Policies Required in the Area of Knowledge Generation in Sudan and its Challenges.

Khalid Osman Mahgoub Ahmed
Center of Peace and Development, University of Bahri, Khartoum, Sudan

Abstract. This paper examines recent economic and policy discussions on the policies required in the areas of knowledge generation in Sudan (Arab country), its central role in development and economic growth, specially after South Sudan’s independence in 2011, and the challenges that face Sudan to become a developed country on a technological point of view. The author argues that there are strong-overlapped and causal relations between the civil war, weak human development, and the bad educational and knowledge generation situation. Therefore, the author argues that the sustainable development and peacebuilding in all Sudan’s regions is a key policy to build a society with a strong attitude towards knowledge generation and innovation. The author shows the situation of education and higher institutions in Sudan and the policies required from Sudanese government and citizens to switch from knowledge receivers to a knowledge generating society. Finally, the paper discusses the role of Waqf institute in education and development process and the debates about the centralization of administration of Waqf institute in Sudan and its impacts.

Keywords: Sudan, Education, Knowledge, Innovation, Policies, Development, Socio-economics, Waqf.

1. Introduction

Knowledge generation and innovation adoption approaches are often deeply related not only to the resources directly assigned to their development, but also the overall economic structure that support them; it is difficult to talk about the policies required for knowledge generation and innovation development without studying the current situation and the socio-economic context that created this situation. Therefore, before developing and arguing the required policies, it is very important to start by explaining the general political context, socio-economic characteristics, and their impact on the knowledge and education systems.

2. General Political Context, Socio-economic Characteristics, and their Impacts on the Knowledge and Education Systems

2.1. Historical Backgrounds

Sudan is one of the Northeast African countries, which has a unique and powerful society with a large diversity in languages, ethnics and cultures. Sudan gained independence of British colonial on 1st January 1956, after that Sudan has experienced alternating forms of democratic, and military governments. Sudan was ruled by three civilian governments (1956-1958, 1964-1969 and 1985-1989) and three military governments (1958-1964, 1969-1985 and 1989-2010). Sudan’s period of conflict (1955-1972 and 1983-2005) stands as one of the longest in Africa’s post-independence history (UNDP, 2012), and as all developing countries these conflicts have different causes from different perspectives.

In 2005 and after many years of political confrontations and debates, the National Congress Party (NCP) and the Sudanese People’s Liberation Movement (SPLM) signed the Comprehensive Peace Agreement (CPA) formally ending the war between the North and the South. In line with the terms of the CPA, a referendum for independence took place in Southern Sudan on January 9-15, 2011. The vast majority of

The peace progress in Sudan gained new momentum in 2011 with the signing of the Doha Document for Peace in Darfur (DDPD), and the establishment of the Darfur Regional Authority (DRA) as the lead actor for the implementation of the agreement, after two and half years of negotiations, and consultations with the major parties to the Darfur conflict. (Darfur Peace Process, 2013).

2.2. Economic Context, Civil Conflicts, and their Impact on the Knowledge and Education Situations

Sudan has continued to suffer from macro-economic instability, high rates of poverty, unemployment and debt. In spite of the high increasing inflow of FDI (Foreign Direct Investment) to Sudan, Sudan still suffers from high increase in debt services both as percentage of GDP (0.4 %– 1.4%) and as percentage of exports (8.7%– 6.5%) over the period 1990-2005. As most African countries that due to the fact that Sudan’s economy has relied mainly on a large amounts of foreign aid from different sources; Sudan is among the top ten recipients of gross Official Development Assistance during 1990-2007 (S. Mohamed Nour, 2013).

Since the last decade and until now, there are two main regions of conflict and war in Sudan: South Sudan and the Western part of Sudan (Darfur). Although, there are conflicts in Eastern Sudan (Eastern Front) which began early in 1958, and formed by Beja Congress (BC), some scholars stated that the conflicts in Eastern Sudan are not sufficiently caused by economic factors rather than geopolitical factors (Markakis, 1994). Moreover, other scholars argued that the Eastern Sudan Peace Agreement (ESPA), which resolved the conflict in between the Eastern Front and Khartoum government, was largely a by-product of a larger process of reconciling the governments of Eritrea and Sudan and reconfiguring the security architecture of the Horn (Young, 2007). As in the case of most conflicts in developing countries, the causes of Sudan’s conflicts are complex and cannot refer to a single reason.

2.3. Relations between Economic Grievances, Knowledge and Education Situations and Conflicts in Sudan

According to United Nations Development Programme (UNDP) Report 2012: “Human development depends on plural principles such as equality, empowerment and human agency, efficiency, sustainability and the respect for the human rights”. Another more precise way to measure the human development is Human Development Index (HDI) which defined in the UNDP report 2010 as: “The human development index is an aggregate measure of three dimensions of the human development concept: living a long and healthy life, being educated and having a decent standard of living”. It is clear from the definitions that the economic and educational (knowledge) factors are an essential element in human development, and if the HDI is low, that definitely means the economic and knowledge situation is bad and vice versa.

![Fig. 1: (a) Sudan HDI compared to averages of LDC and Sub-Saharan Africa. (b) Difference between HDIs in LDC and Sudan.](image-url)
Obvious insights into the links between economic grievances, the weakness of the educational system and conflicts in Sudan are presented by the state of human development, poverty trends and the distribution of poverty. A recent survey shows the incidence of poverty to be around 46.5% in Sudan (UNPD, 2014).

Sudan’s HDI is one of the lowest in the world. In 2000, Sudan ranked 161 out of 182 countries in the world, by 2007 Sudan ranked 150. In fact, it has always been less than the average HDI of the Least Developed Countries (LDC) and Sub-Saharan Africa (Figure 1a). To isolate the general increase in HDI worldwide and provide more relative sense, we separately plot the gap between HDIs of LDC and that of Sudan (Figure 1b).

