than the WTO measures. These clauses permit growth in import to be confined to 7.5% per annum until the end of 2008. The US authorities

[92] Report by Samuel Grumiau for the International Confederation of Free Trade Unions with assistance from Laurent Duvillier, Brussels, November 2004. www.igtn.org/page/628/1/

[93] www.ilo.org/amin/download/publ/823p1

[94] The Multifibre Agreement – WTO, Agreement on Textiles and Clothing, by Eckart Naumann, tralac, Working Paper No 4/2006, April 2006 www.tralac.org/pdf/20060518_multifibre_naumann

[95] if EU(25) intra-trade is included and 31 % if EU(25) intra-trade is excluded. www.wto.org/English/res_e/reser_e/world_trade_report_e.htm

[96] www.primesourceforum.com/download/WTO2006TradeReport

[97] In May 2005 the U.S. government imposed temporary restrictions on textiles and clothes imported from China, affecting about $2-bn worth of goods. www.engineeringnews.co.za/article.php?a_id=92242

announced the re-imposition of quotas in three categories in May 2005. The US retailers filed an injunction against the use of safeguard measures that was reversed in June 2005. The new quotas introduced allowed China to further strengthen its position in the US[98] and other markets[99]. In 2008 China sold abroad $185.1 billion worth of textiles and clothing (including yarn, fabrics, textile products, garments and accessories), a growth of 8.2% on the previous year[100]. China and Chinese diaspora (about 40 million) are active in the ownership of textile and clothing factories all over the world. African countries, notably Lesotho, Madagascar and Kenya, have seen a revival of their sectors owing to FDI from Chinese and Taiwanese industrialists[101].

The fact often repeated is that the textile and clothing sector accounts for over 50% of merchandise exports of developing countries. This statistics mask the fact is that China alone has the lion's share of the markets. Other industries, such as consumer electronics, are dominated by multinational enterprises that prefer to invest in China and in other newly industrialized countries. China has not a location advantage in the OECD markets as e.g. Mexico has in the US markets and Turkey in the EU markets. The major advantage is the internationalization advantage[102]. China has a huge concentration (cluster) of design[103]. The collaboration between the Chinese government and its textile and clothing sector provides Chinese exporters a supportive infrastructure and liberal labour laws and, thereby the opportunity to keep export prices competitive[104]. Textile factories are importing modern machinery and high-tech knowhow while the government supports local development initiatives and promotes domestic brands. The goal is to make the trademark 'Made in China' become synonymous with 'quality.' The modern production technology makes it possible to combine reasonable costs and high quality products[105]

A success story in Asia is Bangladesh, which in the early years of the MFA had no garment production or exports. In early 80's, some Korean export agents were busily looking for new suppliers (with no quota restrictions) for American buyers and contacted some parties in Bangladesh. This is not at

[98] www.wto.org/english/res_e/booksp_e/anrep_e/wtr06
[99]www.textileasia-businesspress.com/
[100]General Administration of Customs
en.ce.cn/Business/…/t20090221_18279633.shtml
[101]T Naumann (2006).
[102] Dunning, John (1993) Multinational Enterprises and the Global Economy, Wokinghan England, Addison-Wesley.
[103]The theoretical foundations are presented by Marshall, Alfred (1920) Principles of Economics. an Introductory Volume, London, Macmillan and Krugman, Paul (1991) Geography and Trade, Cambridge, Cambridge University Press and Porter, Michael (1990) Competitive Advantages of Nations, Macmillan, New York.
[104]www.ncto.org/threat/index.asp
[105]www.textileinfo.net/article.cfm/id/187769

all unusual since agents in the sector were actively traveling in most of the developing countries providing their contacts in the target markets. Today, Bangladesh exports over $10 billion the Western markets that account for roughly 90 % of Bangladesh's total exports. The creation of the clothing industry in Bangladesh may largely be attributed to the existence of the MFA quotas that attracted developing countries to develop their production and exports of clothing under the MFA. Since the quotas that applied by number of products, not by the unit price restricted clothing exports it made sense to try to upgrade the products in order to increase the unit value of the export items.

3.2 The EU is still a strong player in textile and clothing

Europe has for centuries been the leading continent of the fashion culture and business. Textiles and clothing are among the most traded goods in the global economy. The EU is still a big exporter of textile products with 31% market share (including intra-EU trade). China's competition has led to the accelerating erosion of jobs. European countries have divergent interests. Countries like Italy that have significant domestic manufacturing of design prefer an orderly development of imports that would not undermine domestic producers. Countries like Sweden or Finland have lost their manufacturing and have strong retail sectors prefer to have unrestricted imports. Today, Sweden has strong retail chains like H&M in the industry. The EU is still a major player having about 100.000 firms and employing over 2 million people (Table 3). "Made in Italy" is a strong argument. There are about 500,000 people working at 68,000 firms[106], most of them small family-owned. Italy has about 1/4 of the sector's total in the EU-25. The sector has been a major exporter, and the generator of a positive contribution to Italy's trading account[107]. Italy has lost its position in the commodity production, but succeeded to be the main technology supplier.

[106] www.fashionunited.co.uk/news/textile.htm
[107] www.iwto.org/Projects/ISEP/2006/Report_Peter%20Cain

Table 3: Textiles and clothing industry in certain EU countries (2008)

	Personnel	Volume index of industry (2005 = 100) Turnover M€	Textile	Clothing
Italy	508 200	54 116	84,9	133,1
France	112 911	24 672	78,9	66,4
Germany	132 822	22 939	95,7	68,8
Spain	150 667	10 954	77,2	89,0
UK	141 000	10 622	96,7	103,0
Portugal	176 187	6 141	82,0	91,6
Poland	157 234	4 270	110,6	101,8
Romania	263 014	4 100	71,1	70,7
Denmark	17 783	3 778	84,6	71,6
Austria	20 402	3 455	93,2	88,7
Holland	15 811	2 956	101,2	118,1
Greece	60 080	2 377	70,4	94,0
Czech Rep	55 492	2 085	103,9	75,2
Bulgaria	159 363	1 726	103,7	99,4
Finland	7 556	1 169	101,3	80,9
Lithuania	33 059	862	91,5	80,6
Sweden	5 391	845		
Estonia	14 516	459	94,8	90,8
Latvia	20 135	275	107,3	91,6
EU 27	2 176508	167742	88,7	101,7

Source: Euratex/National Statistics, Statistics Finland; Volume index NACE

The textiles and clothing industry in the EU countries has succeeded relatively well. The success story in clothing is still Italy. Referring to my own field research in Italian design industries, it is possible to notice that China seems to repeat 'Made in Italy' success story. The huge growth has created a "labour shortage" in the core regions of design cluster[108]. Like the Italian design firms 2-3 decades earlier, Chinese firms are looking for opportunities for subcontracting. The major difference is that Chinese are operating at the global level when 'Made in Italy' meant collaboration inside Italy[109]. The case Benetton is an example of the challenges in design markets[110]. The complexity of design business is huge. Chinese cannot copy Benetton's success model. They have to and they will create their own

[108]Pearl River Delta, Yangtze River Delta and Anhui www.goarticles.com
[109]Source: My own research on Benetton's subcontractors in 1989.
[110]Aldo Palmeri (Managing Director of Benetton Group SpA, 1983-1990) created Benetton that achieved $1130 million in sales in 1988, 65% outside the Italian market. In 1988 Benetton had 7000 stores in the world, 7,500 items in its collection, 3 main factories around the headquarters in Treviso and 800 subcontractors having an average of 100 employees. Werner Ketelhöhn (1993) An interview with Aldo Palmeri of Benetton: The early growth years, European Management Journal, Volume 11, Issue 3, September 1993, Pages 321-331. linkinghub.elsevier.com/retrieve/pii/026323739390058P

business models. The UK that has a long tradition as the leading country of gentleman stile has even succeeded to increase its clothing volume. Romania is the biggest looser in the textiles and clothing industry in the EU countries. This is very much dependent on the low productivity in Romania where 263 014 people have been employed by the sector producing only 4 100 €million turnover. In Italy the labour productivity is about five times higher.

Excluding intra-EU trade, the EU exported about $50 billion (€30.4billion) worth of textiles and clothing products in 2009[111] and dominates markets for upmarket and high quality textiles and clothing. The textiles and clothing sector was severely affected by the economic crisis. Production as well as consumption levels have experienced a sharp decrease from June 2008 to June 2009. For the entire year 2009 a general decrease of -11% of imports took place in comparison to the previous year. China has been big winner in textile imports to the EU (growth 2005/2008 37.5%) and clothing imports (growth 2005/2008 49%). Asia is dominating the lists of top 10 suppliers (Table 4 and 5).

Table 4: Top 10 suppliers in textiles (million €)

	2005	2008	Share	growth 2005/2008
Extra-E27	18,074	19,885	100.0	10.0
China	4,081	5,613	28.2	37.5
Turkey	3,328	3,418	17.2	2.7
India	2,028	2,225	11.2	9.7
Pakistan	1,246	1,472	7.4	18.1
USA	894	924	4.6	3.4
Switzerland	935	902	4.5	-3.6
South Korea	803	676	3.4	-15.8
Japan	522	571	2.9	9.5
Taiwan	487	426	2.1	-12.6
Indonesia	387	395	2.0	2.0

Source: Euro stat

[111]European Commission : Trade : Textiles and footwear ec.europa.eu/trade/.../textiles-and-footwear/

Table 5: Top 10 suppliers in clothing (million €)

	2005	2008	Share	growth 2005/2008
Extra-E27	49,305	59,433	100.0	20.5
China	16,961	25,311	42.6	49.2
Turkey	8,098	7,882	13.3	-2.7
Bangladesh	3,538	4,730	8.0	33.7
India	3,239	3,898	6.6	20.4
Tunisia	2,463	2,582	4.3	4.8
Morocco	2,264	2,396	4.0	5.9
Vietnam	690	1,246	2.1	80.8
Sri Lanka	797	1,124	1.9	41.0
Indonesia	1,200	1,123	1.9	-6.5
Pakistan	779	882	1.5	13.3

Source: Euro stat

Italy's textile and clothing machinery industry's exports in 2006 were about $2 billion, 78% of totality. China, India and Turkey are the major markets for Italy. In 2006 it was a recovery of investments in Italy's manufacturing by 4% growth that signals industry's efforts to remain competitive globally[112]. The growth of standardized technology in textile and clothing has shifted towards Asia, but still Italy believe in collaboration with Europe's textile sector in order to overcome the global market's innovative challenge[113]. The rapid pace of technological innovations in the machinery markets has resulted in production of more efficient machines at low prices. The traditional textile and clothing technology relies on cheap labour. The product quality has not been so important. Modern production technology makes it possible to combine reasonable costs and high quality products[114]. China's firms are investing in the modern technology like shuttle-less looms, circular knitting machines and electronic flat knitting machineries. When the leading countries in textile and clothing manufacturing like Italy have lost their position in the commodity production, they have succeeded well as technology suppliers and in related services. This signals the specialization in the world trade.

European countries have divergent interests in the textile and clothing sector. South states, especially Spain and Italy have the well-established domestic manufacturing of design, central/ north states have strong retail sectors. Retailers favour unrestricted imports, while the countries with domestic manufacturing favour a more orderly development of imports that

[112]Positive 2006 for Italy`s textile machinery industry. www.textileasia-businesspress.com/
[113]www.acimit.it/comunicati/ps-assemblea-ENG.doc

would not undermine domestic producers. Referring to the substantial growth in imports from China, the EU Commission started bilateral consultations with China in the most sensitive categories Memorandum of Understanding (MoU) between the EU Commission and the Ministry of Commerce of the people's republic of China set 10-12.5 % to the upper level to China's textiles export growth to the EU in 10 categories for the years 2005, 2006 and 2007 [115]. The EU used bilateral consultation method resulting to the MoU with China to specify quantitative limits for the years 2005-2008 to the most sensitive categories.

3.3 Africa - From the MFA to the ATC – China challenges Africa!

The quota-free world trade in textiles and clothing is much different from the world trade regulated by the MFA and the ATC. What matters is the economies of scale. In the early 2005, China's huge economies of scale made it possible to win markets in "most sensitive" articles by the price war. The undervaluation of China's currency is a facilitator in that. China was the only winner and Africa the big looser. In the categories that are "most sensitive" to LDCs, China's growth rates to the US markets were (January June 2005) 1,765 % in one category[116]. In 2005, China's exports to the US increased rapidly. Clothing imports from China increased primarily in volume, revealing a steep cut in prices, the price war. The surge in textile and clothing imports of Chinese origin into the US included cotton knit shirts, cotton trousers, cotton and manmade fibre underwear, cotton and manmade fibre shirts, manmade fibre trousers and so forth. The same pattern was repeated in the EU markets as shown in table 18[117]. During 2005[118], when the quotas were eliminated, China's exports increased 21 % after many years of growth. China's share of global trade reached 24 %[119] of about $500 billion. China won shares in the US/EU markets in the

[114]www.textileinfo.net/article.cfm/id/187769
[115]www.primesourceforum.com/download/WTO2006TradeReport
www.wto.org/english/res_e/booksp_e/anrep_e/wtr06
[116] Based on US import data by the US Department of Commerce International Trade Administration) covering comparative data January – June 2004/2005, the following category-specific growth rates can be computed: 340/640 (+343%), 341/641 (+451%), 342/642 (+866%), 347/348 (+1,765%), 351/651 (+633%), 647/648 (+369%), and 352/652 (+539%). The Multifibre Agreement – WTO, Agreement on Textiles and Clothing, by Eckart Naumann, tralac, Working Paper No 4/2006, April 2006 www.tralac.org/pdf/20060518_multifibre_naumann
[117]www.tralac.org/pdf/20060518_multifibre_naumann
[118] The World Trade Report 2006.
www.wto.org/English/res_e/reser_e/world_trade_report_e.htm
[119] if EU(25) intra-trade is included and 31 % if EU(25) intra-trade is excluded.
www.wto.org/English/res_e/reser_e/world_trade_report_e.htm

categories “sensitive”/ “most sensitive” by the price war in 2005 (Table 6). LDC Africa had no opportunities to integrate into the WTO.

Table 6: China’s market takeover in 2005

Category	Year-on-year growth of imports	Average per unit price change
Cotton fabrics	71%	-21%
T-shirts	199%	-37%
Pullovers	530%	-42%
Trousers	413%	-14%
Blouses	256%	-30%
Bed linen	158%	-34%
Dresses	219%	+2%
Brassieres	110%	-37%

Source: Eckart Naumann, Working Paper No 4/2006

Intermediate textile products include yarns and fabrics used in the manufacture of clothing are important products in two ways:

1. These products are the basic element of efficient value chain in the textile and clothing industry as a whole, signalled by the term “intermediates”.

2. Because the rules of origin are strict, a country has difficulties to exports under the ATC if it has not its “own” and at least local production of intermediate textile products.

If some country monopolizes the major part of intermediate textiles, the country could have a lot of monopoly power over the quotas and other preferences that still remain. In 2005, 2 big Asian suppliers increased their imports of intermediate textiles to the US: China: 83 % in volume and 56 % in value and India: 79% in volume and 22 % in value.[120] The growth rates can be alarming, since the huge economies of scale of two big countries can been used in intermediate textiles. African countries have had difficulties to maintain their own production in intermediate textiles that because of the strict rules of origin make it difficult to the Africa to export. Mexico has many advantages in the US markets: location, the major US ownership, preferences, etc. Mexico could not increase its market share in the US, only maintain it. The China/India dominance is the main reason why the US has

[120] Asian Development Outlook 2006 - Developing Asia and the World www.asiandevbank.org/Documents/Books/.../part010403.asp

demonstrated some flexibility in designing rules of origin in preferential agreements with CAFTA countries[121] as far as intermediate textile products are concerned[122]. The CAFTA countries have flexible rules of origin in their preferential agreements with the US in intermediate textile products, why not African countries with the EU.

The elimination of quotas led to a global turbulence. China strengthened its position as the world's largest producer and exporter of textiles and clothing. The US was the first major WTO member that made use of the 'China safeguards', using its rights under the China WTO Accession Agreement rather than the more lengthy process of using WTO measures[123]. These clauses permit growth in import to be confined to 7.5 % per annum, and may be used until the end of 2008. The US authorities announced the re-imposition of quotas in three categories[124] in May 2005. Later, 4 other categories were added to this list, all important to the West-Africa[125]. As expected, the US retailers filed an injunction against the use of safeguard measures that was reversed in June 2005. The new quotas introduced in 2005 regulated the growth of Chinese textiles and clothing sales in the US markets in 2006 and 2007, further strengthening of China's share of imports: 12.5-16 % in 2007 and 15-17 % in 2008[126].

The balance of international trade is difficult to maintain in textile and clothing markets, including leather and footwear. The ATC provided the framework to integrate trade into WTO disciplines. The US is willing to do is to favour the CAFTA countries that are nearby by allowing flexible rules of origin in preferential agreements with the US. The EU will favour its potential member countries. Turkey did well between 2002 and 2004 and firmed up its place as the second-largest developing country supplier after China in the EU. Preferential suppliers in North Africa, such as Tunisia and Morocco have had difficulties to compete against China. In 2005, the EU introduced a system to monitor imports from Asian economies[127] in 15 categories of clothing following the US action and 6 categories of "sensitive"

[121] Countries are: Andes, Bolivia, Central America, Colombia, Cuba, Ecuador, El Salvador, Guatemala, Haiti, Mexico, Nicaragua, Peru and Venezuela
[122]The US-CAFTA-agreement allows flexibility in the origin of textiles and clothing. www.adb.org/Documents/books/ADO/2006/part010403.asp
[123] WTO's 'safeguards' clauses permit WTO-members to temporarily protect a specific industry through certain trade restricting measures, not limited to quotas. Eckart Naumann (2006).
[124] Cotton knit shirts and blouses (category 338/339), cotton and manmade fibre underwear (category 352/652) and cotton trousers (category 347/348)
[125] Combed cotton yarn (category 301), men's and boys' cotton and manmade fibre shirts (category 340/640), manmade fibre knit shirts and blouses (category 638/639) and manmade fibre trousers (category 647/648).
[126]Memorandum of Understanding (MoU) of the US and China www.wto.org/english/res_e/booksp_e/anrep_e/wtr06
[127]Bangladesh, Cambodia, Hong Kong, China, India, Pakistan, Sri Lanka, Taipei, China and Thailand

intermediate textile products[128]. Under the WTO, the EU favours imports from geographically proximate major preferential trading partners like Tunisia and Morocco in Africa.

The Sub-Saharan Africa lacks the proximate. In 2005, the Sub-Saharan countries in Africa lost their exports share by 11 % to $2.3 billion, according to the WTO, making it less than 1 % of world trade[129]. The high growth in cotton clothing exports by Asian suppliers has been the reason for a weak performance of African countries. Cheap textiles and clothing imports from China have resulted to closures of in factories that had benefited from preferential market access through quotas. Africa's production stagnated and 250 000 jobs were lost in countries like Lesotho, South Africa, Swaziland, Nigeria, Ghana, Mauritius, Zambia, Madagascar, Tanzania, Malawi, Namibia and Kenya[130]. African countries did not invoke the special safeguard mechanism to temporarily restrict Chinese exports. This is paradox, since the ATC's anti-dumping measure that is available until 2008 could provide time for African textile and clothing producers to improve competitiveness and add more value to their exports[131]. African countries reacted too late, although the damages to domestic producers were serious in Africa. They did not expect the quota system to end so soon.

African countries had difficulties to manage the increased complexity of the Multilateral Trade Negotiations under the WTO. In 1993 when the ATC was introduced, the producers/ exporters of textiles and clothing in developing countries were confused and concerned about the future of international trade in textile and clothing[132]. A reason to that is that the internal logic of the MFA and the ATC are different. During the MFA, international trade was open to small firms in Africa, since the governments were responsible to allocate quotas. The ATC moved the decision-making power to purchase managers of retail chains in export countries. When markets opened in 2005, the only argument that mattered was the huge economies of scale of China. Cheap textiles and clothing imports from China were not to stop because market-driven actors look at economic arguments. Cheap textiles and clothing imports from China started to fill both to the markets of Africa's producers / exporters. The problem is not only competition in exports. In pan-African markets, Africans buy new

[128]www.adb.org/Documents/books/ADO/2006/part010403.asp
[129]China, India, Indonesia, Pakistan, Bangladesh and Cambodia in Asia have expanded their exports.
[130] Loss of textile market costs African jobs by Bloomberg, Published 22 Aug 06 www.engineeringnews.co.za/article.php?a_id=92242
[131] Mills Soko, a researcher at the South African Institute of International Affairs in Johannesburg. www.engineeringnews.co.za/article.php?a_id=92242
[132]The Changing Pattern of International Trade in Textiles and Clothing…

cheap textile and clothing from China and second-hand cheap clothes from Europe.

