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Research Article

Situation of Scientific Research in Sudan Public Universities

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Abstract: The main objective of this study is to investigate the situation of scientific research in Sudanese Public Universities. For that purpose, the descriptive/ documentary method was used and rigorously followed. For collecting the required data, the researchers depended heavily on the analysis of the available literature and publications on the topic of the research, beside, the previous studies in the domain of the topic under scrutiny. The main results of the study can be summarized as follows: Scientific research in the Sudan is irrelated and not linked with the main applied problems of society. There are no well preplanned policies for research. There is a lack of coordination between research producers and consumers.Little care and attention are not very much payed to solving the main problems in the Arab world. Poor funding for scientific research in the Sudan is considered to be the chief problem. In view of the results, being reached, it is recommended: Regular financial support should be provided for research purposes with all measures of transparency and justice.Link with all production sectors is to be encouraged to benefit from the produced research. Relations and partnerships with regional and international organizations are to be welcomed in endeavor to attract more financial support and funds for research projects. More financial support and incentives should be encouraged to enable staff members to fully participate in regional and international conferences and meetings.

Keywords: Scientific Research Sudanese Public Universities.

INTRODUCTION:

Scientific research is considered to be an integral part of general policies in the developed countries in that they allocate adequate funds for scientific research in all fields, besides giving moral support possible in that direction. Conversely, in the Arab world attention to scientific research is low and comes in the least level financially and morally.

The Arab world would have been in a better position if attention and care had been given to scientific research. Moreover, a number of problems could have been scientifically solved. Politically speaking, whereas all countries of the developed world believe that scientific research is a necessity for more economic growth and development, politicians in Africa, and the Islamic world, and in Sudan are far behind this line of thought. As for the case of Sudan, only 0.02% of the national outcome is allocated for scientific research, although it is hoped that this figure will be raised to 10%. It is so unfortunate that this little fund had been proposed by African Summit conference under the Slogan of Scientific research for development in Africa: (Awad Karim, 2017).

Statement of the problem:

The problem can be summarized in the following questions:

- What is the situation of scientific research in the Sudanese public Universities?
- What are the main obstacles facing scientific research in the Sudanese public universities?
- What are the solutions for scientific research improvement in the Sudanese public universities?

Objectives of the Study:

The study aims at:

- Realizing the situation of scientific research in the Sudanese public Universities.
- Identifying the main obstacles of scientific research in the Sudanese public Universities.
- Arriving at solutions for problem facing scientific research in Sudanese public universities.

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Significance of the Study:

Theoretically, the study is hoped to shed more light on the realities of research in the Sudanese public Universities for the sake of serving the basic requirements of comprehensive development in the country. Such efforts may attract more attention to many in the circles of public university administrators to provide more financial and moral support for research. This might also help in designing some strategies for positive interaction between Universities and the productive sectors in society. Practically, the study is also hoped to arouse and increase the role of decision makers and decision takers in affecting real partnerships betweenSudanese Universities and development planning bodies in the country.

METHODOLOGY:

Both researchers relied heavily on the available theoretical and applied studies in the field, as it is being the main source of the study data.The descriptive/ documentary method was used and rigorously followed. The study, being an analytical one, a number of researches and studies were also consulted as well as the Sudanese previous studies on the topic under investigation.

Definitions of Terms:

- **Scientific Research:** It is a kind of a calculated effort exerted in order to arrive at appropriate solutions for problems that upset human beings. It is the outcome of the tendency of knowing the truth of things and has a deep understanding and insight of it.It depends on curiosity, hypothzing, experimentation and logical thinking. It therefore gives men a key for progress and progress development in all fields of life. (Kawther, Ibrahim, 2007). Operationally, the term is used to refer to research carried out in Sudanese public Universities. The term is used in ways that highlight the main obstacles facing research, funds reserved for it, and the development of research in the Sudanese public Universities.

Sections of the Study:

Firstly, the situation of scientific research and it includes:

- **Environment of the university:** Laboratories are not well equipped. Staff offices are old and crowded with four staff members in one office. No computers are made available for members of staff. More seriously, the financial status of staff members is appaulingly poor. Ironically, a salary paid to a geology department graduate is far more than that payed to full professor in the same line of specialization.

