

**INVESTING IN RESEARCH IN OIC COUNTRIES:
THE KEY TO SUSTAINABLE DEVELOPMENT AND SELF
RELIANCE**

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Introduction

Research is the systematic process of collecting and analyzing information to increase our understanding of the phenomenon under study. It is the function of the researcher to contribute to the understanding of the phenomenon and to communicate that understanding to others [1].

Sustainable development may be defined as "Improving the quality of human life while living within the carrying capacity of supporting ecosystems" (*Caring for the Earth*, IUCN/WWF/UNEP, 1991).

The above definitions therefore enlighten more on the key concepts that this essay will focus on – the concept of information acquisition and the incorporation of such information into key areas of development that allows efficient use of the resources needed for development so as to ensure that the planet is not depleted to the point of annihilating the future generations.

The essay has been organised into four main areas – research: its benefits and requirements; development – its requirements; the OIC region: analysis of development indicators in some of the OIC countries and the conclusion to wrap up the essay.

Research: Benefits and requirements

The human race has witnessed technological and economic development over the last 100 years in a way that is incomparable to any other period in history. From simplistic farming tools to advanced spacecrafts used in outer space travel – the achievements have been indeed tremendous.

It is also however realizable that to a larger extent, the rate of information dissemination and acquisition has also grown rapidly. The access to information has opened the doors of innovation and the ability to share information has enabled teams or knowledge seekers from around the world to make breakthroughs that would not have been dreamt of.

It's at this point that we may peep into the key benefits that information acquisition and sharing – without which much of the development we see today may not have been within reachable range.

The benefits of research

Improving the quality of life:

A key benefit of research has been the improvement of the quality of life on this planet. From technology that makes education easier to deliver – to technology that ensures proper medical procedures that save lives – the list is endless. There have also been a number of discoveries in the area of food production that have greatly enhanced the way food is produced, stored and processed. All these have been instrumental in improving the quality of life on earth. It's also worthy of mention that medical technologies that have been developed after years of research have proved handy in even very poor countries. For example birth complications that would be impossible to diagnose early enough for effective intervention can now be done – thanks to ultrasound scanning. Such technologies have made the process of antenatal and birth a lot safer compared to the situation just a few years ago.

Enhancing productivity

Productivity entails optimal use of resources in such a way that wastage is greatly minimized. Over the last few years, research on improving efficiency of technological discoveries like light bulbs and automobile engine has yielded tremendous benefits. For example energy saving electric bulbs now consume only 20% of what conventional incandescent bulbs consume and yet they produce even brighter light. This has thus resulted in expending minimal resources on power – yet attaining the intended goals of the technology. Two studies of productivity growth in the U.S. economy during the 1990s concluded that technological change and innovation — especially in the areas of information technology, supply-chain management and robotics — accounted for the largest share of U.S. productivity gains over the period [3].

Great improvement in Communication

A key benefit of research has been the domain of communication. From the basic radio discovered by Marconi to advanced internet based communication infrastructure – the global masses can now reach one another at amazing speeds with relatively cheap and accessible tools. The internet has enabled common people separated by great distances to conduct communication using all media from mail to audio and visual conversations. A part from the common man, communication technologies that have arisen from research have enabled sharing of knowledge on a global scale – thereby overcoming some of the shortcoming that knowledge workers face in some countries of the world. Teleconferencing has now reached amazing levels of applicability where delicate medical procedures are being conducted by surgeons separated by thousands of kilometers. Such benefits cannot be underestimated.

Governance: Participatory development

The issue of participatory governance – enshrined in the principles of democracy has received immense benefits mainly from communication technological discoveries. Today's citizen is able to more effectively monitor government activity and participate in the making of key decisions that influence government policy thanks to communication tools available today – including but not limited to radio and television. Although we have seen the benefits of communication technologies in general, the issue of participatory governance requires special attention since it is the only way that the society or citizens of a country can be able to perform the much needed checks and balances that ensure that excesses in both government action and the action of business organisations can be at least reduced to sustainable levels.

Economic Benefits

Research expenditures create jobs through ripple effects – in that from the entire spectrum of people and companies that are involved in producing information and tools for research

support directly benefit financially from funding that is directed to this research. The knowledge created by publicly funded research projects also creates jobs in many ways. University research-related licenses, new and complementary companies can have a great impact on the economy. In addition, the level of university research expenditures substantially influences private-sector research activities, affecting both the level of industrial Research and development and industrial patents.