Under current trade preferences, Africa has failed to significantly develop production along the value chain, by using cotton, wool and other raw material production, through spinning, weaving, knitting and design into finished goods production processes[133]. While no Sub-Saharan African countries are counted among the world's leading textile and clothing exporters, this is in no way a true reflection on the sector's economic importance in Africa. The Shahel countries in the West Africa have a long tradition in cotton production, but the local, cotton-based textile industry is now at a standstill. The price of cotton in the world market has sunk drastically as a result of the US's new farm bill that provides subsidies to the US cotton producers. Mali, the largest producer of cotton in Africa, processes its cotton in Germany and Austria because investments in textile machines are not profitable. African markets were flooded with cheap cotton garments from Asia. The Man-Made-Fibre (MMF) is not an option, since they are included in the MFA. Changes in the global dynamics of textile and clothing production and trade can better Africa's position. Cotton exports are not possible, although the Shahel in West Africa could be the right location globally for cotton farming when the bio capacity is to be the most scare resource.

The industrial production of textiles and clothing has never been as extensive in Africa as in Asia and Latin America. The MFA could have been of importance in Africa's integration into the world economy. The MFA was also meant to further the socio-economic growth in developing countries by securing a substantial increase in export incomes and shares in world trade in textiles and clothing products. The trade preferences are likely to be eroded within next few years due to the WTO negotiations on market access of non-agricultural products (NAMA) including negotiations on textiles and clothing with the aim is zero tariffs. The basic strategic selection of African entrepreneurs in textile and clothing is to invest in differentiated products in international trade. This selection can be visualized through figure 2.

[133] www.pambazuka.org/en/category/development/29776

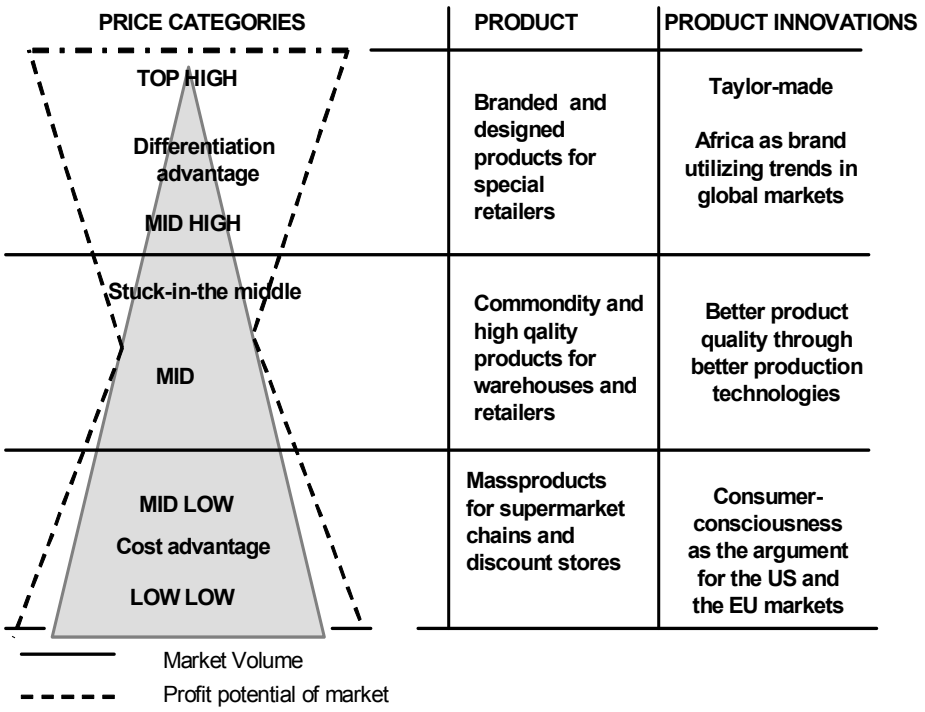

Figure 2: Differentiation as the strategic marketing selection

Supermarkets (MID LOW) and discount stores (LOW LOW)

Africa's supply of mass products for the growing supermarket (MID LOW) and discount store (LOW LOW) segments into the OECD countries is possible through FDIs in Africa's factories. China is the dominating actor in the mass production of textile and clothing because of economies of scale. In order to succeed in the global competition, investments in the modern technology and management are needed. Quotas against Chinese producers have been restrictive since the 70s, forcing Chinese and Taiwanese businessmen to internationalize their production through partnerships in sourcing and production investments. Indian businessmen have a long tradition as owners of African factories in the sector. African countries, notably Lesotho, Madagascar and Kenya, have seen a revival of their sectors owing to investments from Chinese and Taiwanese industrialists. Textile factories in the South Africa and in some of the countries of the East Africa are foreign owned and produce for exports.[134] In global economy, the clothing and textile diaspora and its ethnic networks is more and more important in the reallocation of production from Asia to Africa.

Clothing exports, seen as a proportion of total merchandise exports, have become the important driver of economic growth, particularly in Lesotho,

Mauritius, Swaziland, Madagascar and Kenya. There is unused capacity in Africa. Asia has its capacity limits in the low-cost production of textiles and clothes. The revaluation of China's currency is to be expected in the near future. While not uncompetitive per se, these economies are vulnerable to any shift in the global sourcing. In the short run, investments from China, Taiwan, India, etc is a good option for African countries like Lesotho, South Africa, Swaziland, Nigeria, Ghana, Mauritius, Zambia, Madagascar, Tanzania, Malawi, Namibia and Kenya to get access to global markets. Mauritius and Lesotho have openly signalled to rely on the diaspora in their industrial strategies. A diaspora strategy is realistic since global businessmen are opportunity-driven. If profitable, experience industrialists invest to take advantage of Africa's' quotas, preferences and unused capacity. The profit-making of foreign owners can be Africa's opportunity in the supply of mass products for supermarkets and discount stores.

The most important single factor as a catalyst of diaspora investments is the location advantage in terms of John Dunning. Export Processing Zones, EPZs is the concept adapted by many governments to attract investments and to increase exports. Removal or reduction of corporate taxes temporarily is an often used policy instrument. Tax policy is efficient if it encourages investments in modern equipments. Kenya's government has removed taxes on all cotton ginning and textile manufacturing machineries and dropped taxes on goods and services to cotton ginning factories to attract textile firms into its EPZs[135]. Because competition in the global markets is keen, a satisfactory proxy measure is the export success. Kenya has succeeded to increase its exports to the US from $44 to $226 million in 2000-2004 and is the second-largest exporter to the US from sub-Saharan Africa.

Relating to the EPZ the ITGLWF[136] is worried about working conditions, low wages, and long working hours. The political problem is African governments' competition for foreign investments that can lead to socially-damaging policies violating labour rights. Africa should learn from the history of FDI inflows. Even in a normal bidding with foreign businessmen have an opportunity to earn monopoly rents through incomplete contracting that is difficult to avoid. A country's negotiation power is weak against investors that in some cases can threaten the host country of their factories by deinvestments overnight or by closures of the factories without

[134]T Naumann (2006).
[135] These are specially created industrial areas that offer investors incentives such as tax exemptions and the ability to move funds freely into and out of Kenya. www.engineeringnews.co.za/article.php?a_id=92242
[136] International Textile, Garment and Leather Workers' Federation (ITGLWF)

offering any retrenchment benefits[137]. Opportunism and profit-maximization characterize the investment behaviour of businessmen and multinationals in Africa. African governments need the common pan-African policies with regard to the trade and investments in textiles and clothing.

In 2001, the United States' African Growth and Opportunity Act (AGOA) substantially improved market access for items such as clothing when shipped from eligible African countries. The AGOA, stipulated by the US allow 37 Sub-Saharan countries preferential treatment for special conditions to export a wide range of products to the US markets. Out of these, 23 countries are eligible for duty and quota-free access to the US textile and clothing markets. Preferential treatment of African countries is justified. The AGOA's quantitative limits are set above Africa's current exports to the US and, therefore, do not currently act as de facto restrictions as the ones set to Asian exporters, especially to China, actually do. The countries with the geographic proximity like Mexico, Honduras and the Dominican Republic, benefit from preferential market access to the US markets and capture about 18% of the US imports. African suppliers together accounted for fewer imports than Asian countries in the 2-4% band. As a result of improved US market access under AGOA, the clothing sector once again rapidly grew in importance in various African developing countries. [138]

In Kenya AGOA combined with EPZs is an important element of industrial policies to increase jobs. In Lesotho the clothing and textile industry is the single largest employer. Before the AGOA in 2000, Lesotho did not export clothes/ textiles under the WTO. In 2002, Lesotho overtook Mauritius as Africa's biggest exporter of textiles to the US. In 2003 Lesotho exported textiles worth $419-million. The AGOA provides a duty-free access to the lucrative US market that is of importance. What is most important is that all the factories that were closed have been reopened and the number of jobs is around 47,000. A factor is foreign ownership, mostly by Asian investors. Lesotho had welcomed foreign textile industry investors. In Lesotho, the clothing sector in particular had become the mainstay of formal economic activity. Also South African companies outsource certain production stages to Lesotho and Swaziland. The sensitivity of the sector can be seen in Lesotho where the strengthening of currency led in 2007 to several factories closures and lost of 10,000 jobs. New investments from South Africa and China can decrease volatility. Lesotho relies heavily on

[137]Trade Union Resolution on the Future of the African Textiles and Clothing Industries in: Herbert Jauch / Rudolf Traub-Merz (Eds.) The Future of the Textile and Clothing Industry in Sub-Saharan Africa Bonn: Friedrich-Ebert-Stiftung, 2006

America, which buys about 85% of its production, because Europe requires countries to source fabric locally in order to qualify for preferential access.[139]

Favourable rules of origin to source fabrics under the AGOA make it realistic to African countries to compete in the US markets. Certain African countries like Kenya, Lesotho and Mauritius that have a strong dependence on textiles and clothing industries' exports in their development logic. This has been a lifeline for apparel made in Africa, $1.3 billion of which was sold to America in 2006[140]. The EU allows the same treatment for some African countries through the Cotonou treaty. Africa accounts for about 1% of EU clothing imports. The utilisation rate of Cotonou has been rather low in the case of the EU Generalised System of Preferences (GSP) due to the strict rules of origin that do no allow to source fabrics from the world markets like the rules agreed by the US. African countries cannot compete in fabrics and yarns with Asia, primarily from China. The North African countries like Morocco are exceptions. Asian controlled firms can export to the EU both directly and indirectly[141].

Luxury (TOP HIGH) and trend (MID HIGH) products

The categories of luxury products (TOP HIGH) and trend products (MID HIGH) are possible to be revitalized in Africa. There are major differences between Asia and Africa in business cultures. In Kenya, the mass producing businessmen of clothing are Asian, while African are used to the custom tailoring. The start-ups or rationalizations of clothing factories are out of financial frames of African entrepreneurs, because the prices of modern machines have grown rapidly. The technology needed in mass production of clothes and textile is today the high-tech. Africa needs foreign investments in the sector. In the first place, investors are coming from the Asian clothing and textile diaspora. In the EU, networking has long been a vital element of regional clustering in textile and clothing industries. The low-priced supply of commodities from Asia, especially from China seriously challenges the famous Italian business model of networking between big brand-owners like Benetton and small subcontractors, especially in clothing. Brand-owners in the EU are looking for new business models for their marketing

[138]www.economist.com/business/displaystory.cfm?story_id=9516043
[139]www.economist.com/business/displaystory.cfm?story_id=9516043
[140]www.economist.com/business/displaystory.cfm?story_id=9516043
[141]According to the EUROSTAT database (2005), key suppliers to the EU in 2004 are: Mali €42 million, Chad €27 million, Cameroon €26 million, Sudan €14 million and Zimbabwe €22 million, Ivory Coast €9 million and Mozambique € 9 million.

and logistics and they are ready to shift production to wherever it makes sense.

Competition from China has splitted European clothing and textile firms into two blocks. Brand-owners perceive globalization as opportunity for buying and selling, when small manufacturers feel the threat that their domestic partners (brand-owners) abandon them[142]. Besides Asian producers, African producers can be the winner of the new partnership (contract manufacturing) of brand-owners. There are new movements of consumer consciousness that seems to create trends that favour Africa. A media for the trend making is music. The industry's revival in Lesotho can be attributable to the attention that Lesotho got by the POP music through singer Bono from U2 rock band[143]. Global brand-owners as Levis, GAP and Nike have made orders from Lesotho to include social responsibility as an element of their brand imago. Many large retailers and brands are back in Lesotho[144].

Africa is relatively the most land-locked continent, logistically far away from international markets. The transportation logistics inside Africa is the problem. Caravans cross the Sahara, as the problems with using cars in the desert are many and there are only a few major roads. In the Sahel countries, motorcycles and bicycles are often used for transport in rural areas, as they travel on gravel roads. The public bus and train transportation is available nearby coastlines. Walking is the mode of transportation used most often by people in Africa. Asian countries have succeeded to better their relative location by placing their export industry centers near-by the coastline. Asian countries have invested in transportation networks. Globalization set a kind of minimum standard to all elements of infrastructure, including logistics of people, goods, services and money. The Internet is a commodity that any entrepreneur or student in Africa should have an access to. African countries need to learn about Asian countries in their development logics.

Africa cannot compete with mass products against Asia. Luxury (TOP HIGH) and trend (MID HIGH) products are not possible to sell without a good product quality. The standard is not impossible to reach, since the modern machine technology makes it easier to maintain a good product quality. Referring to my own work experiences[145] and studies[146], it is

[142]www.iwto.org/Projects/ISEP/2006/Report_Peter%20Cain
[143] U2 rock band singer Bono visited Lesotho's textile industry and launched a new label Product Red to generate durable funding from top commercial brands and consumers to fight HIV/AIDS in developing countries like Lesotho.
[144] Lesotho is a part of an ethical trade agreement through an MFA forum pilot program that aims to attract large brands and retailers to source in Lesotho.
[145] In 1970-1971: Job Researcher, Porin Puuvilla Oy
In 1971-1974 Factory rationalization; research and development, Friitala Oy

possible to claim that about 70% of the consumer value in luxury and trend clothes is based on design communication of brand-owners and wholesalers/ retailers. Africa needs its own original design and brand-content that can be communicated globally. Africa's image among ordinary people is the green continent. Green is also Africa's colour in the Olympic ring. Africa has good opportunities to strengthen its image as the producer of environmentally friendly products, including sustainable production methods and materials.

Niche shops and retail chains like Marks & Spencer in the UK and Wal-Mart in the US have eco-friendly images and are selling organic clothing. The Organic Exchange is a non-profit organization focused on facilitating the growth of a global organic cotton industry[147] by increasing consumer awareness of production circumstances of cotton. The consumer awareness is rising in the US, in the chemical-loving country. In the US even 80% of the cotton crop comes from GM seeds and the use of pesticides and synthetic fertilizers is huge. For the Sahel Africa, the organic cotton[148] is the way to reduce the soil depletion. Organic cotton could be the article where Africa has a comparative advantage, although organic conversion is labour-intensive and crop yields lower than regular cotton and it is difficult to distinct organic cotton from the ordinary kind[149]. Selling organic cotton clothing is profitable to big farmers since the new Farm Bill maintain the area-based subsidies. The "Green Ribbon"[150] symbolizes the campaign in the US to bring hope to farm families who struggle with low farm prices, rising input costs and corporate-controlled markets. Eliminating the US cotton subsidies[151] and the dumping of cheap raw cotton are necessary to

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In 1985-1989 Board member, Nanso Oy

[146] About ten major studies of the sector, including field-research in Italy
See also: Annaflavia Bianchi: Industrial Reshaping and International Production: the Italian Garment Industry and its Linkages with Morocco, Romania and Turkey www.economia.unimore.it/convegni_seminari/CG_sept03/programma.html

[147] Members include Coop, Cutter & Buck, Hess Natur, Marks and Spencer, Mountain Equipment Cooperative, Nike, Norm Thompson, Otto Versand, Patagonia and Timberland. www.organicexchange.org/

[148] Organic cotton is fibre that does not come from genetically modified (GM) seed and has been grown without the use of man-made pesticides and fertilizers. www.eeaecon.org/5th%20Inter%20Papers/Final%20Paper%20-%20Ancy%20T..htm

[149] www.economist.com/research/articlesBySubject/displaystory.cfm?subjectid=2440248&story_id=8355148

[150] www.ncrlc.com/NewFarmBillCampaign.html

[151] In September 2004, a WTO dispute panel found that $3.2 billion in annual cotton subsidies and $1.6 billion in export credits paid by the US in cotton and other commodities were illegal under WTO rules. The case, brought by Brazil and supported by some West African cotton-producing countries (Benin and Chad), was appealed by the US in October. Today's appeal decision is final and the US has until July 1 this year to comply or face possible trade sanctions by Brazil. www.organicconsumers.org/clothes/wtocotton30405.cfm

fulfil its WTO obligations and bring relief to the millions of struggling farmers in Sahel Africa[152].

The West African cotton-producing countries (Benin and Chad) appealed with Brazil and India to WTO dispute panel about the US cotton subsidies and export credits. The US had offered to reduce the farm subsidy to $17 billion a year, but Brazil and India did not accept it[153]. Africa's countries need global partners like Brazil and India that are influential in the WTO. An increasing number of people world-wide and even in the US are waking up to environmental concerns. This will in time make a huge impact on the kind of textile fibres used for the clothing industry. Unsustainable fashion markets can at least partly be replaced by sustainable, environmental fashion markets. Africa needs its own brand that denotes environmental and social quality in communication of design. In all continents, consumers have seen TV-documents of uncontrollable use of chemicals for instance in India's textile and clothing industry[154]. Therefore, natural dyes that are known since the early 19th century could be a part of Africa's image. They are extracted mainly from roots, stems, leaves, flowers and fruits of various plants and could provide African designers an effective design tool.[155]

Referring to the consumer's awareness of the sustainability of our globe, the intrinsic value of Africa as a brand could be based on the certified social quality of production and on subsidy-free farming. Well-know brands have huge marketing potential and they can easily be transferred over borderlines and be modified according to consumer preferences. Considering also that the sector is highly market-driven, when compared with other production sectors, buyers (retailers) are reactive to the trends of season in their sourcing decisions. The WTO TRIPS has increased global royalty and licensing (r&lf) payments[156] to $130 billion in 2004. The US multinationals control about 80 %. This business accounts for 6 % of world commercial services trade in 2004 and the growth rate of global r&lf payments is estimated to have been 11 % in 2000-2004. For the EU-15, Japan and the US combined received annual r&lf payments from Africa is

[152] "The case against US cotton dumping is overwhelming and now confirmed yet again by the WTO," said Celine Charveriat, spokesperson for Oxfam's Make Trade Fair campaign. www.oxfam.org/en/news/pressreleases2005/pr050303_wto.htm

[153] www.textileasia-businesspress.com/

[154] www.infochangeindia.org/features61.jsp

[155] www.textileasia-businesspress.com/

[156] Balance of payments statistics provide information on the international flows of r&lf, defining them as "the exchange of payments and receipts between residents and non-residents for the authorized use of intangible, non-produced, non-financial assets and proprietary rights (such as patents, copyrights, trademarks, industrial processes, franchises, etc.) and with the use, through licensing agreements, of produced originals or prototypes (such as manuscripts and films)". Sources: IMF, Balance of Payments Statistics; Eurostat, national statistics and WTO estimates.

$600-$800 million, while their payments to Africa is $60-$180 million. Africa's nature and culture are treasures for branding[157]. Africa as the global brand has all ingredients of success.