- **Staff members:** For any staff member to add to his or her salary have to take part times jobs of teaching in other universities. Such jobs add heavily to his or her physical and time exhaustion at the expense of his or her main job in the particular university. This will no doubt reduce the quality of lectures he or she is supposed to deliver.

- **Degrees:** Another annoying problem is that according to the records of the ministry of higher education and scientific research, there are only 3252 Ph.D. holders, whereas the number of students in all Sudanese Universities is estimated to be 290640 in the year 2005/ 2006. Only 365 of the staff are full professors. Such statistics are made before issuing the decree of considering the age of 60 to be the age retirement. This being so, the student/ staff member ratio can be said to be 90 students for each staff member, which is far behind what is expected (25 students for one staff members. (Ministry of higher ed. 2017).

Secondly:

Funding and financing of research in the Sudan. The percentage of research financing is not more than 0.03% from the national income. Compared with Europe, a recent statistics released by the European Union shows that one Euro spent on research will double five times in the five years following the execution of a particular research project.

Within this context, it can be argued that self-generated research conduce to development in Europe, whereas in Africa in particular, buying the scientific research products of others is a common practice.

With regard to the Sudan, the scientific research situation is bad in many respects: poor funds immigration of minds and experts, unequipped laboratories, and the conflicting policies and plans.

Despite of some Sudanese politicians` call for increasing funds for research, the Sudan is still listed as a poor country in Africa.

In this direction, Dr. KarrarAbbady, deputy vice – chancellor of Omdurman Ahlia University asserts that the core of the problem of research in Sudan lies in what he calls the bad management of research, particularly in respect of organization and coordination. He particularly referred to the role of the national council for research in the seventies. The council, according to Dr. Alabbady, played a pioneering role in the country in one body that can embrace alluniversities, establishments, and ministries. Unfortunately, such efforts were soon aborted and finished with. As a results of all this, many research establishments lost sight of clear-cut policies, and a lot of regular funds.

Instead, research funding become distributed between the ministry of higher education and the ministry of science and technology, and the national council of research and other research centres.

More seriously, all ministries were transferred to the ministry of science and technology, which is considered to be a Msc and ph.D awarding body.

For instance, the agriculture research corporation cannot in any way be affiliated to the ministry of science and technology, which has never ever relationship with the ministry of agriculture.

Research financing in some countries compared with Sudan.

According to some recent studies, funds allocated to research in the world as a whole amount to 2.1% from the national income. This equals around 536 billion dollars. The number of those working at research corporations and centres amount to 3.4 million researchers; that is about 1.3 researcher for million thousand from the working manpower.

America, Japan, and the European Union spend 417 Billion dollars, which is about three quarters of world spending on research. America alone spends more than 168 billion dollars, which is 32% more than the world expending. Japan comes second after America. It spends around 130 billion dollars, which is about 24% more than the whole world`s spending. After America and Japan, come the countries of the developed world such as:Germany, France, Britain, Italy, Canada. These countries spend about 420 billion dollars. In these countries, there are 2 million and 265 researchers which represent 66% of researchers in the whole world. The cost of each researcher is 180.000 dollars a year. The Scandinavian countries come in the top of the list of research and innovations.

Funds Allocated There For Research Are As Follows:

Sweden 4.27%, Finland 3.51%, Denmark 2.6% (Mohammed, 2008).

In the period between 2007 – 2010, funds allocated for research in the EU countries amounted to 300 billion Euros.

As for Southern and Eastern Asian countries, fundsreserved for research and development are progressively increasing. South Koria raised research funds from 0.6% in 1980 to 2.89% in 1997. In south Koria,also limited research to concentrate mainly in the field of "Electronics, maritine, studies and ocean, environment technology, information technology, measuring instruments, new material space science and aviation.China spends about 2.5% from its general expenditure on research. Funds for research has been increased recently to be around 136 million dollars, whereas, funds allocated for that purpose did exceed 30 million dollars in 2005.

The rest of world countries` expenditure on research is more than 116 billion dollars, whereas the Arab countries as a whole only spend 535 million dollars, which is about 0.11% from the national income of the rest of countries.