The apparent increase in HDI in the 1990s and following period, during the second civil war, is only because of the oil boom. In addition, the effect of peace after the CPA is masked by Darfur unrest. The oil revenues were affected after the separation of South Sudan, which had almost 70% of the total oil revenues. Moreover, a dispute in oil transportation and facilities’ tariffs after the separation created another reason for decrease in the oil revenues. This uncovered the real effect of income on the HDI. Unlike the worldwide trend, the country’s HDI actually dropped in 2012 (UNDP, 2012).

The educational system in Sudan has expanded over the last four decades due to the tertiary-level enrolment. Over a five-fold increase in the number of universities and higher institutions took place across most states since 1990 (from 19 universities and higher institutions in 1990 to 105 in 2008); this policy resulted in an obvious increase in the number of students in universities. However, Sudanese universities and research institutions are not seen in the top 2000 Universities and Colleges in the world. Out of 28 universities in Sudan, only two can be seen in the top 100 universities in Africa (4icu, 2014).

On one hand, adult literacy in Sudan remains low with only three out of five Sudanese able to read and write in 2008 (UNDP, 2012). On the other hand total gross enrolment rates in basic education stand at just two-thirds of school age population. Moreover, a significant drop out rate shows that a large majority of children loss their chance to move on into secondary school, with the total secondary gross enrolment rate standing under one-third as shown in figure 2 (UNDP, 2012).

![Gross enrolment ratio in Primary and Secondary school](image)

**Fig. 2: Gross enrolment ratio in Primary and Secondary school (percentage)**

Source: Federal Ministry of Education, various years.

The civil wars and bad economic situation created three major challenges in the universalization of basic education in Sudan: unavailability of schools in underdeveloped and conflict areas, inaccessibility for poor children because of high school fees, and general scarcity of qualified teachers (UNDP, 2012). The destructive impact of civil war in the educational system appears clearly in teachers, only 37 percent of teachers are considered trained; having undertaken six months or more of vocational preparation. Moreover, only 16 percent of these are female (CBS, 2008). In Darfur region there is only one teacher for every 38
students (table 1). This relation is the lowest in West Darfur, the most underdeveloped state in the Darfur region prior to the outbreak of conflict, with one teacher for every 80 students.

Table 1: Number of teachers and teacher-student ratios in private and public schools in Darfur 2005-2006

<table>
<thead>
<tr>
<th>State</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
<th>Teacher-Student ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Darfur</td>
<td>2909</td>
<td>3870</td>
<td>6779</td>
<td>1:30</td>
</tr>
<tr>
<td>South Darfur</td>
<td>3728</td>
<td>5075</td>
<td>8803</td>
<td>1:31</td>
</tr>
<tr>
<td>West Darfur</td>
<td>1408</td>
<td>1544</td>
<td>2952</td>
<td>1:80</td>
</tr>
<tr>
<td>Total Darfur</td>
<td>8045</td>
<td>10489</td>
<td>18534</td>
<td>1:38</td>
</tr>
</tbody>
</table>


Moreover, the UNESCO-UIS (2011) information on the structure of the educational system implies an insufficient duration of compulsory education in Sudan due to the conflicts’ situation. For instance, the duration of compulsory education in Sudan lasts for eight years and falls behind the international standard of 12-13 years of compulsory education attendance in the advanced countries such as the US, UK, Belgium, Germany and Netherlands, and 9-11 years in Korea, Japan and Canada respectively (S. Mohamed Nour, 2013).

2.4. The Overlapped and Causal Relations between Human Development, Better Education, and Peace in Sudan

Human development, good education, and peace are not independent of each other. The evidence in case of Sudan indicates clearly that significant disparities exist between Sudan’s states and regions. Table 3 provides data on disaggregated HDIs. The regions largely unaffected by wars and instabilities have higher HDIs than unrest regions. HDI in Darfur is three-fourths the level in Khartoum state. The HDI in Eastern and Western Sudan could have been even lower without peace agreements like the 2006 Eastern Sudan Peace Agreement and recently the Doha Forum.

Table 2: Human development indicators

<table>
<thead>
<tr>
<th>State</th>
<th>Adult Literacy Rate</th>
<th>Life Expectancy at Birth</th>
<th>HDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>70.2</td>
<td>63.3</td>
<td>0.612</td>
</tr>
<tr>
<td>Red Sea (Eastern Sudan)</td>
<td>71.5</td>
<td>59</td>
<td>0.563</td>
</tr>
<tr>
<td>Kassala (Eastern Sudan)</td>
<td>70.1</td>
<td>58.7</td>
<td>0.566</td>
</tr>
<tr>
<td>Khartoum</td>
<td>85.6</td>
<td>65.9</td>
<td>0.706</td>
</tr>
<tr>
<td>Gezira</td>
<td>81.7</td>
<td>65.5</td>
<td>0.69</td>
</tr>
<tr>
<td>Blue Nile</td>
<td>62.9</td>
<td>57.2</td>
<td>0.531</td>
</tr>
<tr>
<td>North Darfur</td>
<td>60</td>
<td>57.6</td>
<td>0.548</td>
</tr>
<tr>
<td>West Darfur</td>
<td>57.2</td>
<td>57</td>
<td>0.522</td>
</tr>
<tr>
<td>South Darfur</td>
<td>59.1</td>
<td>57.6</td>
<td>0.531</td>
</tr>
</tbody>
</table>


On the education side, differences defined by conflict areas also appear within the literacy rates, which are highest in Khartoum, followed by Northern and Central regions (Figure 3). The educational gap is mainly caused by the conflicts in Darfur and Eastern Sudan. The literacy rate among the wandering population is quite low, at less than 10 percent. In comparison with the national average, levels of extreme educational poverty are three times higher in the conflict affected greater Darfur.