Africa needs a common organization to follow the internal registration of immaterial property rights. The risk is that multinationals patent the best ingredients of the Africa's nature that make it impossible to Africa to compete globally in branding[158]. African entrepreneurs are skilful to use and to repair mechanical devices. The really top design is always at least partly hand-made. Hand-made quality with high pricing is a part of top high segment that in developed countries account totally about 10 % of volume. "Made in Italy" is still a strong argument and includes always a human touch. "Made in Africa" could be a strong argument for tailor-made suited and dresses. High-tech is the decisive production factor in high-design business. Global tailoring could be a big business opportunity.

[157]The Chinese textile sector still has some weaknesses, including weak innovation, insufficient investment in research and development, and a lack of internationally recognised Chinese brands. N de Villiers - First Agenda, 1999 - openafrica.com
[158] Rise and fall of African textile industry provides cautionary tale, March 15, 2005, by Sapa-AP, by Tom Maliti.

4 AGRICULTURE: CHINA IS THE WINNER AFRICA THE LOOSER

4.1 Open global trade - a utopia?

World trade in agricultural products totals $674 billion in 2003[159], 7 % of the whole. This trade is an important source of foreign exchange earnings for many countries. The big player is the EU whose intra-regional trade is $233 billion[160]. Africa and its over 900 billion habitants represent only a marginal portion of world trade, $9 billion in exports and $11 billion in imports. The share of agricultural products of total trade is the biggest in Africa, 13.9% in exports and 15.9% in imports. No African countries can be found in the list of top exporters[161]. Because of big population, Africa's own demand for various food products is large, more than $50 billion[162]. The paradox in the Africa imports 25% of its food grain[163] and export only marginal portion of the world trade in food products.

In the late 1970s, LDCs had net export surpluses $1-2 billion when they now have net deficits of $4 billion[164]. The share of food imports of LDCs' total exports has grown to 70%, signalling the economic disaster in LDCs that have even continuous difficulties to pay for their food imports. The two major consumers of agricultural products are the EU and the US. In 2005, LDCs' total exports to the EU were $3.5 billion. The EU's relative share of

[159] www.wto.org/english/res_e/statis_e/its2004_e/its04_bysector_e.htm
[160] The second is intra-Asia with $70 billion and the third North America to Asia with $38 billion.
www.wto.org/english/res_e/statis_e/its2004_e/its04_bysector_e.htm
[161] The world biggest exporters are ($ billion): The US 76, the EU-15 73, Canada 33, China 22, Australia 18, Thailand 15, Argentina 12, Malaysia 11, Mexico 10, Indonesia 10, New Zealand 9, Russia 9, Chile 7 and India 7. The world biggest importers are ($ billion): the US 77, the EU-15 98, Japan 55, China 44, Canada 18, Korea 15, Mexico 13, Russia 13, Switzerland 7, Saudi Arabia 6, Thailand 5, Indonesia 5 and Turkey 5.
www.wto.org/english/res_e/statis_e/its2004_e/its04_bysector_e.htm
[162] Diao, Xinshen & Dorosh, Paul & Rahman, Shaikh (2003) Market opportunities for African agriculture," DSGD discussion papers 1. ideas.repec.org/e/pdo121.html
[163] For wheat the share of imports is 64 %. Diao & etc.
[164] www.wto.org/english/res_e/statis_e/its2004_e/its04_bysector_e.htm

exports to Africa's LDCs is 80% [165]. The second biggest target market for LDCs is Asia. In 2005, LDCs' total exports to Asia were $3.1 billion[166]. North America with a large scale production of agricultural products has only marginal position in the trade between LDCs. The share of agricultural exports of total LDC exports to the EU has declined from about 25% to about 10% over the WTO-period from 1995 (Table 7).[167]

Table 7: Share of agricultural exports of total LDC exports to the EU

	The EU imports form LDCs			
	1995		2005	
	€ Million	% Total	€ million	%Total
ALL PRODUCTS	7.170	100	15.719	100
Agricultural products	1.821	25	1.527	10
Fish and fishery	0.406	6	0.857	5
Industrial products	4.943	69	13.334	85
WTO AGRICULTURE	1.821	100	1.527	100
Raw agricultural	1.812	100	1.517	99
Oilseeds and oils	68	4	51	3
Fruit & Vegetables	211	11	332	21
Cotton	229	13	87	6
Sugar	43	2	137	9
Tropical	1.116	61	754	49
Other	111	6	146	10
Processed products	2	0	9	1

Source: Euro stat COMEXT 2006 (S.R. 4) Trade - G/2 Paul Verburgt

The growth in the agricultural exports is crucial in reducing poverty in Africa. The trend of the EU imports is going to the opposite direction. The EU is importing mainly industrial products, not agricultural ones. The EU is exporting itself €433 million more than importing, when imports from LDCs had €383 million deficit in 1995. The African LDCs have a comparative advantage in such commodities as fruits, sugar and tropicals in which import tariffs are low and the effect of liberalization is marginal. Agricultural products from Africa meet the saturated demand in the EU, in particular coffee, cocoa and tea. Processed products represent the biggest potential in global markets with 9.7% average annual growth in 1995-2005.[168] It is important to notice that the new EU member countries increase the EU's production capacity substantially in agriculture when they

[165] www.trade.ec.europa.eu/doclib/html/120307.htm
[166] www.wto.org/english/res_e/statis_e/its2004_e/its04_bysector_e.htm
[167] www.trade.ec.europa.eu/doclib/html/120307.htm

have modernized their farming. Processed forms of products of cereals, cocoa, coffee, fruit, vegetables, root crops, etc has been in growth in trade because of their functionality. Africa as the producer of has been pushed out of the increasing value added by the unfair trade policies of the US and the EU.

The economic problems of Africa are serious. The International Fund for Agricultural Development (IFAD) estimates that seven out of ten of the world's poor live in rural areas. They include smallholders, landless laborers, traditional pastoralists, artisanal fishers and marginalized groups such as refugees, indigenous peoples and female-headed households. Agricultural growth spreads its benefits widely. Growth in farmers' and farm laborers' incomes create demand for basic non-farm products and services in rural areas. These include tools, blacksmithing, carpentry, etc that are difficult to trade over regions. They are produced locally, usually with labour-intensive methods, and have great potential to create local entrepreneurship that is the best broad recipe for poverty reduction.[169] Local entrepreneurship creates demand for welfare services (education, health services, and safe water).

Asia understands better than the EU Africa's logic of development. Growing economies in Asia are best partners to African producers[170]. Developing countries liberalized their agricultural trade in the 1980s under structural adjustment reforms[171]. When agricultural trade was subjected to systematic multilateral controls during the Uruguay Round, developing countries had good reasons to expect a fair pact. The agreement negotiated by the WTO's is Agreement on Agriculture (AoA). Under the AoA non-tariff barriers such as quotas were replaced by tariffs. This is a measure used by the WTO to increase transparency in international trade. The key non-tariff barriers that African countries meet in the markets are agricultural subsidies. The AoA includes a promision to reduce subsidies. The progress in non-tariff barriers has been minimal. The total support to agriculture in the OECD countries is estimated to be over $300 billion[172] that is almost one half of the total value of world trade in the sector.

The EU-27 (about 13 million farmers) has its Common Agricultural Policy, CAP. The total payments to farmers in the EU have increased since

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[168] www.trade.ec.europa.eu/doclib/html/120307.htm
[169] www.fao.org/docrep/004/y3557e/y3557e07.htm
[170] Burkina Faso exported to Asia to $174 million of agriculture that represents 32% of Burkina Faso's GDP. It consists mostly of livestock but also sorghum, pearl millet, maize (corn), peanuts, rice and cotton.
www.en.wikipedia.org/wiki/Burkina_Faso#Economy
[171] Trade and Structural Adjustment: Embracing Globalisation (OECD, 2005)
www.oecd.org/department/0,3355,en_2649_33705_1_1_1_1_1,00.html
[172] ftp://ftp.fao.org/unfao/bodies/ccp/ccp64/Y8318e.doc

the CAP decreased price supports but more than compensated that through payments to rural development, environmental protection and programs designed to improve the sustainability of rural economies. The EU subsidized sugar production by about $2 billion. The EU is a major sugar exporter, even though its production costs are double higher than in many developing countries[173]. The EU use actively even tariffs under the AoA e.g in the case of frozen beefs. The EU is worry about the hormones that are used in the U.S. and some other countries. Although this moral issue is acceptable its action is against non-discriminatory principles of the WTO. CAP farm support expenses were $61 billion in 2004 (45% of the EU's total budget). Agriculture is 1.7 % of the EU's GDP, and 4.3 % of the EU population was employed in agriculture[174].

Export subsidies mean that EU agricultural goods are sold in EU markets and in the third world markets at much lower prices than they should be, creating unfair competition for local producers as well as producers from third countries. Export subsidies help to maintain an oversized production in the EU, while costing money to EU taxpayers. In 2002, President Bush signed into law a new farm bill worth $180 billion[175]. Bush's arguments to Congress for the farm bill included that it expands international trade and is based on free market principals. In the US, farm subsidies grew faster than any other major federal program and the new farm bill is the most expensive farm bill in the history of any nation. Through the farm bill the US will spend more on subsidies than on education and environmental protection combined[176]. The free market principal is a paradox if the real beneficiaries of the new farm bill are big actors[177]. According to the World Bank, West African cotton exporters already lose about $250 million a year as a direct result of U.S. subsidies and this figure will rise sharply[178]. In West Africa, cotton-based textile and clothing manufacturing could be the growth driver but the farmers cannot compete against subsidies[179].

The WTO Doha round of multilateral trade negotiations (MTNs) gives a substantial focus on development concerns[180] to secure LDCs meaningful

[173] www.fao.org/docrep/006/j0083e/j0083e04.htm
[174]www.ers.usda.gov/Briefing/EuropeanUnion/basicinfo.htm
[175] How agricultural subsidies in rich countries hurt poor nations, Wole Akande, columnist (Nigeria)/YellowTimes.org 19Oct 02.
www.mindfully.org/WTO/Subsidies-Hurt-Poor-Akande19oct02.htm
[176]www.heritage.org/Research/Agriculture/BG1538.cfm
[177]"Sugar's First Family," Center for Responsive Politics, at www.opensecrets.org/pubs/cashingin_sugar/sugar08.html
[178] Wole Akande
[179] The US handed out $3.9 billion in subsidies to 25 000 cotton farmers in 2001–2002, more than the GDP of Burkina Faso, where 2 million people depend on cotton for their livelihood. www.fao.org/docrep/006/j0083e/j0083e04.htm
[180]Doha WTO Ministerial 2001: Ministerial Declaration, WT/MIN(01)/DEC/1, Geneva: World Trade Organization, 14 November.

integration into the global economy. The agricultural trade of LDCs' primary products lags behind and only processed agricultural products that multinationals dominate are in the fast growth. The history of politically argumented protection makes it difficult for the OECD countries to liberalize agricultural trade. A possible solution to that could be trade negotiations where market access is exchanged to the mutual benefits of the trading partners[181]. Small and poor countries need multilateral bargaining[182] even in cases of the monopoly power of multinationals. Many of them are vertically integrated, covering the whole chain from production to food processing and distribution. By controlling large parts of the supply chain, they can put pressure on farmers and retailers. In Africa multinationals have tied farmers into unfavourable buying and selling contacts, including violation of the proper environmental standards. The concentration of NMCs has been rapid[183] because of the neo-liberalistic policies adapted by most of the states' governments and IGOs, the UN as the only major exception. In practice, the industry concentration has run out of the control especially in the markets of commodities[184].

Complete liberalization of agricultural trade could produce valuable welfare gains. According to the FAO, impacts of complete agricultural trade liberalization are substantial[185], an estimation of the boost to global incomes is $165 billion a year. The biggest benefits would go to consumers and taxpayers in the EU and the US, where agriculture is most protected. Agricultural exporters in LDCs could get open entry to global markets in cereals, milk, meat and sugar, like the WTO and the UN have declared[186].

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[181]Grossman, Gene and Helpman, Elhanan (2003) Innovation and Growth in the Global, Technology and International Trade in Witt, Ulrich (2003) The Evolving Economy, Cheltenham, Edward Elgar, Aldershot.

[182] Multilateral Trade Negotiation: The Case of Small Developing Countries, First draft: April 27, 2006 (Preliminary) Kornkarun Kungpanidchakul https://mywebspace.wisc.edu/kkungpanidch/web/paper/multilateral%20trade%20negotiation.pdf

[183] In 1996, five MNCs accounted for about 50 % of world trade in green coffee, and four coffee roasters accounted for 50 % of the roasted coffee market. In cocoa, the number of trading houses in London has been reduced from 30 in 1980 to around 10 in 1999. The six largest chocolate manufacturers account for 50 % of world chocolate sales. www.navdanya.org/pdf_files/roti.pdf

[184] Some examples of that are: 4 firms control 50 % of the US broiler market and 46 of the US pork market, and 4 firms control 80 % of the US beef packaging and 60 percent of the pork packing market. Monsanto and Syngenta account together for 35 % of the global market for crop protection and 19 % of the one for seeds. www.fao.org/docrep/004/y3557e/y3557e07.htm

[185] www.fao.org/docrep/004/y3557e/y3557e07.htm

[186] Paragraph 42 of Ministerial Declaration of the 4th WTO Ministerial Conference in Doha in November 2001 states: "We commit ourselves to the objective of duty-free, quota-free market access for products originating from LDCs". www.wto.org/English/thewto_e/minist_e/min01_e/mindecl_e.htm
The paragraph 68(h) of the program of action for LDCs, endorsed at the third UN Conference on LDCs, states: "Improving preferential market access for LDCs by

This would provide substantial gains for labour-intensive agriculture in Africa. Sub-Saharan Africa is the region with unfavourable agro-ecological conditions and inadequate transport/ communication infrastructure. For most agricultural goods, the AoA's impact on prices and levels of trade has been negligible. The reason for that are the unfair trade policies of the US and the EU that exert a negative influence on the development of agriculture in Africa. Preference erosion arising from reductions in most-favoured-nation tariff rates is an important issue. The products most affected are the primary products, such as rice, sugar, milk, wheat, and maize that poor countries produce. Products, like coffee, tea, and fruits, face the problems of high, complex and seasonal tariffs, and tariff escalation. The real beneficiaries of subsidies and unfair trade agreements are multinationals. A measure of the monopoly power is the widening gap between world consumer prices and farmers compensations. Multinationals press the prices even in Africa where farmers have not subsidies when subsides in rich countries can be up to 80% of farmers' production costs.

4.2 The strategic choices of African agricultural entrepreneurs

The basic strategic selection of African agricultural entrepreneurs is to invest in differentiated products in international trade. Besides there is local supply of perishable agricultural products like fresh, non-packaged vegetables. This selection can be visualized through figure 3.

working towards the objective of duty-free and quota-free market access for all LDCs' products. This will apply to the markets of developed countries". www.un.org/events/ldc3/conference/plan_action.htm

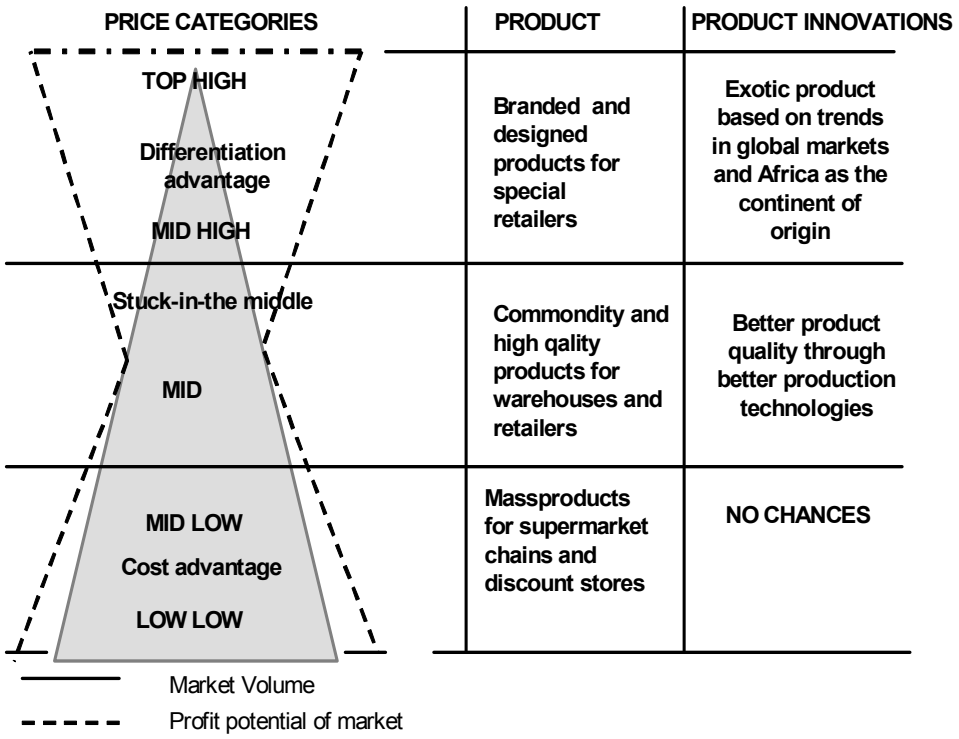

Figure 3: Differentiation as the strategic marketing selection

The African supply of agricultural mass products for the growing markets of supermarkets (MID LOW) and discount stores (LOW LOW) is not very competitive. The product content in these segments consists of processed agricultural products. The supermarkets (MID LOW) are dominated by large multinationals in the internationally tradable product categories. Multinationals have enough resources to invest in production automatization. Discount stores are also partly dominated by multinationals. In addition to that discount stores sell the global surplus that is big because of two reasons:

1. Over $300 billion subsidies in the OECD countries maintain a huge overcapacity of agricultural products

2. Markets in the EU and the US are closed of products by poor countries and huge unsold capacity of agricultural products exists in these countries that brokers can utilize.

The categories of luxury products (TOP HIGH) and trend products (MID HIGH) are potential for African agricultural entrepreneurs, but only

through top branding[187]. Africa is in the core, if its firms can respond to new trends of consumption. Substantial changes have taken place in the composition of agricultural exports over the past two decades. Changing consumption patterns in developed countries has fuelled a rapid growth of trade in products like fruits, vegetables, berries, mushrooms, fish oils, etc that are related to consumers' health. There is unlimited number of ingredients[188]**.** The growing popularity of ingredients derived from Africa can be utilized to create for Africa's exporters' brand products with growth potentiality in the pan-African and the OEDC markets[189]. The luxury and trend products are not easy business to do. African entrepreneurs need partners. Foreign firms can improve productivity, and to upgrade skills, methods, standards and technologies. Networking is useful in the first steps of creating of new products with high value-added. Prices of products related to health have increased in the OECD markets. These trend products are Africa's opportunity to get back its position in international trade.

Warehouses and retailers (MID) is the segment of quality products. These products offer opportunities for Africa's commodity-dependent exporters in agriculture if they can meet the de jure standards. Standards of international standard-setting bodies are not only ones. Consumers are increasingly worried about the quality of the products they buy, the environmental and social conditions[190] under which they have been produced. Rising consumer concerns of food quality or global pandemics have led to the risk-based standards that are expensive to African entrepreneurs to fulfil, because they need to pay specialists[191]. The de facto standards set by retailers reflect the consumers' concerns. Trade in the processed products is expanding rapidly, but there are obstacles that hinder Africa's entrepreneurs from diversifying into these products. Africa's

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[187] In the list of 100 most valuable brands of Interbrand, there are no one from Africa. bwnt.businessweek.com/brand/2005/index.asp

[188]Cranberry seed oil with omega-3 and omega-6 fatty acids is emerging as an ingredient like pomegranate because of its antioxidant capacity and antimicrobial activity. Oregano oil is being promoted as an immune-system stimulator. Flaxseed oils are healthy for its omega-3. The fruit pulps of the baobab have an antioxidant activity even more than kiwi. www.ffnmag.com/NH/ASP/strArticleID/1112/strSite/FFNSite/articleDisplay.asp

[189]www.confectionerynews.com/news/ng.asp?n=77282-phytotrade-africa-baobab-novel-foods

[190] According to Joseph Mudingu, it is difficult to overemphasize agriculture that employs about 70 % of sub-Saharan Africa's work force and generates an average of 30 % of the region's gross domestic product. Production in much of Africa is hampered by poor soils, erratic rainfall and severe under-investment in rural infrastructure and inputs. www.allafrica.com/stories/200706060486.html

[191]www.isis.europe.org/ftp/Download/FORESIGHT.%20REPORT%20October%202006.pdf

entrepreneurs have difficulties to cover the costs of standards in export markets. Stagnating world demand, declining prices, unfavourable market access, competition from subsidized production and supply-side bottlenecks are some of the barriers in exporting.[192]

In most of the OECD countries, warehouses and specialized retailers in agriculture are stucked in the troubles by competitive pressures of growing markets of supermarkets and discount stores. They have to develop niche markets. An opportunity for that is consumers' interest for organic food with high environmental and social quality. In many countries, consumers are willing to pay a price premium, over 20% for branded products of organic foods, particularly fruits and vegetables. New business models as the fair-trade branding and other socially and environmentally responsible marketing practices can substantially improve earnings of producers in Africa. Organic foods from Africa have good competiveness. The problem is that the price paid for small producers in Africa is only a marginal part of the final consumer prices in the OECD markets. Small producers in agriculture sector, have a need for their own production capacity to fabricate processed forms of organic foods and their own marketing channels and brands.