In the year 2008, Israel spent about 9 billion dollars, which is the equivalent of 4.7% of tis national income. In Israel there are 90.000 scientists and engineersworking on advanced technology, particularly microelectronics and biotechnology. The researcher there earns about 162.000 dollars a year, which is four times more than his Arab counterpart. The Arab countries spend only half of Israel`s expenditure on research, despite the fact that the Arab national income is eleven times more the Israeli`s. Moreover, the area of the Arab world is 649 times more than Israel.

Internationally, Israel is rated to be the first country in the world with regard to the individual income from research funds. U.S.A and Japan come second. As for Arab countries, they are 100 times less than Israel in that respect.

According to the unesco reportissued in 2010, despite the fact that the Arab countries possess a huge resources and wealth, they have less and weak base of science and technology. Despite the fact that there are some recognized Arab Universities, but they do not produce more than 136 researchers in every million, whereas the average at the international level is about 1081 researchers.

In 2006 the unesco report emphasized that in Israel 139 researchers in every million, 2439 in the EU, 4374 in U.S.A.

As for published research, the share of the Arab countries as a whole ranges between 0.008% to 0.3% in comparison with Israel (1.1%), Germany (7.9%), Japan (8%), and the United States of America (30.8%) (Arab Report 2010).

Immigration of Arab Scientists to western countries has a huge Damaging effect Statistics showthat 60% of Egyptian engineersimmigrated to the U.S.A, and more than a million experts and specialists holding higher degrees are now working in the west. These are 450.000 of them in America and Europe.

A recent report issued by the Arab league showed that the Arab countries spend only one dollar on one scientist, whereas it is 700$ in America, 600$ in the European countries.

According to the report, the immigrating physicians from the developing countries to America represented 50% and 36% for the engineers. America, Canada, and Britain receive about 75% of the immigrated experts (Arab Report, 2010).

The Arab league in 2009 issued a report under the title (Immigration of experts: Exhaust or Opportunities). According to the report, 50% of the immigrants are higher degrees holders.

In the same period immigration increased to be about three to nine times more into countries like Yemen, Djibouti, Sudan, and Mauritania, the rate of immigration to France is considered to be 40%, and 23% in the U.S.A, and 10% in Canada. Arab physicians working in the EU countries are thought to be about 18.2%, 54% of students studying abroad never come back to their home countries. The percentage of expert immigration is about 31% from the Arab countries alone.

The financial losses of Arab countries due to the immigration of experts are estimated to be about 200 million dollars (Abdelaal, 2003).

Fourthly: Previous Studies:

- **Jaradat (2003):**

  The situation of scientific research in public Universities in Jordan and future prospects during the first Quarter of the 21st Millennium. The study sample included (438) membersout of the study population consisting of university staff members with the status of Professor, Associate Professor in the Universities of Jordan, Yarmouk, and Moata. The researcher used a questionnaire as a tool for data collection. The main results of the study are as follows: The informants see that the universities apply scientific research at a low level, as they are not capable enough to play the role of research and development. There is some of miscoordination between the plans and aims of the university and the requirement of the national development. Funds allocated to research are far less than what is needed. As for the future prospects, there is a necessity for well-constructed policies and programmes and plans for more improvement and development of scientific research in the universities.

- **(Mamarya, 2005, Algeirs):**

  The objective of the study was to identify the material, social, philosophical and scientific obstacles facing scientific research. The researcher selected a sample consisting of (79) college staff members working in five colleges in Baten University. The questionnaire was used and directed to the sample members. The study came up with the following results: lectures of the human and applied studies see that the most of the obstacles that have adverse effects on scientific research are: New scientific references are not available. The University environment is not encouraging and not attractive. The weak link between the universities and other university establishments. The financial incentive and support is extremely low. As for the personal obstacles, lecturers of the human sciences see that there are a number of obstacles which have an adverse effect on research such as: hesitation on the part of researchers before embarking on the research. Researchers lack the incentive to carry out research. The family and social obligations take most of the time; beside the psychological pressure on the part of researchers. Lecturers of science in JaletRibias College identified a number of obstacles such as: time mismanagement, the psychological tension due to social status, and the psychological pressures due to personal problems.