Expenditures of the Sudanese government on security and war furniture is estimated at 8.5 billion SDG while only 0.5 billion SDG is dedicated for health and education together. This forms another evidence of the mutual interrelation of conflict, low human development, and bad educational and knowledge generation situation. If war does not stop, the two halves of Sudan might continue to bottom the world’s countries in terms of HDIs and there will not be any chances to develop knowledge generation and innovation institutions. However, even if the war stops, a significant improvement in the educational or knowledge generation will not occur overnight.
2.5. The Main Policy required for Knowledge Generation in Sudan

Human development encompasses more than the rise of gross domestic product per capita. Human development is about expanding the choices people have by education and encouraging knowledge generation, and empowering people to lead full free lives. Likewise, there is more to peace than the cessation of conflict and the absence of war. It is about people of different ethnicities, religions, genders and support sizes interacting cooperatively for the benefit of all. Consequently, the only way forward is more dialogue between the political segments and fair share of income between the regions.

As we discussed, war had huge effects in decelerating education and development process in Sudan, sustain peace and peacebuilding is the main policy required for knowledge generation in Sudan. If people want a situation that supports knowledge generation, then firstly, governments and the civil society should sustain peace and development in all Sudan’s regions. If peace existed in Sudan with its wide diversity of ethnicities and religions, peace would inarguably dominate in the whole of Eastern Africa and help in bringing stability to the African Horn region and helping in in-depth knowledge generation cultures.

3. Policies Required to Construction of Qualified Education Institutions and Incentive Systems to Generate Knowledge

Before any steps to discuss reformation policies, a deep and nonpartisan understanding of the growth process and characteristics of educational government’s politics through history is essential before adapting any strategies to the context of Sudan.

3.1. Characteristics of Educational Government’s Politics

In Sudan as in most Arab countries, the structure and pattern of the educational policies is characterized by a centralized bureaucracy, which, as remarked by Al-Sulayti, “implies a high degree of centralization and intervention from the ministries of education to control all the educational institutions”. Sometimes, the educational and higher educational institutions lack independence and initiatives in the area of research and development. They are often subordinate to and/or feel the negative effects of state bureaucracy, routine, institutional rigidity and lack of transparency, dynamism, flexibility, planning, organizational development, monitoring and assessment. They also sometimes, lack a proper articulation of “educational policies, dynamism, flexibility, planning, organizational development, monitoring, assessment, cooperation and problem solving ability”. (Suleiman, 2007; Jalal al-Din, 2002).

3.2. Public Expenditures on Education

The sufficiency of the supply side and priority of public investment in education as measured by the financial resources dedicated to education, is reflected by the share of public spending on education as a
percentage of GDP and total government expenditures. For instance, Table 3 illustrates that the low adequacy and priority of public spending on education, as measured by public spending on education as a percentage of GDP and of total government spending. In all measured periods, Sudan recorded the worst level of total government expenditures in education lag far behind the levels prevalent in the Arab Gulf countries and the developed countries. For instance, in the period 1995-2000, the highest public spending on education as percentage of GDP and total government expenditure in Saudi Arabia was close to three and six times those of Sudan respectively. Due to lack of information about the education expenditure in Sudan from the World Bank and UNDP, we chose the information from the period 1990-2002; we think this period is the most explanatory interval for the current education situation in Sudan. We claim that even if the public expenditure on education increases in the near last five years that will not represent a huge change in the situation as it takes a long time to see the impacts of education policies.

Table 3: Public expenditures on education as a percentage of GDP and total government expenditures in Sudan compared to world countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>Public expenditure on education as percentage of GDP</th>
<th>Total government expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudan</td>
<td>0.9</td>
<td>0.6(1991)</td>
</tr>
<tr>
<td>Bahrain</td>
<td>4.2</td>
<td>3.67</td>
</tr>
<tr>
<td>Kuwait</td>
<td>4.8</td>
<td>n/a</td>
</tr>
<tr>
<td>Oman</td>
<td>3.1</td>
<td>3.87</td>
</tr>
<tr>
<td>Qatar</td>
<td>3.5</td>
<td>3.58</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>6.5</td>
<td>9.47</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>1.6</td>
<td>1.95</td>
</tr>
<tr>
<td>United States</td>
<td>5.2</td>
<td>5.01</td>
</tr>
<tr>
<td>Sweden</td>
<td>7.4</td>
<td>7.98</td>
</tr>
<tr>
<td>Norway</td>
<td>7.1</td>
<td>7.68</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>3.5</td>
<td>4.01</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>4.9</td>
<td>4.71</td>
</tr>
</tbody>
</table>


According to Emad Al-deen (2014) even after 2002 and until 2010, the public expenditure on education as percentage of total government expenditures did not exceed the 6.9%. Moreover, public spending on education as a percentage of GDP shows considerable disparity and fluctuation in Sudan over the period 1970-2002. For instance, we observe the great and continuous decline in public spending on education as percentage of GDP from 4.8% in 1980 to 4%, 0.9%, 0.6% and 1.4% in 1985, 1990, 1991 and 1996 respectively. In addition, the great and continuous decline in the trend of public spending on education also holds for the trend of public spending on education as a percentage of total government expenditure. For instance, we observe that over the period 1986-2001/02, public spending on education as percentage of total government and public expenditure in Sudan continuously declined from 15.1% in 1986 to 2.8%, 8.4%, 7.7%, 7%, 6.4% and 6.9% in 1990, 1997/98, 1998/99, 1999/2000, 2000/01 and 2001/02 respectively (S. Mohamed Nour, 2013; Ministry of Education, 2003).