Co-operatives are a good solution for farmers in Africa. Various types of co-operatives exist, e.g.: farmers' organisations, agro-pastoral co-operatives, saving and credit associations, traders' unions etc.[193] Co-operatives can facilitate purchase of inputs and selling of outputs, keep communal stores, to save money and to provide credits to the members etc. An important function could be to better farmer's market position in the pan-African and the OECD food markets. Modern biotechnology can help by producing seeds and crops that resist insects and diseases and do better in poor soil. For most of history, technological innovations have been freely shared public benefits, spillovers of scientific research. A free access to biotechnology is difficult to maintain since firms patent to protect their investments. Most of the applications of biotechnology are big-scale, global businesses. Firms in the branch have no economic incentives to apply the modern biotechnology to the problems of small-scale farmers in Africa. The global patenting has since the WTO's TRIPS been complex.

Taylor and Cayford[194] argue for a policy to help small farmers to get access to patented biotechnology by establishing a compulsory and nonexclusive

[192] www.fao.org/docrep/004/y3557e/y3557e07.htm
[193]www.rug.nl/cds/research/researchareas/researchtwo/cooperativeWestAfrica
[194] Taylor, Michael and Cayford, Jerry (2004) American Patent Policy, Biotechnology, and African Agriculture: The Case for Policy Change, Harvard Journal of Law, Science and Technology, Volume 17, Number 2.

license requirement for agricultural biotechnology. Policy makers in the US and EU have focused on the disputes of GM (genetically modified) crop approvals and its labelling and traceability regulations. The large-scale commercialization of the GM is going on in big countries, Argentina, Brazil, China and South Africa, in few commodities like canola, cotton, maize, and soybeans, and in two key traits: insect tolerance and herbicide resistance[195]. Most of countries in Africa have not entered GM production. The GM technology can raise a farmer's incomes, better the food security (small farmers consume their own harvest), and enhance the nutritional value of foods. The Golden Rice with enhanced Vitamin A prevents blindness that is unfortunately common in Africa. The protein content in major food grains, such as wheat and maize, can better nutrition in Africa. Bountiful rice, the Nerica, a new rice variety is a cross between an ancient, hardy African rice variety, and a high-yielding Asian variety. Nerica is suitable for small-scale farming[196].

Agricultural biotechnology has the potential to improve the food security and reduce the environmental pressures in Africa, provided that the risks associated with the biotechnology are properly addressed[197]. The GM technology can speed up the Green Revolution in Africa, primarily because of the combination of improved seed varieties, chemical inputs and mechanization. Africa's agriculture is needed because in most other continents yields are close to maximum. The sustainable agriculture that can feed a growing world population, up to 10 billion people in the 21st century, is based on productivity growth. The major advances are possible in Africa. Advance agricultural technologies that increase yields on existing land with reduced amounts of water must be developed. Relying exclusively on conventional breeding technologies for further yield increases may not be an option. With yields in the world reaching their limits with conventional technologies, GM technologies can provide a boost to yield potential.[198]

Michel Taylor is a former vice-president for public policy at Monsanto, and Jerry Cayforth from Resources for the Future (RFF) in Washington.

[195] www.foei.org/en/publications/pdfs/gmcrops2006full.pdf

[196]The Nerica, which was developed by the scientists of the West Africa Rice Development Association (WARDA), combines the features of both of its parent plants. The Nerica is resistant to drought and pest, have higher yields even with little irrigation or fertilizer, and has more protein as compared to the other rice varieties. www.un.org/ecosocdev/geninfo/afrec/vol17n04/174rice.htm

[197]Segenet Kelemu, the Centro Internacional de Agricultura Tropical (CIAT) www.africabiotech.com/biotechinfo/reports/agbiodebate2003.pdf

[198]Abdalla, Ali, Berry, Peter, Connell, Peter, Tran, QT, & Buetre, Benjamin. (2003). Agricultural biotechnology: Potential for use in developing countries. Canberra: Australian Bureau of Agricultural and Resource Economics. African Centre for Technology Studies. (2003) Implications of biotechnology to food security in Kenya.

5 ENERGY - THE BIG GLOBAL DRIVER

5.1 Oil and gas energy sector is in pressure

Africa is well endowed with oil and gas reserves. Africa's economically recoverable oil and natural gas reserves account for 10% of the world's total. Africa consumes 3.4% of global oil and 2% of gas but produces 12% of global production of oil and 5.9% of gas[199]. Africa consumes less than 30% of its oil and gas and exports the rest. Oil and gas resources are concentrated in a relatively small number of countries and sub-regions (North and Western Africa). Algeria, Angola, Libya, Nigeria are the major producers. Other producers are Egypt, Sudan, Equatorial Guinea, Congo Republic, Chad, Gabon, Tunisia and Cameroon. In fact, many more African countries like Ghana could become important net oil exporters in the long run if recent trends will continue. There have been noticeable changes in the geography of oil and gas in Africa since the 1990s and Africa is still relatively open to foreign oil exploration.

According to OPEC, the proven crude oil reserves are: OPEC-members 922 billion barrels and non-OPEC-members 273 billion barrels, in sum 1.195 billion barrels. The major part of OPEC oil reserves is located in the Middle East (Saudi Arabia 262 billion barrels, Iran 136, Iraq 115, Kuwait 101, United Arab Emirates 97, and Qatar 15) contributing about 2/3 of the total[200]. Other resource-rich countries are: Canada 179 billion barrels, Russia 60, Kazakhstan 30, the US 21, China 16.0, Mexico 12, Brazil 11, Norway 7, and Azerbaijan 7). Table 8 describes the key figures of Africa's OPEC-members from the year 2006.

[199] www.africa-union.org/.../Conferences/Past/2006/November/infrastructure/doc/en/AU_EXP_OG_5_Fuelling_Eng.doc

[200] "Worldwide Look at Reserves and Production," Oil & Gas Journal, Vol. 104, No. 47 (December 18, 2006), pp. 24-25.

Table 8: Key figures of Africa's OPEC-members,

	Algeria	Angola	Nigeria	Libya
Value of exports (billion $)	53.22	28.07	52.77	37.46
Value of oil and gas exports (billion $)	38.34	27.50	52.52	36.95
Proven crude oil reserves (bn barrels)	12.20	9.04	36.22	41.46
Proven natural gas reserves (bn cu. m.)	4,504	270	5,210	1,420
Crude oil production (1,000 b/d)	1,369	1,392	2,234	1,751
Consumption of refined Products (1,000 b/d)	255	61	256	250
Crude oil exports (1,000 b/d)	947	1,010	2,248	1,426
Exports of refined products (1,000 b/d)	435.1	14.2	50.3	183.1
Natural gas exports (billion cu. m.)	61.07	-	-	8.41

Source: OPEC

The investment that OPEC members (notably, Saudi Arabia and Angola) are making to expand their oil production capacity is expected to more than offset the slower expansion of non-OPEC supply. Angola as the results of deepwater exploration could increase its production from 1.0 million barrels per day to 4.0 million by 2030, assuming political stability, FDI inflows, and access to modern technology. FDI flows are needed especially in offshore production. Geopolitical issues in some OPEC countries, including Iraq, Iran, Venezuela, and Nigeria, make it difficult to estimate future production levels. Indonesia, Mexico and Venezuela, the resource-rich countries are expected invest carefully. The North Sea production is projected to decline. Promising deepwater discoveries in the Gulf in Mexico are under the loop of sustainability. The current economic downturn and civil unrest in countries like Ecuador and Colombia have delayed development of its oil production infrastructure. Egypt and Tunisia produce mainly from mature fields. Sudan is expected to increase significantly its

volumes. Eritrea, Somalia, and South Africa have some resource potential. Some West African producers such as Cameroon, Chad, Congo, Equatorial Guinea, Gabon, Ghana, Mauritania, Niger, Sao Tome and Principe, and Ivory Coast are expected to benefit from the substantial exploration activity. [201]

The transportation sector will dominate petroleum-based liquids products. Growth in economic activity and population growth are the key factors that determine transportation sector energy demand. Economic growth spurs growth in industrial output, which requires the movement of raw materials and manufactured. As standards of living rise, demand for personal transportation increases. Over the next two decades, demand for liquid fuels is expected to increase more rapidly in the transportation sector than in any of the other end-use sectors. In the OECD countries, which will remain the greatest users of energy for transportation, the transportation sector's share of total liquids demand is projected to rise from 58% in 2004 to 63% in 2030. In the non-OECD countries, the transportation sector is projected to account for a rising share of liquids consumption, and the liquids share of transportation energy use grows from 42% in 2004 to nearly 50% in 2030.[202] For freight transportation, trucking is expected to lead the growth in demand for transportation fuels. Freight trucks are projected to be the fastest growing mode of travel in the US. The volumes of freight transported by air and marine vessels are expected to increase rapidly until 2030[203].

China's energy use for transportation is projected to grow by an average of 4.9% per year until 2030. China is projected to account for 28% of the total increase in world liquids consumption from until 2030[204]. Virtually all the growth in transportation energy consumption in China is projected to be in the form of liquids, mostly petroleum based[205]. Economic growth, rapid urbanization, and the emergence of a modern transportation system all have contributed to the increase in China's liquids consumption. India is the second of newly industrialized countries India's transportation energy use is projected to grow at an average rate of 3.3% per year until 2030. India's transportation infrastructure is relatively well developed. Its

[201] International Energy Outlook 2007. Chapter 3: Petroleum and Other Liquid Fuels www.eia.doe.gov/oiaf/ieo/oil.html
[202] International Energy Outlook 2007. Chapter 2: Energy Consumption by End-Use Sector. www.eia.doe.gov/oiaf/ieo/pdf/enduse.pdf
[203] Energy Information Administration, Annual Energy Outlook 2007 , DOE/EIA-0383(2006) (Washington, DC, February 2007) www.eia.doe.gov/oiaf/aeo
[204] International Energy Outlook 2007. Chapter 2: Energy Consumption by End-Use Sector. www.eia.doe.gov/oiaf/ieo/pdf/enduse.pdf
[205] As compared with 130.8 million cars in the US in 2005, the number of cars in China is 4.5 million is modest. Asian Automotive Business Review, Vol. 17, No.2 (April 2006).

railways are well established. India will continue to expand its public transportation networks in the near future, allowing robust increases in both road and rail transport and resulting in a more than doubling of transportation energy use until 2030[206]. Both China and India have launched their national highways development projects to modernize its major highways. Over the past two decades, the growth in non-OPEC liquids production has resulted in an OPEC market share substantially below its high of 52% in 1973. In 2004, OPEC produced 41% of the world's liquids supply. High oil prices, new exploration and production technologies, aggressive cost-reduction programs by industry, and the emergence of unconventional resources contribute to the outlook for continued growth in non-OPEC liquids production. [207]

Natural gas consumption in the non-OECD countries grows more than twice as fast as in the OECD countries. Consumption of natural gas worldwide will increase 63% until 2030. Natural gas remains the key fuel in the electric power and industrial sectors. Natural gas burns more cleanly than coal or petroleum products. The national/ regional plans to reduce carbon dioxide emissions encourage the use of natural gas to displace liquids and coal. Almost 75% of the world's natural gas reserves are located in the Middle East and Eurasia. Russia owns 27.2% of the total, 1,680 trillion cubic feet of the world total 6,183[208]. Russia's extensive pipeline network reaches into Europe and in the near future China and South Korea. In addition, Russia is beginning to enter LNG markets. It has traded pipeline gas for Atlantic LNG cargos, has plans to develop LNG export facilities to serve the Atlantic market, and soon will start exporting LNG from its Pacific coast.[209] The major part of gas reserves is located in the Middle East (Iran 15.8%, Qatar 14.7%, Saudi Arabia 3.9%, United Arab Emirates 3.5%, Iraq 1.8%, and Kuwait 0.9%) contributing about 40% of the total[210]. The Middle East already exports significant quantities of LNG. In 2005, 15% of the LNG exports from the region went to North America and Europe and 85% to Asia. Africa is expected to be important sources of natural gas production in the future. About 50% of the production from

[206] International Energy Outlook 2007. Chapter 2: Energy Consumption by End-Use Sector. www.eia.doe.gov/oiaf/ieo/pdf/enduse.pdf
[207] International Energy Outlook 2007. Chapter 3: Petroleum and Other Liquid Fuels www.eia.doe.gov/oiaf/ieo/oil.html
[208] Source of gas deposits: "Worldwide Look at Reserves and Production," Oil & Gas Journal, Vol. 104, No. 47 (December 18, 2006), pp. 22-23.
[209] International Energy Outlook 2007. Chapter 4: Natural Gas www.eia.doe.gov/oiaf/ieo/pdf/nat_gas.pdf
[210]Other resource-rich countries are: the US 3.3%, Nigeria 2.9%, Algeria 2.6%, Venezuela 2.5%, Turkmenistan 1.6%, Kazakhstan 1.6%, Indonesia 1.6%, Norway 1.3%, China 1.3%, Malaysia 1.2%, Uzbekistan 1.1%, Egypt 0.9% and Canada 0.9%.

Africa is exported. In 2030, the export share of production from Africa is projected to increase. Several pipelines from the North Africa to Europe are under consideration, and LNG export capacity in the West Africa continues to expand. Reserves in the world are fairly evenly distributed on a regional basis. Despite the increase in natural gas consumption, regional reserves-to-production ratios are substantial. Worldwide, the reserves-to-production ratio is estimated at 65 years. [211] The leading regions in the ratio are: Middle East 100 years, Africa 88 years, Russia 80 years, and Central and South America 52 years.

The industrial sector will account for 43% of world natural gas consumption in 2030. With world oil prices expected to remain high, natural gas is projected to displace liquids in the industrial sector to some extent. The OECD countries are projected to rely increasingly on imports to meet natural gas demand, with a growing percentage of traded natural gas coming in the form of LNG. Natural gas is expected to be the fastest growing fuel source in the OECD Europe. Growth in natural gas use for power generation is projected to account for the majority of total incremental gas use to 2030. Natural-gas-fired generation is less carbon-intensive than oil- or coal-fired generation and is expected to remain more cost-competitive than renewable energy, making natural gas the fuel of choice for new generating capacity in OECD Europe.[212] Led by demand in China and India, natural gas consumption in Asia is projected to expand rapidly. In both China and India, natural gas currently is a minor fuel in the overall energy mix. Historically, the US has been the large producer and consumer of natural gas. Canada's unconventional and Arctic production both are expected to increase until 2030. An Alaska pipeline is expected to begin transporting natural gas from Alaska to the lower 48 States in 2018, contributing significantly to US domestic supply.

5.2 Africa's oil industry: diversification and new oil field discoveries

Libya's crude oil reserves (41 billion barrels) are 3 % of world reserves and natural gas (1420 billion cubic meters) reserves are the third largest in Africa. Because of the sanctions against Libya since the early 90s, 75 % of Libya's territory that covers a major part of Sahara remains unexplored. Libya exports over 80 % of its oil production but only 5 % of its gas

"Worldwide Look at Reserves and Production," Oil & Gas Journal, Vol. 104, No. 47 (December 18, 2006), pp. 24-25.
[211] BP Statistical Review of World Energy 2006 (London, UK, June 2006), p. 22.
[212] International Energy Outlook 2007. Chapter 4: Natural Gas

production, mainly to Europe. In 2006, Libya accounted for about $37 billion from exports of crude oil, natural gas and refined petroleum products. The industry represents 30-40 % of Libya's GNP and about 95 % of its total exports. Libya produces high-quality, low-sulphur crude oil that is highly valued by markets. Libya's government expects that FDI inflows into the Libyan oil and gas industry will reach $10 billion in the next 10 years. Gas is exported to Italy via the newly-installed 'Green stream' gas export pipeline (520 km) under the Mediterranean Sea. Libya has a total of five oil refineries of which two are relatively large.[213] Libya is building its infrastructure from the ground up. Most country risk analysts are reluctant to improve the political risk rating of Libya. Libya needs foreign investments and technologies. Political or even military conflicts could destroy the investment climate. Political and economic stability in Sahara and Sahel-Sahara fulfil the best interests of both Libya' leaders and investors[214].

Algeria's known oil reserves are important (12 billion barrels) but not in the level of Libya. The natural gas reserves (4.5 billion cubic meters) are the fifth biggest in the world and the second in Africa. The oil and gas industry is also the key pillar of the Algerian economy, representing 25% of GNP and 70% of exports. In 2006, Algeria exported $38 billion from exports of crude oil, natural gas and refined petroleum products. Algeria exports 70% of its crude oil production and 75% of its gas production, also mainly to Europe. Algeria has created the oil and gas industry cluster that is well integrated to global markets, with pipelines reaching Europe, maritime routes to the US and Asia, and an important knowledge base in the industry[215]. Algeria has succeeded to use oil and gas incomes to lift the standards of living of the Algerian population. The challenge of Algeria is the diversification of the industrial structure to other export industries to create a real economic profile as an industrialized nation. The proven oil reserves in Algeria are consumed in a decade. This is the time span that Algeria has to attract foreign investments and technologies in the industries that diversify the exports industries out the oil and gas dependence.

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www.eia.doe.gov/oiaf/ieo/pdf/nat_gas.pdf

[213]www.times-publications.com/publications/times_articles/corporate_africa_spring1999/petroleum_potential5.htm

[214] Since 1997, the Qadhafi regime has argued that the country is firmly rooted in Africa. Libya has become a player in Saharan and Sahelian affairs, through its role in CEN-SAD (Community of Sahel-Saharan States) that intends to work, together with the other regional economic communities and the Organization of African Unity, to strengthen peace, security and stability and achieve global economic and social development. www.iss.co.za/ASR/12No2/C2.html

[215]www.w01.international.gc.ca/MinPub/PublicationContentOnly.asp?publication_id=378190&Language=E&MODE=CONTENTONLY&Local=False

The OPEC-members are dominating the energy sector in the North Africa. Egypt has oil producers besides its borderlines (Saudi Arabia, Libya and Sudan) and a good geographic location for the oil-related industries. China and India needs the Middle East and the North Africa as the oil suppliers to continue their ambitious growth[216]. In 2005, the oil and gas exports were $5 billion accounting for 40% of exports. Egypt's trade deficit was $6 billion[217] but incomes from tourism ($6.4 billion) and Suez Canal receipts ($3.3 billion) lifted the balance of payment in a surplus of $ 4.5 billion[218]. With increasing domestic demand and maturing oil fields in the Gulf of Suez, Egypt has not chances to compete with its neighbours in the oil exports. The increasing international activity in the sector is indicative of confidence for Egypt[219]. International oil extraction and refining firms have long been in Egypt and promising new sources of crude have been found in the Western Desert. Egypt's known oil reserves are 15.5 billion barrels. Egypt's gas reserves are estimated to be 120 billion cubic metres[220] that have about the same energy content than 20 billion barrels crude oil.[221] Natural gas is found mainly in the Nile Delta. Egypt's government has good reasons to encourage the production of natural gas for increasing domestic energy consumption that now accounts for almost 50% of all hydrocarbon usage in Egypt. Egypt is a major player in energy sector although the known oil reserves are moderate. Industrialization in global terms is an important target to diversify the economy and to strengthen the export sector.