- **(Barghousi and Abu Samra, 2007, Palestine):**

  The study is on: Problems of scientific research in the Arab World. The main results of the study are as follows: The very few funds allocated for research that can help in making available instruments, references and periodicals, beside, the financial support to the research and their assistants. The university environment is not encouraging for proper scientific research. There is a lack of clear policies that can control and govern research. There is also the problem of the so called "Brain immigration to eastern and western countries". The scientific research is not properly geared to and linked with the societal needs and development requirements in all sections of production. Over and above, there are many problems related to the researcher himself or herself.

- (**Kharfan, 2008, Syria):**

  The study is mainly concerned with scientific research in all Syrian universities (University of Tishreen as a model). The study concluded that: The main objective of the University being, the preparation of students in different fields and disciplines, there is a considerable increase in students in-take, whereas the numbers of qualified staff members are not enough. There is a problem of scientific mismanagement of research in all universities, beside, a weak interaction between the universities and society. The higher studies particularly at the master's level attract many for professional reasons. Most of the researches being carried out concentrate on the Arts, Economics, Agricultural sciences. The scientific research carried by staff members is still far less than expected. Thereis also the problem of the discrepancy between the registered titles of research and the finally executed ones.

- **(Al – Sammak and Al- Niaimi,, 1989. Iraq)**:
  The study investigates future trends for scientific research planning in Iraqi Universities. The study has come up with the following main results: There is a lack of coordination between the establishments responsible for planning and implementation of scientific research. Very few funds are allocated for research. Research funding does not exceed (0.3%) out the national income.

- **(Kamal and Ahmed, 1995. Qatar):**
  The study investigates the problems of scientific research in Education and Psychology in the Arab world. The main results of the study can be summarized as follows: There is a no clear cut policy for educational research. There is no data-base. Number of qualified researchers is not quite enough. Interaction between educational research and the educational system as a whole is very weak and inactive. Reserved funds for research are few and poor. Weak interaction, also, between research producers and consumers. Research results are not reflected in actual practice. There are various centres in Qatar University as far as educational and psychological research is concerned. There is also a problem of researcher`s abstinence from research for different reasons.

Fifthly: Results, Recommendations, and Suggestions:

Results:

Having outlined the previous studies, and obstacle facing scientific research in the Sudan, both authors of the study have concluded that there are some main obstacles to research in the Sudan because of their continuous recurrence on one hand, and their sizable effect on the other hand. These obstacles can be summarized as follows:

- Scientific research in the Sudan can generally be described as irrilated and not linked with the applied problems of the society. There are no well pre-planned policies for research. The lack of coordination between research producers and consumers. Little care and attention are payed to solving the main problems facing research in Arab world.

- Poor funding of scientific research in the Sudan represents the chief problem.

Recommendations and Suggestions:

- There is need for regular financial support for all research purposes regular with all measures of transparency and justice.

- Units of research are encouraged to make more links with all sectors that can benefit from research.

- There is a need for creating relations and partnerships with regional and international organizations for the sake of making use of the financial support those organizations can offer.

- There is a need for facilitating the participation of staff members in regional and international scientific conferences, as such participation forages a link with others, and at the time raises competencies and creates opportunities to see what is new abroad.

- Researches, in all disciplines, should be encouraged to carry on joint research and studies for more cooperation with other staff members in the Sudanese universities.

- Financial support and incentives should be given to staff members who present research paper in scientific conference.

- Libraries at all universities should be well equipped with relevant and recent references and periodicals for the benefit of all researches.

- Libraries should have regular annual subscription in the more reputable journals and magazines.

- The ministry of higher education and scientific research can create some sort of coordination and partnership with the Sudanese universities for the sake of carrying out joint research projects.

- It is of utmost importance that ph.D holder`s should have the chance to be enrolled in post – doctorate programmes in the most recognized international universities.

- The increase of staff members' salaries may help reducing their need to do part-time jobs elsewhere in order to compensate their poor salaries.

- There is a need for diagnosing the present situation of scientific research in Sudanese universities, in order efforts can be exerted to develop it and ensure its good quality in view of the international globalization trends.

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