3.2.1. Tertiary Education and Higher Education Institutions

Another point of weakness in the government’s policies that delay the reconciliation of the economic and educational situations in Sudan is the poverty in the real objective studies. There are 50 centers for general political, development and peace studies. However, the active research centers are around five centers only, which face difficulties in funding and quality of research output (Al-tyb, 2007). Sudanese universities and research institutions are not seen in the top 2000 Universities and Colleges in the world. Out of 28 universities in Sudan, only two can be seen in the top 100 universities in Africa (4icu, 2014). Moreover, there is a lack in the attitude to encourage scholars to write objective papers about the knowledge generation policies and the reformation methods, and motivate them by announcing annual and semiannual awards for the best researches, especially when it is known that there is only one award in Sudan for the academic and scientific researches. Unfortunately, even this award stopped since 2011 (Sideeg, 2014).
Jalal al-Din (2002) explains that the deterioration in the quality of higher education in the Arab countries and Sudan is related to the fact that the majority of plans which have been prepared in many Arab countries in the fields of labor and employment during the past four decades, in particular the last three decades, implies that on the one hand Arab governments were more interested in hiring the holders of diplomas and university degrees more than hiring the holders of lower certificates. This policy has led to wider and greater demand for higher education in various forms and has also led or forced governments to respond to this social demand through the increasingly quantitative expansion of higher education institutions, regardless of the needs of the economy (Jalal al-Din, 2002).

Moreover, universities and other higher education institutions seem to have responded to these directives, convictions and plans through exaggeration in the excessive branching and introduction of narrow disciplines (that are increasingly narrowed year after year) in a rigid system in order to respond to the specific needs of professionals and specialists, and it seems that this is the most important dilemma in which universities and higher education institutions in the Arab and in other countries are involved (S. Mohamed Nour, 2013).

3.2.2. Knowledge Based Educational System and the Challenges

According to Gonzalez and Dankel (1993), a Knowledge based system is a computerized system that uses knowledge and its tools to achieve a solution to a problem. This solution is the same as that achieved by a person knowledgeable about the area of the problem when faced with the same problem. Knowledge Based System is to design computer programs that perform at high levels of capability in cognitive responsibilities to nurture conditions in which the individuals with high education qualifications can be productively employed. Knowledge based Systems (KBS), has become one of the basic tools of the current society. According to Smith and Reid (1985), KBS helps in increasing productivity, effectiveness and efficiency in operations, provide expertise to less experienced people, keep away from delays when proficiency is needed, provide expertise in locations where it is not available. However, still the use of knowledge-based systems in Sudanese Higher educational institutions is scarce.

Elshaiekh, Farah, and Ibrahim (2013) discussed the challenges that faced the use of KBS in Higher Education Institutions is Sudan (HFI) and by using empirical results, they found that of the overall challenges, ICT (Information and Communications Technology) was discovered as the most important challenge. This refers to the importance of ICT in the use of KBS in Sudan and there is a big problem with ICT infrastructure/tools uses and permissions due to some political and other procedural issues. The second challenge is the lack of common sense, which is due to the novelty of the field in Sudan, most of Sudanese teachers and even policy makers do not have enough information about the importance of KBS in the education field (Elshaiekh, Farah, and Ibrahim, 2013). In 2014, the Ministry of Education started KBS platforms for secondary students who will apply for the higher education institutions and that was considered as a good attitude in expanding KBS. However, the lack of staff training and the difficulties facing the student to reach and understand the procedures of application may reduce the expected benefits from the new KBS experience.

3.2.3. Consistency between Educational Outputs, Market Needs, and the Relation between Theoretical Knowledge and Practical Technology

According John Taylor and Akila Weerapana (2011), economists distinguish between two important concepts related to knowledge generation: an invention, which is the discovery of new knowledge or a new principle, such as electricity, and innovation, in which the new knowledge is brought into application with a new product, such as the electric light bulb. Economists also distinguish between the innovation itself and the diffusion of the innovation throughout the economy, a process that involves advertising, marketing, and spreading the innovation to new uses, such as the use of the electric light bulb to create night shifts in factories (John Taylor and Akila Weerapana, 2011).

Like most developing countries, one difficulty feature about knowledge generation in tertiary education in Sudan and the Gulf is that enrolment and graduation ratios are biased against scientific, technical, engineering, agriculture, medical and natural sciences and are focused on art, humanities, law and social sciences. For instance, in the period 2009-10, enrolment and graduation ratios in medical sciences, natural
sciences, engineering and agriculture accounted for only 30% as compared to 70% for art, humanities, law and social sciences; these biases remained for enrolment and graduation rates in the period 1994-2009. The share of tertiary students enrolled in sciences, math and engineering in Sudan and the Gulf is low compared to Korea (34%), Algeria (50%) and China (53%) (S. Mohamed Nour, 2013).

3.3. Policies Required for Reforming the Knowledge and Education Situation in Sudan

According to all previous analysis and information, this paper argues that the policies required in the area of knowledge generation in the educational system and research institutions in Sudan may be:

- Sudan needs to encourage the incidence and generation of knowledge at the aggregate level by providing more incentives to education and training to develop skill levels, and by raising spending on research and development. Also raising the public expenditures on education as a percentage of GDP and total government expenditures is required to knowledge generation and creation of technology. Technological change is the result of huge spending of research and development funds by industry and government.

- Sudan needs to establish a body to formulate a policy on work force resources for science and technology, to invest heavily in both financial and human resources, and to learn from the lessons of the advanced and developing science and technology nations. For instance, Sudan government can take benefits from China and Malaysia not only in exploration and in production of oil, but in exchange student programs, developing and training teachers and mentors, and learning from their experiences to improve the educational and technological situation in Sudan.

- Investment in science and technology can be more effective if it made according to targeted and well-defined comprehensive national plans for improvement of economic performance covering all productive sectors (agriculture, industry, and services) and adopting new policies for partnership with the private sector, NGOs, and third sector. Linking human resources development strategies with economic development strategies is essential to consistency between educational outputs and market needs.

- Technological change occurs when new ideas are developed into new products that increase production. Therefore, incentives, strengthening and compulsory policies should be developed to stimulate the transfer of knowledge between universities and higher educational institutions on one hand and companies that transfer this knowledge into tangible benefit products on the other hand. Moreover, create policies to build an assessment system for firms and companies that less the taxes from these companies when they put huge efforts in knowledge generation and transfer this knowledge into real technology.