Mauritania is a new oil producer that has crude oil reserves at the level of 600 million barrels[222]. This is smaller than the annual crude oil production of OPEC-members. Mauritania is one of the world's poorest countries and hopefully benefits from the crude the oil price boom. Tunisia's oil reserves are 394 million barrels and gas 100 billion cubic metres[223]. Morocco and Tunisia have built up compensation funds that are used to subsidize oil and gas prices when they exceed a certain price. Tunisia has already raised gasoline prices several times. Morocco has been more reluctant to follow that path because a great deal of the Moroccan population may not be able to spend more on energy[224]. The North Africa is well equipped to utilize global energy markets. The diversification from the basic production

[216]India's largest firm Reliance Industries Limited (RIL) in the industry in terms of market capitalisation is looking into investing $10bn in Egypt's oil, petrochemicals and plastics sector. www.oxfordbusinessgroup.com/weekly01.asp?id=3186
[217]www.okaz-stockbrokers.com/Economy.pdf
[218]Egypt, Economics, 10/20/2005
[219]www.oxfordbusinessgroup.com/weekly01.asp?id=3186
[220]www.oecd.org/dataoecd/12/39/2498037.pdf
[221]Egypt, Economics, 4/19/2006
[222]www.eitransparency.org/section/countries/_mauritania
[223]w01.international.gc.ca/MinPub/PublicationContentOnly.asp?publication_id=378190&Language=E&MODE=C...

towards an energy cluster is going on. Because of favourable location and well-developed infrastructure, Egypt is the potential country for the global growth of new related clusters like the plastic cluster. All nations in the region need FDI inflows and technology transfers. The political, military and social stability is important to be maintained in the region. The US, the EU and Asia are reliant on the North Africa's oil because of its high-quality and low-sulphur. The North African nations have already revised oil law which restored state-control to exploration projects. Algeria has planned a new windfall tax[225]. They are all good instruments to motivate international actors to develop their business in the region from the long run perspective.

The proven oil reserves in the Gulf of Guinea are 50 billion barrels, when Saudi Arabia has alone 261 billion. The proven gas reserves are big but difficult to estimate. Most of the reserves in the region are offshore. The location of oil and gas fields out of the coastlines is an advantage for oil and gas extractors. Big oil tankers can tank crude oil directly from oil platforms and navigate across the Atlantic towards America, Europe or Asia. Along the coast of West Africa from Mauritania to Angola, off-coast exploration is yielding major results. Oil industry experts predict that by 2022 the industry will invest over $40 billion in the Gulf of Guinea[226]. Because the oil logistics in the ocean is isolated from the land, oil extractors can contract directly with governments. Oil spills and natural gas flaring[227] in the Niger River Delta are horrible. This is a sad story of corruption and military ruling[228]. Farmers and fishermen in the region have lost their living[229]. Air pollution from natural gas flaring leave the region shrouded in smog. Although the situation is improving with regulations, the marine pollution is a serious problem. The key challenge is to manage their oil wealth in a sustainable manner. Good governance, accountability and transparency in the oil and gas industry should be possible since since the oil extractors are

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[224]www.north-africa.com/blog/?page_id=10
[225]www.aspo-usa.com/index.php?option=com_docman&task=doc_view&gid=435
[226] West African Oil, U.S. Energy Policy, and Africa's Development Strategies by J. Anyu Ndumbe
www.muse.jhu.edu/journals/mediterranean_quarterly/v015/15.1ndumbe.html
[227]Nigeria flares more natural gas than any other country in the world, with 43 % of its total annual natural gas production being flared. Nigerian flared natural gas accounts for 20 % of the world total. Nigeria is working to end natural gas flaring by 2008. www.oilgasarticles.com/articles/89/1/Natural-Gas-Reserves-in-Nigeria/Page1.html
[228] In 1998, when Nigeria's military ruler, General Sani Abacha, died he was found to have stolen $4 billion from Nigeria's budget that is not the only case.
www.time.com/time/magazine/article/0,9171,901021028-366267,00.html
[229]The so-called oil pipeline vandalism, including foreign oil worker kidnappings, has increased in both frequency and volume of products and crude oil losses in the Niger Delta. From 1,121 cases in 2000, it increased in two fold to 2,258 in 2005.
www.gasandoil.com/goc/company/cna64184.htm

well-know firms from Europe (e.g. TotalFinaElf and Royal Dutch Shell) and the U.S. giants (e.g. ExxonMobil and Chevron).

The proximity to the US is a relevant issue[230]. To protect its oil logistics in the Gulf of Guinea, the US plans a permanent military base[231]. The US naval ships constant patrolling in the waters of Gulf of Guinea could certainly increase the security of oil platforms and tankers. The Gulf of Guinea is a hot area in the global oil politics. The US is the leading importer of oil from the region, and the US multinationals dominate the oil business. One of the US firms' advantages is their experience in deep water drilling in the Gulf of Mexico. According to a National Intelligence Council report, supply levels to the US are expected to grow from the current 16% of U.S. oil imports to 25% by the year 2015[232], increasing the strategic importance of the region in the US politics. The global military and security politics are built on the reasoning in the US[233]. The US is the major benefiters of the high quality oil from the Gulf of Guinea. Most Africans do hope that the US could do partnership with Africa for mutual benefit, not for exploitation. The US politics to get Africa's oil at any price cannot be the historical hegemony politics. In our globe, the only choice for the survival is collaboration over continents, states, ideologies, religions, etc.

The growth of global energy consumption means that competition for energy reserves will become more and more intensive in the years to come[234]. The US is the world's leading energy consumer. Rapid economic growth in China in the last 25 years has resulted in an accelerating demand for oil products. China imports about 50% of its crude oil from abroad. China contributed 35% of the worldwide demand growth for crude oil in the period 2001-05[235]. The International Energy Agency estimates that 80% of Chinese oil consumption will be met by imports in 2030, which increases China's vulnerability to external supply disruptions[236]. The world's refinery capacity is now insufficient for huge growth in the demand of refined

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[230]The US government has defined African oil as a "matter of strategic national interest in which the US might choose to use military force" (2001 National Energy Policy).

[231] The US has 1,500 troops stationed in Africa, principally at its military base in Djibouti. The US has naval exercises in the Gulf of Guinea. The increased US military presence means that the US has opened up another front in its war on terrorism. www.algeria-watch.org/en/analyses/scramble_oil_africa.htm

[232]Reginald Dale, "An African Answer for U.S. Oil Woes," International Herald Tribune, 1 February 2002.www.iht.com/articles/2002/02/01/think_ed3_.php

[233] The Gulf of Guinea is more potential than the Middle East because there is not combative political culture (radical Islam) or ideology (communism) in the region. U.S. Moves to Protect Interest in African Oil," Alexander's Gas and Oil Connections, 1 October 2002. www.gasandoil.com

[234]Klare, Michael (2001) The New Geography of Conflict, Foreign Affairs, June 2001. www.foreignaffairs.org/2001/3.html

[235]www.cmi.no/publications/file/?2438

[236]www.gasandoil.com/ogel/samples/freearticles/article_15.htm

products. The aggressive outward FDI by China, including state-owned enterprises in energy mean that China will be a major global player in the energy markets.[237] Africa is one of key regions for Chinese oil and gas supply. In seeking access to oil resources, Chinese companies are partners in extraction even in Sudan. In some African countries, China offers "soft loans" for infrastructure projects to secure its access to oil. China's trade, investment and aid activities in Africa have been growing rapidly over the past decade. In 2006, China's aid to Africa totalled $5.75 billion and trade between China and Africa reached $56 billion[238]. The West African crude oil is easily accessible by sea to the EU, the US and Asia. The high quality of the crude from West Africa makes it ideal for Chinese refineries, which have not the capacity to refine heavy, sulphur-rich crude from the Middle East, etc.

The Gulf of Guinea has strong ties to Europe. All states are former European colonies and orientate towards Europe e.g. in academic education. Migration to Europe is the dream that many of young people have. Family ties between migrants and relatives at home are strong. Some of the EU-states have major parts of their oil imports coming from the region. The EU's historical role is in the institution-building. The states in the region are poor, their legitimacy is low and they have not the whole territory in their control[239]. Contracting with multinationals has been rewarding for political elites, not for citizens. Millions of poor households spend a big share of their expenditure on oil products or they have no access to oil. Achieving self-sufficiency in energy is an issue per se, especially in the land-locked West African countries. Higher oil and gas prices in recent years and the lack of intra-regional energy infrastructure have increased the cost of domestic energy supplies. The EU has launched its CRM (Civil Crisis management) that focuses on democracy institutions and civil administration. The states in the Gulf of Guinea have needs for economic institution-building that might include:

1. The development of uniform pan-African markets for energy products and other important commodities.

[237]www.newstatesman.com/200706180024
[238]About 80 % of China Exim Bank's projects in 36 African countries are committed to infrastructure development, such as railways (Benguela and Port Sudan), dams (Merowe in Sudan; Bui in Ghana; and Mphanda Nkuwa in Zambia), thermal power plants (Nigeria and Sudan), oil facilities (Nigeria), and copper mines (Congo and Zambia).
www.wilsoncenter.org/index.cfm?topic_id=1421&fuseaction=topics.event_summary&event_id=224956
[239]In the Niger Delta violent clashes between armed groups and government forces take place from time to time while in the Angolan enclave of Cabinda the militant

2. The development of win-win-models of how the states can build efficient partnerships with the big trade-blocks (the US, the EU and Asia) and multinationals.

3. The most critical question is: How Africa can utilize its oil and gas wealths to find its way to industrialization and entrepreneurship[240] in the shortest possible time?

The Gulf of Guinea has not its own refineries when in the North Africa large-scale refineries are in governmental control and national oil companies have hired competent management that enables them to extract much of the oil resources without assistance from the international oil companies. In the Gulf of Guinea multinationals dominate the business. The states have mainly small, inefficient, and outdated refineries in states' control. The quality of the oil products produced in refineries does not meet international standards. The refining production mix is not either in balance with the oil product demand in export markets.[241] The Gulf of Guinea needs regionally integrated industrial policies to catalyst downstream investments in current of new oil plants to increase its refinery capacity. Because of technology barriers to be overcome and high investment costs to build up a new refinery, the Gulf of Guinea West Africa needs reliable partners. An investment in a new refinery producing 100,000 barrels per day of is estimated to be 1-$1.2 billion[242].

Nigeria, Africa's most populous country, is experiencing a period of civilian rule since 1999. High oil prices have contributed to Nigeria's GDP growth (4.5% in 2005 and 6.2% in 2006). In 2006, Nigeria accounted for $52 billion from exports of crude oil, natural gas and refined petroleum products, mainly to the US, China and Europe. Nigeria is an oil-dependent country, since the oil sector is 99% of Nigeria's exports, 90% of the oil production is exported and government's incomes are 75% oil-related.

Front of Liberation of the State of Cabinda (FLEC) continues to operate. www.isis-europe.org/ftp/Download/FORESIGHT.%20REPORT%20October%202006.pdf

[240]Angola as case: At the microeconomic level, despite the signs of recovery in the private sector, risk taking and entrepreneurship continue to be stifled by high de jure and de facto barriers to entry, including privileged access tomarket opportunities and finance for a small number of business people. Some important reforms have been made – for instance, to accelerate the procedures for establishing new companies – but implementation has been delayed in practice by the poor state of the bureaucracy.
www.oecd.org/dataoecd/26/16/38561655.pdf

[241]www.eia.doe.gov/pub/oil_gas/petroleum/analysis_publications/oil_market_basics/trade_text.htm

[242]www.africa-union.org/.../Conferences/Past/2006/November/infrastructure/doc/en/AU_EXP_OG_5_Fuelling_Eng.doc

Nigeria has 60% of external dept in relation to BNP[243]. Nigeria has huge oil and gas reserves. Increased exploration in deep water is promising. The government expects that proven reserves could reach 40 billion barrels[244]. The production and consumption of energy in Nigeria is small[245]. In Nigeria, over 50% of the population is living on incomes below the internationally defined poverty line of $1 per day. Nigeria's will increase its gas exports. FDI inflows by Royal Dutch Shell and ExxonMobil[246] in LNG (Liquefied natural gas) plants are a good beginning. Nigeria has got support to develop its infrastructure[247]. Nigeria's national oil company can take the control of oil and gas sector[248] and stop the pollution of old and new fields. Offshore Nigeria's gas previously flared will be soon be converted into the LNG and integrated with the West African Gas Pipeline (WAGP) for natural gas export to Benin, Togo and Ghana[249]. The West African Gas Pipeline (WAGP) is the flagship project of the ECOWAS.

Angola is a fast growing oil economy with huge offshore projects boosted by the government. Angola exports 95% of its oil production, mainly to the US and China, oil accounting for 40% of the country's GDP. Both countries have roughly 40% shares of Angola's oil exports. Angola has been a successful non-OPEC country in deep-water discoveries in the 1990s and the 2000s. Angola exports of crude oil, natural gas and refined petroleum products are $28 billion, 99% of Angola's exports. The external debts are 50% of BNI[250]. Oil reserves are estimated to be $9 billion barrels[251]. However, 70% of Angola's 12 million people live in poverty in a wealth country. China assists Angola in infrastructure reconstruction[252]. Angola's

[243]www.oecd.org/dataoecd/33/56/36741748.pdf
[244]Commercial discoveries by Triton, Chevron, Shell, Exxon-Mobil, and Texaco. muse.jhu.edu/journals/mediterranean_quarterly/v015/15.1ndumbe.html
[245]www.oilgasarticles.com/articles/88/1/Downstream-Oil-and-Gas-and-Refining-in-Nigeria/Page1.html
[246] Royal Dutch Shell, which produces nearly half of Nigeria's oil, will invest $10 billion in the near future to develop another deep offshore hub and other prospects including natural gas. ExxonMobil will raise Nigeria's about $10 billion investments in Nigeria of which $3 billion would be invested in gas flaring tomweston.net/West%20Africa.pdf
[247] In October 2005, the 15-member Paris Club announced that it would cancel 60 % of the debt owed by Nigeria.
[248] Nigeria's national oil company, formed through the restructuring of the country's oil and gas sector, will be a fully integrated oil and gas company competing internationally in all sectors of the industry. www.rigzone.com/news/article.asp?a_id=50540
[249] www.oilgasarticles.com/articles/90/1/West-Africa-Nigeria-LNG-Natural-Gas-Production/Page1.html
[250]www.oecd.org/dataoecd/37/35/36734978.pdf
[251] Major oil companies include Chevron-Texaco, Exxon-Mobil, and BP.
[252] In 2004, China offered Angola $2 billion 'soft' loan without political strings attached. The money was earmarked for reconstruction in railways, electricity and administration. China employs its own labor force, not the local one in major

oil production is expected to double in the near future. Angolan national oil company (Sonangol) is the one that grants exploration licenses[253]. Angola's oil and gas industry will grow offshore that makes environmental issues sensitive[254]. Angola has emerged as the US' and China's loyal supplier, like Nigeria. Angola and Nigeria are claimed to be the most corrupted countries in the region. The loyal partner is not the nation but more the rulers.

São Tomé, a former Portuguese colony, consists of two small islands with a population of 200,000. São Tomé could become the Kuwait of Africa of having the biggest per capita income. São Tomé is in the focus of the US political-military interest[255]. The offshore blocks in the Gulf of Guinea between Nigeria and São Tomé hold $4-11 billion barrels of reserves at depths of between 1-1.5 miles. The treaty between countries provides 60% of the revenue to Nigeria and the rest to São Tomé. The proven crude oil reserves are $4 billion barrels[256] and the future estimations are much higher. The contracts with multinationals are unfavourable[257]. President of the republic has been accused of being part of the deals[258] that means that São Tomé will see only a part of oil income for many years. According to UNDP[259], São Tomé has "resource curse" of oil reserves. After the coup, São Tomé problems exist[260]. São Tomé has money but has not the political and financial institutions. São Tomé has hired experts to advice on how to deal

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construction projects. Judith van de Looy (2006) Africa and China: A Strategic Partnership? ASC Working Paper 67/2006. www.ascleiden.nl/Pdf/wp67.pdf

[253]A joint venture (Sonangol Sinopec International) was created between Chinese Sinopec (75% of the consortium) and the Angolan national oil company (Sonangol) to operate stakes in offshore oil blocks and to build a $3 billion refinery at Lobito. coombs.anu.edu.au/SpecialProj/ASAA/biennial-conference/2006/Alves-Ana-Cristina-ASAA2006.pdf

[254]The Rosa field is located 200 km offshore Angola, at water depths of up to 1,700 m. Kissanje and Dikanza fields are part of the Kizomba B project and are located in block 15 in water depths of approximately 1,000 m. tomweston.net/West%20Africa.pdf

[255] The US has initiated a maritime-cooperation agreement with 11 West African states. www.secureenergy.org/site/page.php?node=364&id=7

[256] Simon Robinson, "Black Gold," Time Europe, 28 October 2002 www.time.com/time/magazine/europe/0,9263,901021028,00.html

[257]Big oil companies such as ExxonMobile, ChevronTexaco and Royal Dutch/Shell have expressed interest in bidding for exploration licenses that would pour millions of dollars into the islands. The oil will take a long time and substantial investment to extract and is unlikely to reach the market before 2007 or 2008. But arguments over oil revenues have fuelled political and social disputes in recent months. www.iags.org/n0805035.htm

[258] Fradique de Menezes was elected president in 2001. After meeting President Bush at the White House in 2004, a small army group made a bloodless coup during a state visit to Nigeria. Eventually Nigeria negotiated a better deal and oil was in the background. www.politicianonline.net/archive2003.htm

[259]UNDP notes that $35-$40 million a year in aid money to São Tomé in 2004 disappeared. www.igac.net/pdf/publications_adb_manyfacesofcorruption.pdf

[260]The U.S, the UN, Portugal and the African Union all condemned the coup. An agreement negotiated between the coup leaders and international envoys, called for a new government, remained de Menezes as president and separated powers of the presidency, parliament and other state institutions. www.iags.org/n0805035.htm

with the windfall taxes and new oil law. What is needed is the EU's CRM. São Tomé is an example of oil boom. In its neighboring countries the petro-wealths have been more often a curse than a blessing[261]. The US has a treaty making São Tomé a strategic regional base which is expected, within 10 years, to provide large amounts of oil to the US[262].

Equatorial Guinea with about 500,000 people consists of the mainland Río Muni, islands of Bioko, Annobón and of some small islands. Oil-wealths have been both a curse and a blessing. The mainland and the islands are far apart in environment, population, economy and history. The country has became one of the largest oil and gas producers in region, when ExxonMobil, Marathon and some others invested $3 billion oil and natural gas extraction in the Atlantic[263]. GE Petrol, Equatorial Guinea's national oil company manages the government's interest stakes in production sharing contracts with international oil companies, although it participates in joint ventures and markets its share of crude oil production. Equatorial Guinea's oil reserves are estimated to be $12 billion barrels. The average income is $5,000 per capita. In 2006, exports income from oil and gas was $9 billion. The stock of total external dept is 50% of BNP[264]. The major target markets were: the US 24%, China 28%, and Spain 11%. Oil dependence is 60% of government revenues. Equatorial Guinea is a target of investors and adventures. The major course is, however, the corruption that has claimed to be related to the top politicians in the country[265].

Gabon is a relatively wealthy country with many natural resources. In 2006, exports income from oil and gas was about $5 billion, 77% of total exports. The major target markets are: the US 53%, China 8.5%, and France 7.4%. Oil dependence is 50% of governmental revenues. The national debt is 40% of the annual government budget[266]. Oil reserves are 2.5 billion barrels. The average income is $7,200 per capita[267]. This is a good level, but incomes are unevenly distributed to just over 1.4 million people. Gabon has been in the oil business since the late 1960s. The oil incomes have been used to the huge governmental spending, the state bureaucracy and construction of the capital, Libreville. Gabon has no state-owned oil firm. Gabon's basic problem is that one family controls the economy and

[261] The list of problems includes e.g.: massive corruption and human rights abuses perpetrated, environments wrecked and coups and militarization common. www.africafiles.org/atissueezine.asp?issue=issue3
[262] www.just-international.org/commentary/e%20news%20Apr%2005.pdf
[263] www.africafiles.org/atissueezine.asp?issue=issue3
[264]www.oecd.org/dataoecd/35/1/1824667.pdf
[265] Catholic Relief Services (CRS) says that without fundamental changes by international actors in Equatorial Guinea "the current mix of oil dependence, neglect of agriculture, corruption, poor administration and authoritarian rule are the recipe for a bleak future." www.africafiles.org/atissueezine.asp?issue=issue3
[266] www.ded.mo.gov/researchandplanning/indicators/international/cty7550.stm

politics[268]. That is the major reason why governmental spendings are out of control.