- The Ministry of Industry and the Ministry of Labor should apply and encourage the local firms to work with the international standards of firms (like ISO) that insure commitment to high quality and internal and external efficiency. The technology includes the way firms are organized. Better organization schemes can mean a smaller bureaucracy and more output per hour of work without the addition of capital. More efficient organizations can improve the flow of information within a firm and thereby affect labor productivity. Better incentive programs that encourage workers to communicate their ideas to management, for example, increase productivity.

- The commitment to high quality and efficiency of education, does not imply that it will be rational to stop expansion of enrolment in higher education, but on the other hand it implies the need to stop the policy of continued random quantitative expansion in enrolment in higher education that caused a serious negligence of improving qualitative efficiency in higher education in light of the limited material, human and financial resources (Jalal al-Din, 2002).

- The government should support provision that focuses on practical rather than theoretical training. In addition, increasing in the numbers of enrolment in medical sciences, natural sciences, engineering, agriculture, and all empirical sciences are also essential to switch the economic situation from importing knowledge to self-generation needed knowledge and innovation.

- Media, NGOs, and third sector should work on raising the awareness of the society about the importance of technical education in this period, and how it can improve the economic growth rather
than academic education. NGOs and the civil society can play an important role in this area by mobilization of students and all activists to share this information in media and social media, and by collecting local and international funding to establishing new qualified technical centers, and support the existing centers.

- Using ICT and KBS to upgrade knowledge generation. The creation of new institutions for knowledge based-society and improvement of skill level by ICT tools are critical in identifying problems, generating the information required to properly understand the nature of these problems, analyzing the gathered information with the requisite speed using the most appropriate tools, and using the results to formulate the most appropriate policy alternatives (Elshaiekh, Farah, and Ibrahim; 2013).
- Solving the main challenges facing Sudanese high education institutions for implementing KBS and its tools by training users on use and content of the KBS applications, and employee training on the new system must be considered to ensure successful implementation of the Knowledge Based System.

4. The centralization Administration of Waqf, Its Impacts In Education Sector and Policies Recommended

4.1. Important Definitions and History Backgrounds

4.1.1. Introduction

Waqf, like charity has a history older than Islam, which seems to have existed in ancient Mesopotamia, Greece, Rome as well as pre-Islamic Arab societies (Othman, 1982). It emerged as an important and unique Islamic institution, and it was strongly founded and flourished widely in the Islamic civilizations. The Islamic model of Waqf then influenced the world at large and thus some of the great institutions, like the famous Oxford University, have been established by following the Islamic model of Waqf (Chepkwony, 2008). Western scholars have recognized, that Islamic influence was prominent in the development of English trust (Noman & Hassan, 2013).

Waqf was considered as a sustainable Development Institution for Muslim Communities, Capital formation mechanism for Muslim communities to fuel the immediate, short- term and long-term development projects. Waqf has the potential to revolutionize the operations and achievements of Muslim communities, as it is a welfare institution including areas of education, research, the development of alternatives to interest-based banking, finance and insurance. (B.Ali, 2009).

4.1.2. Basic Concepts of Waqf

The terms, waqf (plural awqaf) and habas (plural ahbas), both mean ‘to stop, to prevent, to restrain. The word sabil is also used in the same sense, i.e. devoting in the way of Allah (fi sabil Allah). For the creation of waqf it can be defined as follows:

“The confinement of a property (movable or immovable) by a founder(s) and the dedication of its usufruct in perpetuity to the public or to the family.”

Waqf is divided into three types, waqf khayri (public waqf), al-waqf al-ahli (family waqf) and al-waqf al-mushtarak (combined public and family waqf) (Abdel Mohsin, 2009).

4.1.3. Characteristics of Waqf: Waqf has Three Distinct Characteristics

Irrevocability: which is the most important feature of waqf as there is a consensus among the Muslim jurists that the founder cannot revoke the dedication if the property has already been declared as waqf. This means that a waqf (public or family) is irrevocable once a founder declares his property as waqf, and his heirs cannot change its status. These restrictions are intended to ensure that as far as the waqf is created for philanthropic purposes, the founder or his descendants have no right to take it back. So in this case, it will continue to benefit the majority of people and at the same time the founder will continue to get rewards from Allah (s.w.t.).

Perpetuity: of the waqf once it is created. The majority of the Muslims jurists agreed that the waqf must be perpetual once it is created. This, on the one hand will ensure that no confiscation of waqf property will
take place either by the government or by individuals. Moreover, it will ensure regular and continual support from this waqf towards financing charitable areas such as mosques, hospitals, orphanages, schools, etc.

Inalienability: of waqf once it is created. This feature originates as the property of waqf is transferred to Allah (s.w.t), although the usufruct derived from it can benefit man. All jurists agree that no one can ever become the owner to alienate it and that waqf property is thus in nature, like a ‘frozen asset’. It cannot be the subject of any sale, disposition, mortgage, gift, inheritance, or any alienation whatsoever. (Abdel Mohsin, 2009).

4.2. Potentialities of Waqf in Educational Sector in the History and Contemporary Time

Karim (2010) realized Waqf institutions as social institutions instead of religious one. So that, Islam does not only encourage the Waqf institutions to build mosques or orphanages but authorizes them accomplishing the total development in terms of their social, cultural and economic viability and religious, moral and spiritual supremacy.

The historical criteria may be used to discover the poverty-alleviation and development role of waqf in the contemporary world. In many Muslim countries and societies, a significant number of public utilities are based on, or financed by waqf: Educational institutions including universities, colleges, schools, and most of the religious-oriented educational institutions; for instance, in Bangladesh, where more than 8,000 educational institutions are based on waqf. Orphanages may also provide livelihood and education for those sheltered in there. In Bangladesh, for example, more than 123,000 mosques are based on waqf; most of them of which provide educational facilities, especially in imparting religious education. Mosques are also used as maktabs (educational institutions for rural children) and as centers of adult education and moral training (da’wah) (Chepkwony, 2008).

There is clear evidence found in Islamic history for the existence of educational Waqfs. Place of Suffa, adjacent to Mashjid-el-Nabawi in the age of The Prophet (Salla Hu Alaihi Wa Sallam) was established for the purpose of spreading education (Noman & Hassan, 2013).

In many Islamic countries in historic or contemporary times, a lot of considerable development activities related to education have been done based on Waqf sources and dedicated assets. Many scholars focused on this point and mentioned important facts, statistics and numbers; reader can review Noman & Hassan (2013), Salarzehi, Armesh and Nikbin (2010), Chepkwony (2008) and other references.

4.3. Does the Centralization of Administration Destroy and Reduce the Efficiency of Waqf in Sudan and other Islamic Countries

In 13/12 / 1970, the centralization of the Waqf institute was completed by changing the management responsibility of a waqf from the Grand Gadi to the ministry of Youth and Social Affairs, which was known to be The Charitable Endowment Act. In 1980, the Religious Affairs Law was published, this law established the Supreme Council of Awqaf, where the council managed, invested and organized the Awqaf properties under the support and guidance of the government (Hummeida, 1992).

This period had two main observations about Waqf properties:

- The instability in Waqf roles and legislations due to instability in the political situation and the governor ideology. This situation led to mismanagement in the institution of Waqf and reduction in the efficiency of Waqf properties regarding its main goal as it linked to political entity that changed and
- The governments gave the right to themselves to centralize Waqf administration, and took over many of its properties, which was dedicated to educational support. The government made benefit from its power and the weakness in Waqf institutions system to ease the takeover. (Hummeida, 1992).

In 2001, the president of Sudan Omar Al-Bashir issued a Presidential Decree number (12) to establish a special ministry to organize a waqf institute, the ministry of Religious Guidance and Endowments (Awqaf).

4.4.1. General Debate

On one hand, the early period of Islam witnessed the decentralization of waqf administration that continued for thirteen centuries. During that time the Islamic civilization witnessed the remarkable role which had been played by this institution as many founders were encouraged to create their own waqfs,
public and family, and to managed them following the Sunnah of the Prophet (PBUH). Hence, it has been realized that during those years the institution of waqf provided all crucial services needed in the Islamic society. However, this role had deteriorated since the end of the 19th century up to the present time as the governments in the different Muslim countries gave the right to themselves to centralize its administration and to confiscate and abolish waqf. By doing so the government hoped that they would solve all the problems that had occurred to the waqf properties during that time. However, they failed to realize that they were destroying its remarkable role, which it had played throughout the past centuries (Abdel Mohsin, 2010).

Discussing the arguments that support this claim:

- During the time of the Prophet (PBUH) not only the law for the creation of waqf had been highlighted but the decentralization of its administration had been clearly explained as the following hadith:

  In Sahih Bukhari. Kitab al-Shurut (The Book of Conditions). Hadith No. 2532: “Narrated ibn Umar (pbuh): In the lifetime of Allah’s Messenger (pbuh), Umar gave in charity some of his property, a garden of date palms called Thamgh. Umar, said, “O Allah”s Messenger! I have some property which I prize highly and I want to give it in charity.” The Prophet (pbuh) said, “Give it in charity (i.e. as an endowment) with its land and trees on the condition that the land and trees will neither be sold nor given as a present, not bequeathed, but the fruits are to be spent in charity.” So Umar gave it in charity, and it was for Allah’s Cause, the emancipation of slaves, for the poor, for guests, for travelers, and for kinsmen. The person acting as its administrator could eat from it reasonably and fairly, and could let a friend of his eat from it provided he had no intention of becoming wealthy by its means.”

As highlighted in the above hadith, once the property is created as a waqf, its law position and administration would be detailed as follows:

- Once the property becomes a waqf it must not be sold or inherited or given away as a gift.
- It is up to the founder to specify any person or any institution he feels need it more, i.e., either to the public or to his family. In this case, Caliph „Umar devoted it to both public and family.
- The administration of the waqf is also clarified since the founder, he himself administers his own waqf and at the same time he can benefit from it in a reasonable manner as long as he lives (Abdel Mohsin, 2009).

This point of view, saw the previous Hadith as a cornerstone in creating or making any policy towards Waqf and as Waqf is an Islamic institute that means all legislations must come from the source of law and legislation in Islam; Quran and Prophet Mohammed (PBUH); Sunnah.

However, other people can demur the previous argument by saying that there are many Muslim scholars, scientists from different Islamic Fiqh schools saw the centralization of Waqf administration as an acceptable action, and some of them saw it as a necessary development tool in modern time. Secondly, this argument was what the writer understands from Prophet Mohammed’s (PBUH) Sunnah, but, it is not necessarily what Prophet Mohammed want us to do nowadays. Moreover, this argument does not assess the efficiency of centralization of Waqf administration, which is the main point in this debate.

- Feldman (2008) discussed the contours of the classical Islamic constitutional order. As he explains, the Muslim rulers’ legitimacy was traditionally derived from a commitment to upholding the Shari’a. Islamic scholars who had the final say on Shari’a dictates, and served the law in the name of God, not the state, mainly conferred this legitimacy. The institutional arrangement created a balance of power, which checked the executive power of the ruler. The scholars’ power within the arrangement was largely normative, not material. Rulers were compelled to obey scholars’ rulings because not doing so risked being viewed as going against God’s will. Scholars in turn also displayed a willingness to occasionally deploy flexible interpretations to advance rulers’ agendas (Feldman, 2008). This institutional arrangement was one of the strongest features that saved the Islamic civilization from destruction.

According to Abu Zuhrah (2009), towards the end of the Ottoman Empire in the 19th century a new waqf administration (tanzimat) were appointed to administer the affair of the waqfs. At the same time Muslim jurists lost their control over the waqf properties as they were placed under direct government
supervision, i.e. centralization of administration, and this severely weakened their position in society (Abu Zuhrah, 1959).