Congo began to develop its oil industry in the 1980s, which is the primary source of economic growth, accounting for 94% of exports. The timber industry is the second best in exporting. Congo relies on oil for more than 60% of its annual budget. Congo's national oil company, the Société Nationale des Pétroles du Congo (SNPC), regulates the oil production and exploration in the country. SNPC develops production sharing agreements (PSAs) with each foreign company that operates in Congo to ensure a constant minimum flow of revenue to the government.[269] Congo's crude oil reserves are 1.6 billion barrels. The majority of these reserves are located offshore. About 75% of Congo's territory has remained unexplored. Congo ships 46% of its oil exports to China. The civil war in Congo-Brazaville destroyed the infrastructure. 70 % of the population earns less than $1-a-day and 50% has no access to clean water. While the country's oil exports are valued at more than $3.5 billion, its per capita income keeps going down. Congo has one of the highest debt-to-GDP ratios in the world. Total is the leading oil producer and foreign investor in Congo, producing 60 % of oil output. Like other countries in the region, Angola's oil and gas industry will grow offshore in the near future and environmental issues are vital[270].

Cameroon is an oil producing country, although reserves, production and exports are in decline. In 2006, exports income was $4 billion. Oil is a key economic sector along with cash crops and wood. Oil incomes were $2 billion. A fairly large gas field has been found at Sanaga that could supply the planned thermal power plant at Kribi.[271] GDP per capita was $2,400. The sectors in relation to GDP are dominated by agriculture, about 45% and industry is only 16%. The 16 million people of Cameroon hopefully benefits from the 1,000 km-pipeline in Cameroonian territory. The transit fees are supposed to be $500 million. One of the contractors, ExxonMobil is accused of undertaking illegal practices in the pipeline project, including pollution of Lake Chad's international fishing, drinking water and farming industries. The World Bank has conditioned its involvement on transparency. The World Bank can assist in assuring the participatory

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[267] www.strategis.ic.gc.ca/epic/site/imr-ri.nsf/en/gr-05087e.html
[268] According to Le Monde (Dec. 16-22, 2005), the extended Bongo family has such a grip on power "that its control of the country's fabric is more glaringly obvious than anywhere else in Africa... " www.africafiles.org/atissueezine.asp?issue=issue3
[269]commercecan.ic.gc.ca/scdt/bizmap/interface2.nsf/vDownload/CABS_0027/$file/congo.pdf
[270]The Congolese authorities have given Total permission to begin developing the Moho-Bilondo project, located around 80 km offshore in water depths ranging from 600 to 900 m. tomweston.net/West%20Africa.pdf
[271]www.oecd.org/dataoecd/37/2/36735844.pdf

quality of the process while staying clear of influencing the outcomes.[272] In Ghana, Tullow Oil[273] has proclaimed the discovery of world-class oil field off the coast of Ghana. The size of the field is 800 million barrels[274]. State-owned Ghana National Petroleum Corporation has attracted foreign partners, with new business arriving from the UK, the US, Australia and Korea. The government has planned to privatise Tema Oil Refinery (TOR) and oil marketer Ghana Oil (Goil). Ghana's stock of total external dept was 120% of BNP in 2002[275]. In Ghana, it is important and also intended that the ordinary people could benefit from the economic growth[276].

Sudan is a sad serious example of what the political involvement of big oil consumers (the US and China) means. In 1995, China's National Petroleum Corporation began oil exploration in Sudan and has expanded steadily. In 1997, the US imposed economic and trade sanctions on Sudan and China filled the gap to diversify its oil resources[277]. Sudan has a reliable economic partner that does not question the politics[278]. Sudan is Africa's largest country and has a long history of bloody internal conflicts. China has supported the Sudanese government and ignored ethical issues of democracy and human rights. Sudan has relatively developed economy. Sudan's oil reserves are moderate, estimated to be 5 billion barrels. The GDP is about $80 billion (2004) and GDP per capita $1,900**.** Exports are $3.4 billion (2004). In addition to petroleum products, Sudan exports cotton, sesame, livestock, groundnuts, gum arabic and sugar. Oil exports to China accounted for 64% of Sudan's oil exports. Japan's share of export is 14%. Chinese companies have secured significant rights to oil, while the US and others are seeking UN sanctions in response to the war in the South of Sudan[279].

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[272] www.africafiles.org/atissueezine.asp?issue=issue3
[273] Tullow Oil Plc is a leading independent oil and gas exploration group, which has interests in 120 exploration and production licences across 23 countries.
[274]www.business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article2305305.ece
[275]www.oecd.org/dataoecd/24/28/32429910.pdf
[276] President Kufuor gives hope: "Oil is money, and we need money to do the schools, the roads, the hospitals..."www.globalpolitician.com/articles.asp?ID=2997&print=true
[277]China National Petroleum is the biggest shareholder in Sudan's energy sector. China paid most part of the $15 billion 932-mile pipeline to Port Sudan. About 10,000 Chinese workers employ in Sudan. Africa and China: A Strategic Partnership? Judith van de Looy, ASC Working Paper 67/2006 www.ascleiden.nl/Pdf/wp67.pdf
[278] The UN Security Council passed Resolution 1556 that demanded that the Sudanese government disarm the Janjaweed. China threatened to use its veto power and urged the West to 'cool down'. www.sudanwatch.blogspot.com/2004_09_01_archive.html
[279]China National Petroleum is the biggest shareholder in Sudan's energy sector. China paid most part of the $15 billion 932-mile pipeline to Port Sudan. About 10,000 Chinese workers employ in Sudan. Africa and China: A Strategic

5.3 Africa has the poorest energy interconnection

African countries need to control their national oil reserves. Some African countries, especially the North African ones, have made a lot of progress in their petroleum sector. The countries in the Gulf of Guinea are still lagging behind. What is needed is the diversification towards related industries like the plastic industry. Most of countries in the region have the state-owned, national petroleum companies aimed to control licenses to exploration and extraction. This is a good starting point assuming that African managers have the compentences to negotiate efficiently with multinationals. The Gulf of Guinea needs FDI inflows, and taxes from multinationals. National budgets cannot be based on signature bonuses[280]. In the poor countries depending on one resource (diamonds, gold, timber, gas/oil, etc.) seven bad things can happen when oil or other valuable resources are found in a poor country ("resource curse")[281]:

- prices rise,
- the government loses interest in everything else but oil,
- officials become corrupt,
- multinationals reward individuals via secret accounts,
- there is increased military spending,
- democracy is undermined, and
- big, prestige white elephant projects get built.

The countries in the Gulf of Guinea have huge reserves of high-quality gas and oil reserves. The global demand and prices of high-quality and refined petroleum products will remain high. The Gulf of Guinea is in the focus of new field explorations. Oil supply in the global markets is increasingly limited to a few giant fields, with 10% of all production coming from just four fields and 80% from fields discovered before 1970. Saudi Arabia, the most important oil source, will not be able to expand production. The finding of a convential oil field in the size of Ghawar (125bn barrels) in Saudi Arabia, the world's largest, is not probable. The fields in the Gulf of Guinea are easy to access. In the near future, the Gulf of Guinea will be seismically searched and picked over and it is possible that that new fields

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Partnership? Judith van de Looy, ASC Working Paper 67/2006 www.ascleiden.nl/Pdf/wp67.pdf

[280]The signature bonuses are not acceptable because there is a continuous risk of corruption and mismanagement of public funds. They have claimed to be hundreds of millions in countries like Angola and Nigeria.

[281] www.igac.net/pdf/publications_adb_manyfacesofcorruption.pdf

can be found in the regions[282]. Big producers, Nigeria and Angola and some small ones, Equatorial Guinea, Sao Tome and Chad have planned to increase their production. These countries are all expected to grow strongly in their oil-dependent economy if they can find out their way to the stable democracy. Nigeria has the bad combination of environmental pollution and oil terrorism and hopefully can avoid a large-scale military conflict.

Access to energy is central to sustainable development and poverty reduction efforts in the Gulf of Guinea. It affects the progress in both social and economic levels, including livelihoods, access to water, agricultural productivity, health, population levels, education, and gender-related issues. The Millennium Development Goals (MDGs) cannot be met without major improvement in the quality and quantity of energy services in the region.[283] In the 2030s the peak of oil production is over globally[284]. Because 40% of traded energy and 80% of energy used in transportation, the lack of oil will cause market destructions globally much earlier. The Gulf of Guinea should not be a play yard of the global game of oil reserves. Africa cannot be the oil reserve for other continents. Africa needs oil incomes to develop its own infrastructure and economy in terms of "Africa to Africans"[285].

The West African Gas Project that currently links Nigeria, Benin, Togo and Ghana is a pioneer in the regional use of gas for electricity production. Industrial and power use of gas and the LNG (Liquefied natural gas) export should help to eliminate all flared gas in the region. The gas market is more regional than crude oil. The West African gas can be transferred through pipelines and LNG. This is driven partly by the environmental advantage of gas over oil and the production declines in the largest gas markets in OECD countries where demand level is high and rising. This is an issue that must be taken into consideration in the design of strategies for development and expanded regional use of this premium energy resource. The commitment

[282]Advances in science has brought great progress in seismic surveying that made it possible to determine with great accuracy the nature of deeply buried geological structures. www.peakoil.net/Publications/OilpeakMineralsEnergy.doc

[283] www.undp.org/energy

[284]According to the Hubbert model, the production rate will follow a roughly symmetrical bell-shaped curve. "World Running Out of Oil Soon" – Is Faulty; Could Distort Policy & Energy Debate, November 14, 2006.
www.cera.com/aspx/cda/public1/news/pressReleases/pressReleaseDetails.aspx?CID=8444
The International Energy Agency (IEA) believes that the oil peak before 2037 and Saudi Arabia, Kuwait, Iraq and Iran that own the world's known reserves, report little if any depletion of reserves.
www.guardian.co.uk/life/feature/story/0,13026,1464050,00.html

[285]The Monroe Doctrine is a US doctrine which in 1823, proclaimed that European powers would no longer colonize or interfere with the affairs of the newly independent nations of the Americas.
www.usinfo.state.gov/usa/infousa/facts/democrac/50.htm

of the governments of Benin, Ghana, Nigeria and Togo to make West African Gas Pipeline (WAGP) a reality is a promising signal.[286] The pipeline reduces greenhouse gas emissions by 86 million tons over the next 20 years through flare reduction and changing to a cleaner-burning fuel[287]. The future power sector structure in Africa is dominated by gas.

Electrification levels in Sub-Saharan Africa[288] are 20% and in South Africa and Egypt 70%. Africa's electricity consumption is expected to grow 3% per year until 2020. Africa needs foreign investors with expertise in transmission lines, power networks and cabling. The privatisation of government-owned power firms is an option. The SADC[289] and the ECOWAS[290] have regional networks and power pools as an element of pan-African electricity markets. Neighboring countries benefit in the sharing of electricity. Countries with limited power generation capacity get access to power, without investments in new facilities. The surplus power stations can be run at maximum output to achieve the scale-economies. Electric power is the necessary prerequisite for industrialization. South Africa, Ghana and Zambia are net exporters of power[291]. There is a vital social issue: Countries can purchase power in bulk enabling them to redistribute it locally at a cheap price. The rural Africa is excluded of that because of the lack of regional power networks.

African countries view hydroelectric power dependency with scepticism. Ghana relies on hydroelectricity as the primary source of power with the capacity of over 1,000 MW[292]. Low rainfalls have forced temporary power cuts in Ghana's hydroelectric facilities. The modernization of hydroelectric facilities and increasing dam storage capacities can balance fluctuations in water supply. Ghana has started the $700 million Bui hydroelectric project in the Black Volta with a generation capacity of 400 MW and in the Pra River with a capacity of 125 MW[293], benefiting electricity supply in Ghana, Burkina Faso, Mali and Cote d'Ivoire. Besides that Ghana increases the thermal capacity to reduce its dependence on hydroelectric power[294]. Ghana

[286]The new onshore pipeline and compressor station in Nigeria, and the entire 678-km pipeline will link the Volta River Authority's power plant at Takoradi, Ghana to Nigerian natural gas from an existing pipeline located near the city of Lagos. www.gasandoil.com/goc/company/cna53966.htm
[287]www.chevron.com/news/press/2005/2005-09-07.asp
[288] Ghana, Senegal, Burkina Faso and Cote d'Ivoire in West Africa have rural electrification programmes. www.mbendi.co.za/indy/powr/af/p0005.htm
[289]The Southern African Development Community
[290] The Economic Community Of West African States
[291]www.eia.doe.gov/emeu/cabs/Archives/africa/chapter5.html
[292]Akosombo (912 MW) and Kpong (160 MW)
www.small-hydro.com/index.cfm?Fuseaction=countries.country&Country_ID=33
[293]www.un.org/ecosocdev/geninfo/afrec/vol18n04/184electric.htm
[294]www.energymin.gov.gh/Profiles%20of%20Sector%20Institutions.pdf

has invited multinationals[295] and ECOWAS[296] to its electrification. Ghana's National Electrification Scheme will bring electricity to major communities by 2020. Build-operate-transfer (BOT) schemes promote private, foreign and national investors to finance, design, construct, and operate large-scale infrastructure and development projects. In return, they are granted the right to generate revenues from the facilities for an agreed period of time, the concession period (usually 10-40 years), to recover their invested capital and earn a fair return on investment. At the end of the payback period, the assets of the BOT project are transferred in a good condition to the ownership of the government or local authority which granted the concession.[297]

Rural electrification is an issue in Africa, since most electrical systems are obsolete, as they date from the colonial era. In many rural communities situating in remote locations the national grid is costly. Instead of polluting diesel/ petrol generators, solar and wind power are becoming attractive[298]. Photovoltaic (PV) technology offers an alternative energy solution[299]. The panels available commercially today are based on high-purity silicon as the photo-voltaic material. Panels are much more expensive than the equivalent amount of coal, petrol or gas. Solar energy is used in cellular telephone base stations and in water pumping. Solar panels work as stand-alone sources and as part of a regional power network[300]. Governments in Africa view electricity as basic service like sanitation and clean water. Solar energy is the best solution in Africa where electricity intensity is low. Africa has huge solar energy to be used due to the proximity of the equator. The maintenance of the solar systems is a local business suitable for entrepreneurs. Solar PV technology can be produced in any desired amount, from a few mill watts to many megawatts.

Development of other renewable resources is important in order to have a balanced renewable energy development. Although these may provide only

[295]A Japanese-U.S. project of $200 million by KMR Power and Japan's Marubeni Corporation is one of them. www.mbendi.co.za/indy/powr/af/gh/p0005.htm
[296]In 2000, the 14 members of the ECOWAS signed an agreement to launch a project to boost power supply. The West African Power Pool (WAPP) agreement reaffirmed the development of energy production facilities and interconnection their respective electricity grids.www.mbendi.co.za/indy/powr/af/gh/p0005.htm
[297]www.unece.org/ie/ppp/documents/pppguide.pdf
[298]South Africa, Egypt, Ghana and Uganda are some of the countries reviewing photovoltaic electricity systems for installation in rural areas. Kenya has the highest use of photovoltaic systems in the world, with 20 000 units sold annually. www.unece.org/ie/ppp/documents/pppguide.pdf
[299] PV converts sunlight directly into electricity. It is environment friendly, modular, silent, needs no fuel, there are no emissions or pollution; it is clean. There are no moving parts, which often lead to wear or tear, and there is little or no maintenance. The promising PV material is Copper-Indium-Gallium-Dieseline (CIGS). CIGS is much more efficient than silicon at converting incident sunlight into an electric current. www.scienceinafrica.co.za/2003/november/solar.htm

a small part of capacity, the small-scale renewable systems can be ideal for Africa, since they are easy to build and run. The major alternative energy resources abundant throughout the African continent are solar energy (thermal and photovoltaic), wind energy, biomass, and biogas production[301]. Experts estimate that 0.2% of the ocean's untapped energy could power the entire world[302]. Wave energy conversion devices are located far enough away from the shore that they are generally not visible. The wave energy is more predictable than solar and wind energy. A characteristic of wave energy that suggests that it may be one of the lowest cost renewable energy sources is its high power density.[303] Firewood is the most sensitive source of renewable energy in rural areas since the current amount used in sub-Sahara African is unfortunately leading to deforestation.

According to the IEA[304], biomass and waste are about 11% of the world's total primary energy. There appears to be a relation between poverty level and use of biomass, especially in sub-Saharan Africa. The interest in bio fuels is attributable to the rising and volatile price of oil, to the need to stimulate rural development, and to the availability of more efficient, second generation technologies. Cooking using biogas is much cleaner. Africa has huge arable and fertile lands to produce vast amount of bio fuels. The real issue is whether large-scale bio fuel industries would benefit the rural poor or marginalize them further[305]. Biogas for Better life Initiative[306] promotes local entrepreneurship in the development and selling of biogas installations to households. The major challenge is the relatively low BNI-level per capita. Therefore, it is a vital point that the Initiative contains creation of new jobs through entrepreneurship.

Africa has much unused hydro electrical power capacity[307], although unpredictable weather patterns effect on electricity supply. Hydroelectric power can only in some regions solve the energy problems, since pure water is the most limited resource. Water recycling is needed everywhere in Africa. About 80% Africa's power sector is dominated by South Africa in

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[300] www.spectrum.ieee.org/print/3426
[301]linkinghub.elsevier.com/retrieve/pii/S1364032104001431
[302]eecs.oregonstate.edu/news/story/1490
[303]www.rtcc.org/2007/html/africa_reeep.html
[304]www.worldenergyoutlook.org/
[305] There is need to address associated concerns of e.g biodiversity, the GMO (genetically modified organisms), emissions, soil degradation, water use and human health. There is a need to develop and apply robust sustainability criteria that take local sustainable development goals into consideration in guiding the development of biofuels. www.oecd.org/dataoecd/33/40/1863539.pdf
[306]www.afdb.org/portal/page?_pageid=473,20456239&_dad=portal&_schema=PORTAL
[307]Congo alone reported to be sufficient to provide three times as much power as Africa presently consumes. www.mbendi.co.za/indy/powr/af/p0005.htm

Southern Africa, Egypt, Libya, Morocco and Algeria in North Africa and Nigeria in West Africa. About 50% of electric power in Africa is generated by coal-based facilities, while natural gas is coming instead. South Africa is the only coal-rich region in Africa. Coal dominates South Africa's energy system, providing 75% of total primary energy needs. South Africa has well-developed energy infrastructure with a nuclear power plant and 4 refineries processing crude oil, but the country has only some natural gas reserves offshore. South Africa's government gives support to produce synthetic liquid fuels from coal. South Africa has 40 GW of generating capacity. In the next decade, 70-100 GW of additional generating capacity will be required in the region with about $56-$80 billion of investments.[308]

Because of civil wars and aging equipments, most African countries lack the electric power grid infrastructure that courses severe power shortages with serious consequences for the local economies. Cheap fossil fuels have been one of the major contributors of economic growth and welfare (BNI per capita) in all other continents except Africa. The coastal and offshore Africa is the oil and gas reserve for consumers in the rich countries. In the US, high-quality fossil fuels from Africa are used to fuel cars. Africa has poor roads and rural areas are land-locked. In Africa, farmers are left alone when China and India have a strong agricultural policy. The UN's Environment Programme[309]expects that natural disasters are increasing in Africa[310]. Africa needs efficient energy infrastructure. Africa's population has more than doubled since 1970 and is growing 3% per year. The growth rate is highest of all continents[311]. 14% of the world's population is living in Africa. Africa consumes 30% of its own refined oil products and produces 3% of the global carbon emissions. The home technique such as kerosene lamps are costly, polluting and fire hazardous. Africa spends about $17 billion a year on fuel-based lighting, accounting for 10-15% of total household income[312]. The World Bank Group's initiative[313] provides safe lighting to 250 million people in Sub-Saharan Africa.