Feldman (2008) links the decline of the Islamic state to the tanzimat reforms, which encompassed both constitutional and legal changes, including codification of Islamic law. Codification transformed Shari’a from the product of perpetual (and thus by definition dynamic) processes of interpretation to a more static and delineated set of rules. It also moved authority over the law from the scholars to the state. The model that Feldman (2008) submits has been replicated throughout the region following the disintegration of the Ottoman Empire. No social or political class has ever emerged to successfully fill the vacuum of the scholars as counterweights to executive power since. According to Feldman arguments the centralization of administration of Waqf (which is one of tanzimat reforms) caused to decline the development process in Islamic civilization and reduce the efficiency of Waqf institute.

Moreover, the consequences of the tanzimat reforms appeared in the following years after the collapsed of Ottoman Empire. Ministries of Awqaf in the most Islamic countries were given many rights over all waqf properties. For example, it gave it the right to administer all public waqf, the right to change the founder’ conditions, the right for founders to revoke their waqf (Abu Zuhrah, 1959).

Further, Feldman argues, while within the traditional Islamic state the rule of law prevailed, the fall of the Islamic state resulted in the demise of the rule of law in the region, which decreased the efficiency of Waqf institutes and other development tools in Muslim world (Feldman, 2008).

- The creation of the centralization of waqf opened the door to many problems. For example, it created unemployment, as the trustees who were appointed by the founder (in most cases the founder’s sons) became dependent on monthly salaries, rather than administering their own waqf. Moreover, mismanagement took place within the institution itself, as most of the waqf properties were managed by appointed trustees who had no intention of protecting these properties other than getting their monthly salaries or having the opportunity to keep more money from the waqf revenues for themselves. This, in turn, left most of the waqf properties idle, as there was not enough money to maintain them. (Abdel Mohsin, 2009).

- This centralization movement in turn brought another important problem; it discouraged new founders from creating any new waqfs to serve any service sector with the exception towards creating waqf for religious institutions. Moreover, with such administration, i.e., centralization of waqf administration, people were reluctant to create any new waqfs since they knew that they have no right to administer their own waqf or even to appoint their own trustees to manage their waqfs. With such restriction, the government and the religious authority found themselves responsible for rebuilding old waqf buildings and which in turn would exhaust the government budget. So most of these old waqf buildings are still left idle, unproductive and burden to the government (Abdel Mohsin, 2010).

- Financial underutilization remains widespread as rents or usage fees often have not been updated for decades, and tenancies are awarded and not competitively bid. Awqaf are systematically rented at far below their market values, especially Waqf Al-Bagdady in Khartoum, which was dedicated to support students who studied medical sciences, was rented by the government for a very low price (Naser, 2011). In the other Islamic countries, these ‘missing’ rents have large consequences. In India, estimates from the Central Waqf Council place the average rate of return on waqf currently at 0.013%. At present, rents generate USD 26 million per year, but the Council estimates that, with a 10% yield set closer to current market rents and more modern management, the waqf properties could generate over USD 1 trillion per year (Baird-Zars, Amirtahmasabi and Darrat, 2014).

However, the last three arguments have some weakness points as the level of centralization and public control does not necessarily correlate with management problems, governments with less official recognition of waqf typically have less skilled management and thus if the government raises its management and financial skills these drawbacks of centralization will disappear.

From this point of view, decentralization of waqf administration is much recommended to open the door wider for more founders to create new waqfs, which can provide the entire essential services needed in Sudan and other Muslim countries now.
On the other hand, the main argument was still mentioned by the Sudanese governments and other governments in Islamic world were that the establishment of a waqf entity is purely voluntary in nature. It depends on the perceived intention of the donor(s) as to its importance in the act of benevolence and social service, and not necessarily on the need of the society. Thus, it is obvious that, although it has been playing an important role, the institution of waqf will not be able to do much in its present voluntary nature in the implementation of a planned program of poverty alleviation and socio-economic development. This is because a planned program will have some specific planned projects in the agenda. There is no guarantee that any waqf will be voluntarily endowed to finance these planned projects. Besides, such planned projects may require huge sums of investment which individual waqifs may not be able to endow. (John Gerhart Centre, 2006).

In this respect, Waqf should therefore be made to be an effective institution of poverty alleviation in a deliberate and planned manner to establish and support such specific prioritized projects thus converting them to organized voluntary activities.

Nevertheless, the previous argument supports the organization of Waqf process and not necessarily the centralization policy. Sadeq (2002) proposes the following mechanism to make waqf more effective and contribute to poverty alleviation without construction of centralization: - - The relevant authorities should develop strategic plans that capture community high-priority projects which specifically target poverty alleviation and socio-economic development. These projects are then directed to the Waqf Administration Body (WAB) of the country concerned. The WAB then prepares project profiles and invites voluntary cash waqf to finance the planned projects. Issuing waqf certificates of different denominations against the planned projects may raise the cash waqf, so that a number of individuals or institutions may buy them and thus join together to finance the planned projects. Separate cash waqf will be raised for each individual waqf activity. This will have a resource-pooling effect to implement a large waqf-based project, which would otherwise be impossible by a single effort. The planned projects will then be financed from waqf proceeds.

4.4.2. Centralization of Waqf in Sudan and its Impacts in Education Sector

According to the final report from the Ministry of Religious Guidance and Endowments (Awqaf) in Sudan, the table below shows the number of Waqf properties in Sudan States in the periods: 2007, 2010 and 2014. Before we analysis the information in this table to assess the centralization of Waqf in Sudan, we need to mentioned that according to personal interviews with managers in the Ministry of Religious Guidance and Endowments in Sudan and according to their final report in 2014; Khartoum State is the most important State in Waqf institution in Sudan, it took more than 90% of the total Awaqf that were dedicated to education development. In 2010, the total outcomes from Waqf properties in Khartoum was 15552977 Sudanese Pounds, whereas the total outcomes from all other states in Sudan was 8924465 Sudanese Pounds which means Khartoum was represent almost 70% from all Waqf revenues in Sudan.