According to the IEO, world coal consumption will increase by 74% until 2030, international coal trade will grow by 44%, and coal's share of world energy consumption will increase to 28%. In the electric power sector,

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[308]www.africa-union.org/.../Conferences/Past/2006/November/infrastructure/doc/en/AU_EXP_OG_5_Fuelling_Eng.doc
[309]www.unep.org/experts/Default.asp?Page=home&ExpertID=65&SessionID=113
[310]The World Bank Development Report 2005 confirmed that climate risks increase investment cost 1-2 %. www.worldbank.org/wdr/
[311]www.prcdc.org/summaries/uspopperspec/uspopperspec.html
www.globalhealthfacts.org/topic.jsp?i=81
[312]www-wds.worldbank.org/WDSP/IB/2004/
[313]www.ifc.org/ifcext/africa.nsf/Content/SelectedPR?OpenDocument&UNID=702987C07B44121B8525734D00493A46

coal's share is projected to rise to 45% in 2030[314]. Led by strong economic growth, China and India together account for 72% of the projected increase in world coal consumption until 2030[315]. Coal remains the primary source of energy in China's industrial sector, primarily because the country has only limited reserves of oil and natural gas. Russia alone has an estimated 173 billion tons of recoverable reserves (17% of the world total). In the IEO2007 reference case, coal's share of Russia's total energy consumption is projected to drop to 15% in 2030, and its share of electricity generation is projected to decline to 16% in 2030. Natural gas is expected to be the most economical option for new generating capacity in Russia, although nuclear generation also is expected to increase until 2030. The natural gas share of Russia's total electricity generation is projected to rise to 48% in 2030. Although Russia's long-term energy strategy calls for new nuclear generating capacity, fossil-fuel-fired plants will continue in their role as the primary source for electric power generation until 2020[316]. For new fossil-fired generating capacity, Russia's energy strategy promotes the construction of (1) advanced coal-fired capacity in the coal-rich Siberian region (central Russia) and of (2) efficient natural-gas-fired capacity for the western and far eastern areas of the country. Plans for both new coal-fired capacity and the refurbishment of existing capacity in a number of countries, including Bosnia and Herzegovina, Serbia and Montenegro, Bulgaria, Romania, and Ukraine, are a significant indication that coal will continue to be an important source of energy in Europe[317].

South Africa currently accounts for 94% of the coal consumed in Africa and is expected to continue to account for much of the increase in Africa's total coal consumption until 2030. Increasing demand for electricity has led to a decision by Eskom, South Africa's state-owned electricity supplier, to restart three large coal-fired plants (Camden, Grootvlei, and Komati) in

[314] International Energy Outlook 2007. Chapter 5 Coal www.eia.doe.gov/oiaf/ieo/coal.html

[315]Strong economic growth (averaging 6.5% per year in China and 5.7% per year in India from 2004 to 2030) is projected for both countries, and much of the increase in their demand for energy, particularly in the industrial and electricity sectors, is expected to be met by coal. At the end of 2004, China had 271 gig watts of coal-fired capacity in operation. An additional 497 gig watts of coal-fired capacity is projected to be brought on line in China by 2030, requiring large financial investments in new coal-fired power plants and associated transmission and distribution systems. International Energy Agency, Databases for the Coal Information 2006 www.data.iea.org.

[316] Commission of the European Communities, Commission Staff Working Paper—Energy Dialogue with Russia, Update on Progress, SEC (2004)114 (Brussels, Belgium, January 28, 2004), pp. 37-57, web site www.europa.eu.int.

[317]"EiEE New/Repowering Generation Project Tracker—September 2005," Energy in East Europe, No. 72 (September 16, 2005), pp. 9-39.

2007[318]. The plants have a combined generating capacity of 3.8 giga watts. Recent power shortages and the general lack of spare generating capacity in southern Africa have led to increased interest in new coal-fired power projects not only in South Africa but also in Mozambique, Zimbabwe, Tanzania, and Botswana. In the industrial sector, increasing use of coal in Africa is expected for several purposes, including the production of steam and process heat for industrial applications, production of coke for the steel industry, and production of coal-based synthetic liquids. Two commercial-sized coal-to-liquids plants in South Africa (Sasol II and Sasol III) supply about 28% of the country's total liquid fuel requirements[319]. The two plants together are capable of producing 150,000 barrels of synthetic liquids per day.

[318]Republic of South Africa, Department of Minerals and Energy, Media Release, "Economic Cluster Media Briefing, Minister Alec Erwin, Cape Town" (February 12, 2007), web site www.dme.gov.za; and S. Benton, "Three Mothballed Power Stations About To Come Back Into Action," BuaNews (February 13, 2007), web site www.allafrica.com..

[319]E. van de Venter, "Sasol Coal-to-Liquids Developments," presentation at Gasification Technologies Council Conference (San Francisco, CA, October 10-12, 2005), web site www.gasification.org.

6 MINERALS AND IN TECHNOLOGY ENTREPRENEURSHIP

6.1 Africa has huge deposits of its own metals and mineral[320]

Africa has rich natural resources producing over 60 metal and mineral products. South Africa, Ghana, Zimbabwe, Tanzania, Zambia and Congo dominate the mining industry, whilst Angola, Sierra Leone, Namibia and Botswana rely heavily on the mining industry as a foreign currency earner. Although not carefully explored, Africa may host 30% of the world's mineral and metal reserves, including dominance in "strategic" metals: 25% of bauxite (aluminum ore), 40% of gold, 60% of cobalt and 90% of the world's PGM reserves. South Africa holds 35% of the world's gold reserves, 55% of platinum group metals, 80% of manganese ore, 68% of chrome ore and 21% of titanium metals[321]. South Africa is the world's biggest producer of gold and platinum and a big producer of base metals, coal and diamonds. The West Africa's belt from Guinea to Togo includes chrome, asbestos, talc, nickel, manganese, gold, iron, tin, niobium and tantalum[322]. Almost all of the world's reserve of chromium is found in South Africa. Africa contains a major share of world reserves of tantalum and germanium in Congo and Namibia[323]. Manganese reserves are big in South Africa, Gabon (among the largest in the world) and Ghana[324]. Guinea has 24% of the world's bauxite reserves and 90% of Africa's bauxite production. Africa's deposits of antimony, fluorspar, hafnium, manganese, phosphate rock, titanium,

[320]Industrial minerals are divided into three groups: (1) Abundant. These are in all geologic environments, used in large amounts, and are relatively cheap, like limestone, clay, sand, gravel, and stones. (2) Widely available. Large quantities in few geologic environments, global pricing depending on markets, like coal, kaolin, salt, sulfur, talc and magnesite. (3) Rare. Small quantities, in limited areas, used in small quantities, and high priced, like diamonds, sheet mica, graphite, corundum, and the precious stones. www.rpsc.org/cp/minerals.html

[321] www.britannica.com/ebc/article-37212

[322]www.springerlink.com/content/nm17n45802406u53/

[323]www.britannica.com/ebc/article-37212

[324]www.britannica.com/eb/topic-394466/Mouanda

vanadium, vermiculite and zirconium are rich[325]. Africa could be the leading continent of the mining and related technology industries.

Global markets of important base metals are out of balance. Africa has large deposits of widely used base metals (iron, copper, nickel and zinc) that China needs to continue its industrialization. China's growth in the metal-intensive manufacturing has acted as the main stimulus for investments in stainless steel and aluminium industries in the South Africa, exporting about 80% of its metal and mineral production, primarily to China and India. The acute need for minerals and basic metals by China and India has meant that exporting of these products is very profitable, justifying investments in mining. China tries to maintain low import prices of steel and aluminium from Africa to maximize the value added. The continued growth in global demand for base metals implies continued relatively high prices. China has itself big deposits of iron ore and coal. So China can better its relative position as a growing steel importer by investments in expanded capacity in steel, meaning that China is not a major net importer. Vertical integration is the best known means to buffer the price turbulence of international trade since the long vertical value chain justifies major capital expenditure in expanded output, as has been seen in China.

The South Africa has in its territory and neighboring countries an important mining cluster worldwide. The South Africa has practically no deposits of bauxite, the aluminium ore is exported from the neighboring countries. Guinea has rich deposits of bauxite and, the exporting of bauxite accounts for 90% of exports. Because the aluminium extraction and smelting process is energy consuming, the optimal location for these stages of value chain is South Africa. The attraction of South Africa as a location for aluminium production is the low cost of energy, which derives largely from coal. South Africa produced 2.7% of global aluminium in 2005 and was the 8th largest producer[326]. South Africa has world-scale processing facilities in steel, stainless steel, aluminium, gold, platinum and diamonds[327]. South Africa has technological strengths in niches such as the mining machinery. The mining-based cluster has got a lot of its dynamics of privatization programs. During past decade, Western, Chinese and Indian multinationals have played a vital role in the country. The South Africa is the most industrialized country in Africa. It accumulated 25% of Africa's GDP, 40% of industrial output, 45% of mineral production and 50% of electricity. South Africa is a glorious example of the importance of mining and of the manufacturing diversified from mining. China poses a challenge

[325] us-africa.tripod.com/opportunities.html
[326]China was the largest producer with 23.1%, and Russia second with 11.7%. www.sadcreview.com/pdfs06/southafrica2006.pdf

to South Africa's aims to improve the value-added and technology levels of its exports. China prefers to import base and other industrial minerals when South Africa has an acute need to stimulate its R&D activities and develop its own manufacturing industries.

Copper is the second in use of base metals after iron/ steel. The worldwide deposits of copper are scare[328]. Katanga[329] Plateau (914-1,829 m high) from Congo (the DRC) to neighboring countries is the enormously rich mining region, which contains 34% of the world's cobalt, 10% of the world's copper, and some lead-zinc sulphides, uranium oxides, tin, radium, uranium, and diamonds. The world's demand for copper and cobalt that are the so-called strategic base metals is huge. Copper is widely used in the energy sector and electrical/ electronic products. Cobalt is used in aircraft engines and in globally popular mobile phones and devices. Zinc is used to galvanize steel, metal alloys, die casting, batteries, paints and rubber. Although zinc is a common metal, the global demand exceeds the supply and major zinc discoveries are expensive to main. In Africa lead-zinc sulphides are the primary form in which zinc ore are in deposits. North Africa has the largest deposits and production of zinc. Lead ores are widespread. Lead has taken the high road in the bull market[330]. China is the most lead-hungry country that has ambitious plan to expand its car industry. The world nickel production has risen 60%, but the supply does not meet demand[331]. The most common metals in use are iron, aluminum, copper and zinc. The Hubbert's Peak[332] in copper and other base metals will be approached in the near future. Africa needs a grand strategy of how to utilize its negotiation power in the scare mineral deposits. The development of Africa's own technology clusters and entrepreneurship should be prioritized. Africa has glorious options to demand FDIs in its key manufacturing industries.

The Democratic Republic of the Congo (DRC) has the famous metal and mineral rich region, called historically Katanga. Katanga separated itself

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[327]www.southafrica.info/doing_business/economy/key_sectors/mining.htm
[328]Chile generates nearly 40% of all global mined copper annually has reached its peak production and copper prices to continue to rise.The large global copper mines have not only reached their threshold for expansion but will be exhausted in the next five to ten years. www.zealllc.com/2006/basemet.htm
[329]Katanga borders Angola on the southwest, Zambia on the southeast, and Lake Tanganyika on the east. Katanga is well connected by rail with the rest of Congo and with Angola and Zambia. There is also steamer service on Lake Tanganyika. www.encyclopedia.com/doc/1E1-Katanga.html
[330]In his book Hot Commodities, Jim Rogers talks extensively about lead and the major production shortfalls the world will be faced with now and into the future. www.zealllc.com/2006/basemet.htm
[331]Russia has 40% of the global resources. Norilsk is the largest global producer of nickel and palladium. www.miningworld-russia.com/pages/Russia.htm
[332]The Hubbert peak theory posits that for any given geographical area, from an individual mineral deposit to the planet as a whole, the rate of mineral production

from the Congo in 1960 supported by Belgia. The Belgian firms had interest to mine the rich resources of copper, gold and uranium. Katanga was the richest region in DRC. In 1963, the Katanga's independence was ended.[333]. From the 60s to the 90s, the mineral deposits were controlled by state-owned firms, the biggest Gécamines. In end of the 90s, when the privatization was started, Gécamines was among five major copper and cobalt producers in the world, yielding turnover of $1 billion and providing jobs to 33.000 workers. Because of bad management and undue politics, Gécamines was run into the de facto bankrupt in 2003[334]. The capital Kinshasa's politicians approved contracts with big, foreign multinationals, leaving only a small share for Gécamines[335]. Since 2004, there has been an influx of foreign firm into Katanga[336]. Gécamines' partners export cobalt concentrates grading 8-35 %.

Most of China's cobalt production, accounting for 23 % of global output in 2005, and much of the EU's production is based concentrates from the Katanga.[337] The global price level of copper and cobalt is favourable but the DRC leaves the major part of value added to China, the EU, etc. This is a sad story of the "resource curse"[338]**.** Kataga is among the poorest regions in our globe. As the UN has repeatedly declared, it is question at least immoral exploitation of the DRC's natural resources. Foreign involvement in Katanga's mining field has its history in several civil wars in the Mid Africa. Misusing the chaos, multinationals took the control over Katanga's mining industry. The DRC has launched a review of the legality and fairness of over 60 mining licenses, most of which were negotiated during the civil war and the transitional period that followed.[339] We all hope that the DRC and the whole Africa will succeed in that.

Investments in exploration and mining in Africa has been focused on gold and diamonds and some precious metals[340]. Gold and allied metals are widely disseminated in Africa. South Africa's reserves of gold constitute about half of the world total and the gold mining employs 60% of about a

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tends to follow a bell-shaped curve. See for instance: Deffeyes, Kenneth (2005) Beyond Oil: The View from Hubbert's Peak, Farrar, Straus and Giroux.

[333] www.en.wikipedia.org/wiki/Katanga

[334]Neoproterozoic allochthonous salt tectonics during the Lufilian orogeny in the Katangan Copperbelt, central Africa by M.P.A. Jackson, O.N. Warin, G.M. Woad abd M.R. Hudec www.beg.utexas.edu/indassoc/agl/pubs/Katanga.pdf

[335]www.corpwatch.org/article.php?id=13858

[336]www.encyclopedia.com/doc/1E1-Katanga.html

[337] www.beg.utexas.edu/indassoc/agl/pubs/Katanga.pdf

[338] www.igac.net/pdf/publications_adb_manyfacesofcorruption.pdf

[339]www.reuters.com/article/newsOne/idUSL04590220071004

[340]New mines opening in Africa are in the South Africa, Namibia, Botswana, Tanzania, and Gabon producing gold, diamonds, niobium products, PGE's, chrome and base metals. Major discoveries include diamondiferous kimberlites in Mauritania, and still in the diamond scene, the potential marine deposits in offshore southern Namibia. www.mbendi.co.za/indy/ming/af/p0005.html

half million miners. Gold is also found in Zimbabwe, Katanga's copper belt, Ghana, Burundi, Côte d'Ivoire, Gabon and Mali[341]. Guinea has reserves of gold, base metals, iron ore and diamonds[342]. Gold and allied metals could boost Africa's technology entrepreneurship since gold is a strategic precious metal, widely used is in computers and other technical devices. Ghana in the West Africa has a long tradition of famous goldsmiths. Ghana's economy is burdened with debt and the government sells the biggest gold producing firm, Ashanti Goldfields Company[343] that is listed on the London and New York stock exchanges. The Ghanaian economy needs FDI inflows. Multinationals have resources to develop the Ghanaian gold cluster. What is the critical catalyst of cluster development is, however, the variety of business firms and business models and, of course, export orientation. Countries like Ghana needs the transfer of foreign technologies in the fine-mechanics to ultize these minerals in the small-scale industrial activities.

Stones have also the bull markets globally. Namibia is an example of the countries that have deposits of good-quality stones, displaying a variety of attractive colours, patterns and textures. In Namibia, the main rock types are marble, granite, dolerite, picture stone, conglomerate and sodalite. Until recently, Namibia has exported first-grade blocks of marble, granite and other dimension-stone varieties to countries such as Germany and Italy to be cut and polished. To achieve a sustained contribution from the mining sector to its own regional economy, Namibia's government has created legislative, fiscal and institutional environment to attract private sector investments. This includes a competitive policy and regulatory framework, security of tenure and the provision of national geo-scientific data. The major growth area of Namibia's mining industry is offshore diamond mining. Namibia needs investments in the fine-mechanics to ultize minerals in the small-scale industrial activities. Rich EU countries such as Germany and Italy sell the value-added products (as tiles and ornaments) produced of Namibia's stones all over the world at premium prices. The fabricated stone products, which involve greater value addition, are the privilege of rich countries. This type of business model benefits only marginally Namibia's economy, which received less than 10% of the final value of a unique natural resource. [344]

[341]www.investcom.com/moneyshow/gold_mali.htm
[342]A new mining code introduced in mid-1995 offers a range of guarantees and tax incentives to new investors, who may now own up to 85% of any venture in Guinea. www.mbendi.co.za/indy/ming/af/gu/p0005.htm
[343] Ashanti has about 195 million tonnes of proven and probable gold reserves ready to be exploited. www.pmcomm.com/africanenergy/g1.htm
[344]www.north-africa.com/blog/?page_id=10

6.2 The small-scale technology entrepreneurship

Africa needs its own entrepreneurs to acquire and apply appropriate small-scale manufacturing technologies and, to enhance Africa's competitiveness. Science and technology policies must support the creation of small and medium-sized firms, SMEs. Commonly used policy instruments are such as technology incubators or centers or parks, and specialized courses or seminars or even master and doctoral programs in entrepreneurship in business and technology universities. The historical and still relevant model of networking is subcontracting. The small-scale technology industries are extremely fragmented. An example of that is the car repair/ reserve parts industry[345] that is and important small-scale industry globally. This industry is an important to observe in any industrializing region. Although there are a lot of environmental challenges related to cars globally, cars and other vehicles are the key catalysts of economic growth.

The leading country of the car culture is the US where there are about 130,000 firms in the industry with combined annual revenue of $75 billion. The 50 largest firms hold less than 10 % of the markets. Large firms use expensive diagnostic equipments and invest in advertising. The industry is labour-intensive. The car repair/ reserve parts industry in the US has two sub-industries: mechanical repair (60 %) and body shop work (40 %). Car repair shops are specialized in e.g. transmissions or brakes systems. Chains of repair shops maintain parts distribution centers. Some chains produce their own reserve parts. Shops use point-of-sale (POS) computer systems to manage inventories, purchasing, accounting, and customers. Diagnostic computer systems are essential equipment for mechanical repair shops.[346] The small-scale car repair/ reserve parts industry structure is fragmented in Africa. The number of parts needed in Africa is really huge, since Africans use cars from many decades and produce themselves most of the reserve part needed with simple tools. If we limit our interest to the West Africa, there are two industrial clusters of car repair/ reserve parts industry:

1. Nnewi in Nigeria, and
2. Suame Magazine in Kumasi, Ghana

Both regional clusters need desperately global partners to get access to modern skills and technologies and, thereby, to start to integrate to

[345]Including motorcycles and perhaps some other vehicles
[346]www.hoovers.com/automotive-repair-shops/--ID__170--/free-ind-fr-profile-basic.xhtml

international trade and to globalization[347]. The West Africa as a region has a favourable location for the car repair/ reserve parts industry. The region is geographically compact. There are good harbours and related industries like the world-class oil and gas industry. Car models are old-fashion, polluting and unsecure. The modernization of road or rail networks has not got a high priority in the governmental policies in the West Africa. Roads in the rural Africa are poorly kept and dangerous. Trucks and farm tractors can only partly use roads since they become stuck. The rural Africa is land-locked. Motorcycles are easy to drive, but they are not the best solution for material logistics. In countries like Mali and Senegal, less than 30% of the roads are in good/ fair condition.[348]

The leading country Nigeria accounts for 50% of the region's economy. Nigeria's economy depends on the volatile oil extraction sector. Agriculture provides employment for the majority of population[349]. The automotive industry in Nigeria has a long history. In spite of political instability, Nigeria has attracted FDI inflows. The number of vehicle assembly plants, 12, is high, because these kinds of assembly plants have high priority in any country. Multinationals such as Peugeot Automobiles Ltd and Volkswagen Nigeria Ltd provide huge dynamics for local firms. A part of big firms are government sponsored and, later privatisized. The automotive industry has a big capacity: 102,000 cars, 55,000 commercial vehicles, 500,000 motor-cycles and 650,000 bicycles.[350] Nigeria's automotive industry lost its momentum in the 80s and 90s. The SAP by the IMF and the political instability had both negative impacts[351]. The governmental budget was needed to pay back loans and to finance the army, stopping industrial projects[352].Asian firms started to "dump" markets with low prices that collapsed Nigeria's local manufacturing drastically. The most of the manufacturing sectors lost its position because of foreign exchange

[347]Bräutigam, Deborah, Local Entrepreneurship in Southeast Asia and Sub-Saharan Africa: Networks and Linkages to the Global Economy www.unu.edu/hq/academic/Pg_area4/Brautigam.html

[348] In Sub-Saharan Africa has 0.08 kilometers of road for every square kilometer of land, compared to 0.58 kilometers of road in developed countries like France and England. The World Bank www.thestar.com/columnists/article/302357

[349] www.afdb.org/pls/portal/url/ITEM/F5411A856F194F1EE030A8C0668C610B

[350]siteresources.worldbank.org/KFDLP/Resources/461197-1146505167962/Nnewi_World_Bank_Summary_revised.pdf

[351] Ezeala-Harrison, Fidel (1993) Structural Re-Adjustment in Nigeria: Diagnosis of a Severe Dutch Disease Syndrome, American Journal of Economics and Sociology, Vol. 52, No. 2 (Apr., 1993), pp. 193-208

[352]such as the Alumuniun Smelting Company of Nigeria, Ikot Abasi, Delta Steel Company, Aladja and Ajaokuta Steel

shortages, rapidly deteriorating infrastructure, and depressed domestic demand[353].