We will focus our analysis on Khartoum State as we concern about the education sector and as we mentioned that Khartoum state took more than 90% of the total Awaqf that were dedicated to education development. From the table below reader can observe clearly:

- The number of Waqf properties in Khartoum shrank from 1615 in year of 2007 to become 1141 in 2010. The main reason for this may be due to the Government and Ministry of Religion changes in characteristics of Waqf as they did not consider Waqf as perpetuity, or may be due to mismanagement of the ministry itself as many old Waqf properties was taken by the people who rent it from the ministry in a previous decades and some of them considered Waqf property as a personal property.
- The number of Waqf properties in Khartoum remains constant in the period between 2010 until 2014. These two observations support the two claims by anti-centralization scholars; creation of the centralization of waqf opened the door to many problems. For instance, mismanagement took place within the institution itself, as most of the waqf properties were managed by appointed trustees who did not intend to protect these properties other than getting their monthly salaries. Secondly, centralization movement brought another important problem; it discouraged new founders from creating any new waqfs to serve any service sector with the exception towards creating waqf for religious institutions.
Table 5: Numbers of Waqf Properties in Sudan States.

<table>
<thead>
<tr>
<th>State</th>
<th>Waqf properties in 2007</th>
<th>Waqf properties in 2010</th>
<th>Waqf properties in 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khartoum</td>
<td>1625</td>
<td>1141</td>
<td>1141</td>
</tr>
<tr>
<td>Northern</td>
<td>377</td>
<td>602</td>
<td>700</td>
</tr>
<tr>
<td>Red Sea (Eastern Sudan)</td>
<td>268</td>
<td>462</td>
<td>462</td>
</tr>
<tr>
<td>Nile River</td>
<td>310</td>
<td>374</td>
<td>415</td>
</tr>
<tr>
<td>Kassala (Eastern Sudan)</td>
<td>170</td>
<td>343</td>
<td>350</td>
</tr>
<tr>
<td>Al-Gadaref</td>
<td>84</td>
<td>122</td>
<td>140</td>
</tr>
<tr>
<td>Gezira</td>
<td>530</td>
<td>767</td>
<td>770</td>
</tr>
<tr>
<td>Blue Nile</td>
<td>84</td>
<td>51</td>
<td>68</td>
</tr>
<tr>
<td>White Nile</td>
<td>456</td>
<td>440</td>
<td>561</td>
</tr>
<tr>
<td>North Darfur</td>
<td>358</td>
<td>318</td>
<td>334</td>
</tr>
<tr>
<td>West Darfur</td>
<td>95</td>
<td>110</td>
<td>215</td>
</tr>
<tr>
<td>South Darfur</td>
<td>181</td>
<td>185</td>
<td>190</td>
</tr>
</tbody>
</table>

Source (Ministry of Religion Guidance, 2014)

The writer made a personal interview with the manager of Al-Bagdady Waqf; one of the most important Waqf properties that dedicated to education development. Al-Bagdady Waqf provides monthly payments 200 Sudanese Pounds for more than 600 students (One third of all students) in the faculty of medicine in University of Khartoum, helps poor students and students with special needs and participates in development process in the faculty building and system. Dr. Kamal Al-Jzolly the manager of Al-Bagdady Waqf insure that before decentralize of this Waqf there was financial underutilization as rents or usage fees often had not been updated for decades, and tenancies are awarded and not competitively bid. Moreover, Awqaf were rented at far below their market values.

4.4.3. Policy Recommendations

Research scholars are being invited to explore the impacts of centralization of administration in Waqf institute in Sudan. There is a lack of resources in this area of study in Sudan. The writer considered this section as only introductions or outlines to this debatable and important issue, the writer think that to complete these research Sudanese scholars can take some Waqf institute as a case study and try to assess the centralization drawbacks that were mentioned in the general debate part in this section.

We have realized that whenever mismanagement or abuses arose within the institution of waqf, the state or the government immediately sought fatwas in order to confiscate or to abolish such waqf rather than finding ways and means of keeping its administration decentralized or encouraging the creation of waqf as recommended by the Prophet (PBUH) in many Ahadith. Hence, and with the recent call for the establishment of movable and immovable waqfs it is much recommended for the government in all the Muslim countries to:

- Give opportunity to the people/founders of new waqfs to administer their own waqf. This in one hand will increase the creation of waqfs for the different services needed in the society without any cost to the government and on the other it will assure the good management as long as the founders themselves will be involved in the management of their waqfs.
- Although it is recommended to give the right to the founders to administer their own waqf, the government or the religious institution can act as a supervisory body that can monitor the management of waqf and that can punish the trustees in case of any misused to the waqf properties in order to avoid any misused within that institution (Abdel Mohsin, 2010).
Research scholars are being invited to explore role of waqf with respect to socio economic development of country. Analyze the role of Waqf institutions and produce sound grounds for revival of Waqf (Noman & Hassan, 2013).

5. Conclusion

This paper has examined the policies required in the areas of knowledge generation in Sudan, its central role in development and economic growth, and the challenges that facing Sudan to become a developed country in the technological aspect. The author started by introducing the general political context, socio-economic characteristics, and their impacts on the knowledge and educational systems and argued that the key policy to create a knowledge generation and innovation environment is to sustain peacebuilding and an overall development in Sudan regions. According to a deep analysis and critical thinking in the government’s policies in education, this paper suggested many required policies and insured that increasing public expenditures and investment on education, as a percentage of GDP is an important procedure to reform the educational system. Finally, the paper discussed the centralization of administration of Waqf institute in Sudan and other Islamic countries and advised to increase researches and workshops in this area.

6. Acknowledgements

Unlimited praise to Allah, as the number of His creatures, the gratification of Himself, the weight of His throne, and the extension of His words. Another special thanks for my friends Ali Abdo-alrhem for his useful advices and reviews and Muzafar Imad Ali for his efforts in language corrections.

7. References