The automotive cluster in Nigeria has still survived. Nnewi[354], called the "Japan or Taiwan of Africa", is the capital of Igboland and world-famous of its technology entrepreneurship. The Igbos had good reasons since the Biafra war in the end of 1960s to be suspensive as to governmental policies. During the downturn in Nigeria, Nnewi economy was built by local initiatives, strong kinship ties, and investment financing from owners' own pockets[355]. Igbo trading networks are well-known. Europe has been the important export market, because of colonial ties. Asian businessmen (first Japanese and later Chinese/ Taiwanese) were clever enough to utilize Nnewi's networks. The strategy was "creative imitation"[356], to produce copies of "original" brands. Later, Nnewi traders began marketing their own brand name products that were often made in Taiwan. Traders dominate the car repair/ reserve parts cluster in Nnewi. They are specialized in certain motor vehicle parts. Family networks are the source of dynamics in manufacturing. Nnewi industrialists use imported machinery (sometimes second-hand) from the East Asia, learning from the experience of Taiwan and Korea. [357]

Although the Nnewi is lacked public goods such as roads, water and electricity, Nnewi firms have succeeded to export to neighbouring countries. The Igbos' success story is based on the social or trust capital. Igbo's have invested in education and training, institution-buildings, etc. because the state has not invested in the institutional and physical infrastructure. Nnewi could be called Africa's "Third Italy"[358]. Nnewi is a glorious example of how a regional cluster can set up common utilities in spite of the deteriorating of industrial infrastructure in the country. Although Nnewi has succeeded the lacks of reliable electricity supply is the main obstacle of technology entrepreneurship in the dynamic region like Nnewi and the main reason for the undermined global competitiveness[359].

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[353]Bennell, P.S. (1997) Privatisation in Sub-Saharan Africa: Progress and Prospects during the 1990s, World Development, Vol. 25, No. 11. www.afdb.org/pls/portal/url/ITEM/F5411A856F194F1EE030A8C0668C610B

[354]Banji Oyelaran-Oyeyinka (1997) Nnewi: An emergent industrial cluster in Nigeria, Ibadan: Technopol Publishers, Washington, DC: The World Bank.

[355]www.nnewi.com/contents/industries.html

[356] Drucker, Peter (1985) Innovation and Entrepreneurship, Heinemann, London.

[357]Workers' skills were acquired through learning-by-doing and through inter-firm linkages with technology suppliers from Taiwan. The UNCTAD Secretariat unctad.org/Templates/Download.asp?docid=4334&lang=1&intItemID=2742

[358]Putnam, Rober, Leonardi, Robert and Nanetti, Raffaella (1993) Making democracy work: civic traditions in modern Italy, Princeton, NJ: Princeton University Press.

[359]Electricity was only supplied through private generators, water was provided through the company's boreholes, telephone service was poor and tariffs high, land

International networks give Nnewi's entrepreneurs access to information that do not exist in Nigeria: information on modern, medium-scale production technologies that Asian firms were beginning to outgrow. These networks together with the strong distribution system and the access to credit facilitated by ethnic ties, underpinned the lower transaction costs for Nnewi entrepreneurs. [360]

Suame Magazine in Kumasi[361] is an industrial cluster. Its origins lie in the city's history of working gold and other metals. Over time, artisans turned their business to vehicle repairs and engineering. When Ivory Coast was cut in two by an internal conflict, trucks started to cross Ghana to get to the landlocked countries of Burkina Faso, Niger and Mali. Suame was the first port of call for repairs. In Suame, there are mechanics, straighters, fitters and sprayers, everybody together under the same roof. Trade in engineering materials and spare-parts are currently more profitable than manufacture and repair work. A driver can choose from a wide range of tyres, windscreens, hub caps and vehicle parts. Mercedes Benz is one of the brand cars that can be repaired in Suame.[362] There are about 9.000 producing metal products and vehicle repair, 4.000 on metal products and 5.000 on vehicle repair. The number of people working in area is 80.000. The apprenticeship system is the way of people to start working in Magazine. Suame has a favourable position, although infrastructure such as telecommunication, electricity and road is weakly developed. Suame locate on the main road between two capital cities, Accra (Ghana) and Abidjan (Ivory Coast). Suame's products of are popular also in Burkina Faso, Togo and Mali. The local market demand is important in internationalization.[363]

The public and non-governmental support ranges from technical services and management consulting, to low-cost information on new products and

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was expensive and scarce, and banks were reluctant to extend the level of credit offered to companies with high inventory costs and machinery damages due to power fluctuations. An Assessment of the Private Sector in Nigeria, Regional Program on Enterprise Development, Africa Private Sector Department, Small and Medium Enterprise Department siteresources.worldbank.org/EXTAFRSUMAFTPS/Resources/ICA005.pdf

[360]www.evancarmichael.com/African-Accounts/1694/Networks-and-Global-Linkages.html

[361]Kumasi is the capital city of the Ashanti region, a very important and historical centre for Ghana. Though it's over 250km north-west of the capital, Kumasi is Ghana's second largest traffic hub, so you'll have no trouble getting there and away. www.ghanaweb.com/GhanaHomePage/geography/kumasi.php

[362]news.bbc.co.uk/2/hi/africa/6133730.stm

[363]WBI Africa Cluster Case Study: Knowledge, Technology and Growth: The Case Study of Suame Mufacturing Enterprise Cluster in Ghana, Nyaki Adeya, Revised April 2006, Knowledge for Development (K4D) Program, World Bank Institute, World Bank. www.siteresources.worldbank.org/KFDLP/Resources/461197-1146505167962/Suame_Cluster_Ghana_revised_April_2006.pdf

processes, to subsidized/decentralized materials testing services.[364]. Vehicle repair firms and their customers and workers are working and living near each other. Micro firms are apprenticed by their co-workers although higher level technical skills are to be gained in large firms' apprenticeships and technical training institutes. The internationalization of the auto repair clusters is the major challenge in both Nnewi and Suame Magazine. The infrastructure investments are the prerequisite for industrial ones. The problem of industrial clusters in the West Africa is the low vertical specialization and diversification. In ICTs, for example, a database with a digital map of experts and manufactures could make it easier for foreign firms to find a potential partner. The need to upgrade the knowledge and skills of the micro firms in basic engineering drawing (manual and computer-aided), and use of modern CAD and CAM tools.

6.3 Clusters and scientific and creative products

Africa's share of world population is 14 % and of trade 3 %. Africa is a vast continent: about 900 million people, 54 states and, over 30 million square kilometres of the total area that is 10-times the size of India. The trade patterns of African countries are based on primary goods that provide scare cash flows to entrepreneurs, making it difficult for them to invest in the modern technology. Africa should take education and research of science and technology seriously as China does. According to the generally used indicators, Africa ranks the least technologically-advanced continent[365]. African countries need scientists, engineers, technicians, managers and entrepreneurs that are able to invent and to commercialize technological innovations. The technological gap between Africa and industrialized continents is major in technical know-how services that are drivers of the structural transformation in technology industries. The major obstacle is, however, the stagnated structure of Africa's industries that can be clarified by the two facts:

1. Most industries are dominated by big, diversified firms having only small-scale craftsmans as the complementary structure. The lack of

[364] The Intermediate Technology Training Unit of the Technology Consultancy Centre at the University of Science and Technology provide training to upgrade the skills of mechanics in workshops and to teach them accounting and management methods.
www.unctad.org/Templates/Download.asp?docid=573&lang=1&intItemID=1800
[365]Africa's research and development expenditure was 4.2 billion in 1994 (0.9% of the world total). Africa's share of scientific publications was less than 1.5% in 1995, and Sub-Saharan Africa's was 0.8%. Africa's share was 0.1% of U.S. patents.
www.uneca.org/cnrst/documents/FSSDD%20input%20paper.htm

innovative, growth firms in Africa means that Africa is not a major supplier of differentiated products.

2. The share of inter-regional trade of Africa's total trade is 8.9 % in Africa and 73.2 % in the EU. This is because the EU firms trade differentiated/ technology-intensive products and Africa's firms primarily ones with a low technology value added.

As to the new growth theory, investments in education, infrastructure, technology, and entrepreneurship are vital[366]. Without a strong educational system and health and safety services, the talented people necessary for the application of existing technologies and the growth of new knowhow are not available in a society[367]. Africa needs science and technology organizations and institutions. African countries are rich in natural deposits and exporting of primary goods is the basics of their economies. These countries are competitive in the global markets, because of the imbalance between demand and supply. The prices of primary products are volatile. In order to accelerate its growth, Africa should raise awareness of the vital role that the newest science and technology have in the global markets. As Schumpeter advised, temporary monopoly profits are always needed to take the risk of investing in modern technologies. In resource rich countries, the focus should be in technical services that are the drivers in the domestic economies, profitable to export and easy to transfer to other production tasks without major sunk costs. Africa needs high value-add and science-based entrepreneurship. The NEPAD[368] Office of Science and Technology (OST) provide policy guidelines and assist the regional networks with mobilising political and financial support for the five clusters for the period 2006-10:

1. Biosciences aim to harness bioscience and technology for the health, agriculture, environment and mining sectors: The network of Biosciences Eastern and Central Africa (BECA) as the network hub at the International Livestock Research Institute (ILRI) in Nairobi, Kenya[369] focuses on biotic[370] and abiotic[371] in agriculturally-related biodiversity. Animal biotechnology has strong roots in eastern Africa and forest biotechnology in central Africa. The Southern African Network on Biosciences (SANBIO) in Pretoria, South

[366]Paul Romer
[367] Black Star, Ghana, Information Technology and Development in Africa, by G. Pascal Zachary www.cspo.org/products/articles/BlackStar.PDF
[368]The New Partnership for Africa's Development
[369] www.biosciencesafrica.org
[370]Biotic means relating to, produced by, or caused by living organisms. en.wikipedia.org/wiki/Biotic
[371]Abiotic components are the nonliving components of the biosphere.

Africa focuses on e.g, plant biotechnology, livestock production, human health, freshwater ecosystems, mushroom production and gene banking facilities. Health biotechnology is concentrated in the southern Africa. Crop biotechnology is concentrated in the western Africa. The Northern African Biosciences Network (NABNET) in Cairo, Egypt work with genetic diversity from molecular tools to biotechnology. The AFSTA[372] recognizes the importance of crop varieties and sustainable agricultural development in Africa, such as the soil and water quality, and decreasing the use of pesticides. Significant crop improvements include insect resistance in maize and cotton, herbicide tolerance in soybean, maize and cotton and virus-resistance in fruits and vegetables.[373] Africa should adopt the co-volutionary approach where consumer protection goes hand in hand with the development of the technology itself. There is need to develop harmonised legislation and measures based on international and individual country good practices.

2. Energy, Water, Desertification focuses on the creation of an African databank on environmentally sound energy research and technologies, accessible to African policy makers.

3. Material Sciences, Manufacturing, Laser, Post-harvest Technologies at the CSIR, Pretoria include material science. Many NICs[374] have developed quickly, such as Taiwan, Singapore and South Korea. Some North Africa's countries like Tunisia and Mauritius have gone through the transformation process, using mature, off-the-shelf technologies as the key growth factor**375**. The North Africa's countries are an integrated part of the EU's technology industries. South Africa is the center of industrial production and distribution for the whole southern Africa. The country has not major oil/ gas deposits. Coal is the major source of energy[376] that together with technologically advances refineries of imported oil/ gas provide an efficient infrastructure for manufacturing. Roads and railways fulfil standards.[377] When we look at exports, the share of technology intensive manufactured commodities is 38% of South Africa's exports[378], the highest in Africa. In South Africa, exporting sectors are dominated by foreign owners. Africa attracted about $12 billion of foreign direct investment in 2004, about 3 % the

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www.pwsb33.ab.ca/biodiversity/photo.htm
[372]African Seed Trade Association www.afsta.org/
[373] POSITION PAPER ON MODERN BIOTECHNOLOGY (Adopted by AFSTA General Assembly on 31st March 2006 in Entebbe, Uganda) ww§w.afsta.org/docs/POSITION%20PAPER%20ON%20MODERN%20BIOTECHNOLOGY%20MARCH%202006.pdf
[374]Newly Industrialized Countries
[375]www.uneca.org/cnrst/documents/FSSDD%20input%20paper.htm
[376]www.southafrica.info/doing_business/economy/key_sectors/mining.htm
[377] www.nwpg.gov.za/soer/FullReport/industrial.htm

global total[379]. Much of the inward investment is directed to South Africa or to the extractive industry sectors as reported earlier. Africa's governments have not been skilful in contacting, on the contrary. In oil and gas industries, the North Africa has succeeded in their contracting policies with multinationals.

China has a partnership with the South Africa[380]. The Chinese community in South Africa arrived mainly in the 90s is about 100 000 people. Through joint ventures, technology transfers and other operations, China opens new prospects for its resource-seeking investments in the South Africa[381]. China will be the next superpower in all areas of technology and science competition worldwide[382]. With the exception of the oil exporters, all the African countries have a trade deficit with China. The Chinese export trade to Africa is mostly in manufactured and consumer goods produced. Some Chinese products are intermediate inputs for products assembled in Africa and shipped out to third markets or capital goods (machinery and equipment) for African manufacturing sectors. There is also a sizeable export of consumer goods which compete against Africa's domestically produced products[383]. Nigeria and Libya are two of the leading oil producing countries in the world. Further, Africa is the home to timber, diamonds, and bauxite deposits. Revenues from their extraction should provide funds for badly needed development, but instead have fuelled state corruption, environmental degradation, poverty, and violence.[384]

In Nigeria, multinationals are active in the oil, iron/ steel, pharmaceutical, food processing and car assembling industries. Nigeria has a diversified manufacturing sector, petroleum refineries as the main sub-sector. Plastic products, textiles, beverages, chemical products, pottery earthenware, food products, electrical machinery, fabricated metal products, non-metal mineral products, transport equipment, pulp and paper products are examples of other articles[385]. The privatization in the

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[378]www.esastap.co.za/esastap/pdfs/sa_geared_growth.pdf
[379]web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/0,,contentMDK:20978747~menuPK:258659~pagePK:146736
[380] Negotiations are ongoing for the establishment of a free trade agreement between China and the Southern African Customs Union. China's leadership in the "Group of 77 plus China" (over 130 developing countries) an instrument for that. www.cmi.no/publications/file/?2438
[381]Alden, Chris and Davies, Martyn (2006) A Profile of the Operations of Chinese Multinationals in Africa, South Africa Journal of International Affairs 13, no. 1 www.twq.com/07summer/docs/07summer_gill_reilly.pdf
[382]www.applygroup.com/China_Final.pdf
[383] The Chinese export trade has perhaps been most strongly felt in textiles and clothing where China is the most competitive exporter in the world.
[384] Rich countries and their leverage on Africa, Ravinder Rena, Eritrea Institute of Technology www.africaeconomicanalysis.org/articles/gen/rich_countries.html
[385]In Nigeria, the size of the manufacturing sector is small; about 96 % of firms are small (less than 100 employees) or medium sized (less than 300 employees)

coming years is a new option, since over 1000 state-owned firms are inefficient and poorly run[386]. Also Ghana has a long history in manufacturing. The main sectors are petroleum, food, textiles, beverages, tobacco and wood products. The problem of most West African countries is the relatively small manufacturing sectors compared with the leading countries in the international trade. The scale is vital in the WTO-regulated markets. In the sectors, the oil/ gas industry and the mining industry, where Africa has the scale advantage foreign multinationals dominate with privileges that leave to the national economies of the host African countries only marginal part of the value of international exchange. Most of African countries' view of manufacturing places too little emphasis on export-led growth. China's industrial growth has been abnormally related to international trade for a country of its size, with a trade to GDP ratio in excess of 70 %[387].

4. ICT, Space Sciences is strengthening the potential of innovation and institutional capacity in information and communication technology (ICT) for development in Africa. The African Virtual Open Initiative and Resource (AVOIR) at the University of the Western Cape (UWC), South Africa have software innovation nodes at universities in Kenya, Mozambique, Senegal, South Africa, Tanzania, and Uganda. Flagship projects are e-learning and e-health. An African Institute of Space Science (AISS) is under discussion by a variety of stakeholders. The computerization as the technology assets promotes productivity growth worldwide. Ghana is the first country in sub–Saharan Africa that got the "full Internet connectivity" in 1995[388]. In this area privatization has been the right instrument, since in communication markets are so dynamic that monopoly markets are by definition inefficient. In Nigeria, restrictions on telephony have been the result of state-owned monopolies. In Nigeria, within a year of the first GSM wireless service, the number of wireless dial tones reached one million, or roughly five times the number of land lines provided by the country's state–owned telecom company[389]. Most African universities have remained digitally-isolated from the rest of the world. African governments have misguided views on the role of the market in facilitating Internet access. Most faculty and

www.ifc.org/.../AttachmentsByTitle/BuildingAfricaClimatePSD/$FILE/BuildingAfrica+ClimatePSD.pdf

[386]tanzania.fes-international.de/doc/Report%20on%20the%20Metal%20and%20Engineering%20Sectors%20in%20Africa.pdf

[387]www.thesullivanfoundation.org/.../documents/GlobalImbalances-ChinasPerspectiveCASSJuly2006.pdf

[388]www.ghanaweb.com/GhanaHomePage/features/artikel.php?ID=54098

[389]www.cspo.org/products/articles/BlackStar.PDF

students have no reliable Internet access.[390] The information technology sector in Ghana has 15 years' traditionSOFTtribe is the market leader in Ghana. Their systems include payroll management, cyber café billing, airline reservation and ticketing, micro-finance fund management, plantation management, and bespoke software, such as they developed for the Ghanaian timber industry. The SOFTtribe employs over 70 staff, including the largest collection of code writers in Ghana not purely devoted to the internal demands of a single organization. It serves over 250 clients, prominent among which are major multinationals such as Pepsi, Unilever and oil giant Total S.A.[391]

[390]External initiatives such as Bandwidth Consortium supported by four major US foundations under the Partnership for Higher Education in Africa. The consortium reached an agreement with Intelsat, a satellite service provider to expand Internet bandwidth to African universities and cut cost to about a third of the current rates. The consortium started with 11 universities and two higher education agencies in Ghana, Kenya, Nigeria, Tanzania and Uganda. Another 18 institutions have started using the service and the membership is expected to grow. Professor Juma at Harvard University
www.bdafrica.com/index.php?option=com_content&task=view&id=3
[391]www.wipo.int/wipo_magazine/en/2005/02/article_0006.html

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