Human capital investments, particularly persons trained in technology, science and engineering, affect the formation of new firms. University research funding also affects overall economic growth or well-being through increases in productivity and wage rates. Research-related innovations and the accompanying jobs occur close to where the research takes place, so an important public policy goal must be to encourage high levels of both public and private research within Arizona [3].

The requirements of research

The above benefits are lofty and appealing. However, they do not come easy. Research is a technically and economically challenging discipline that requires enormous resources if the fruits are to see the light of day. It is also realizable that failures are a part of that process and thus, funding must accommodate for such negative events as accidents or absolutely unexpected outcomes of an original research plan. We shall now focus on the issue of the requirements of research:

Technical Manpower:

It is next to impossible to envisage research without the technical human resources that provide direction and control. Such manpower requires enormous resources to maintain and support. Today, the United States, Europe and China are the leading research areas of the world and true to the issue of technical requirement – the number of high level technical research personnel in those areas is clear to see.

Share of population with Associate's Degree or more

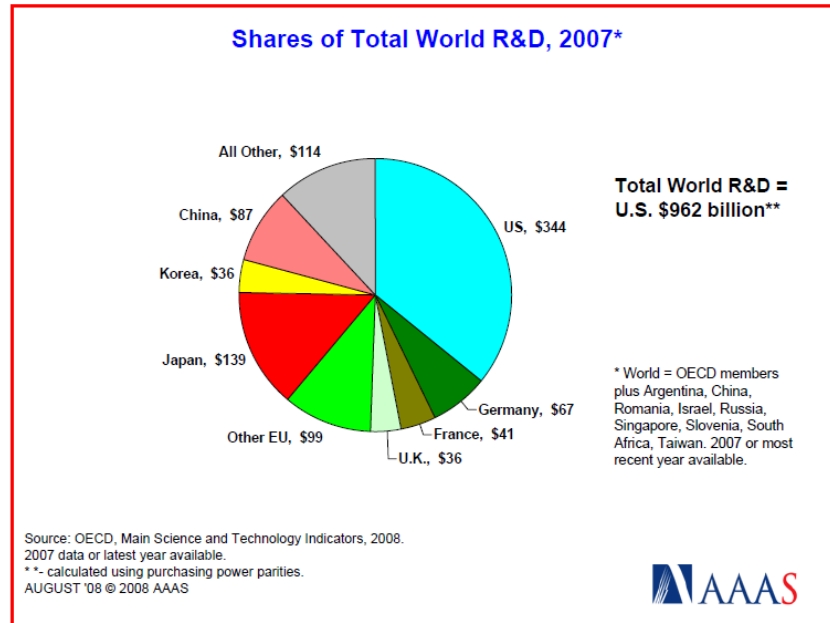
	AGE	
	25-34	45-54
Canada	51%	39%
France	33%	19%
West Germany	21%	25%
Italy	12%	11%
Japan	48%	29%
Korea	38%	13%
Mexico	18%	11%
United States	35%	36%
Arizona	30%	37%

Source: Organization for Economic Co-operation and Development (2003) and 2000 decennial census for United States and Arizona

The above data indicates that the number of highly qualified individuals in the countries known for their research and development capacity is considerably high. Moreover, a big percentage of such manpower is within the 25-34 year old range – thus providing a reasonable guarantee of service for the next decade or so.

Financial Resources

The need for monetary resources to support research cannot be underestimated. The United States spent 344 billion US Dollars on research and development. China – one of the fastest growing countries in the world today now spent 87 billion on research and development alone. This is in contrast to the rest of the world excluding the European countries which together spent a shameful 114 billion US dollars – not even half of total US spending. Financial resources are a key requirement given the need for highly qualified manpower and equipment. Research projects are also known to take from 3 – 10 or more years for completion. For example the B2- stealth bomber project of the United states Military took 10 years to complete and currently, one aircraft costs 2 billion US dollars.



Technological Tools

Research yields technology. However research is also highly dependent on technology. The United States alone has well over 20 very advanced research facilities including but not limited to Stanford University, MIT, Carnegie Mellon, At &T, Bell labs and University of California at Berkeley. These laboratories are equipped with very advanced technological equipment for studying phenomena from the human body, computer technology to space phenomena like comets and asteroids. Without technology, tasks that require analysis of materials and simulation of very advanced phenomena like particles for nuclear and other research simply cannot be envisaged.

The OIC region: Assessment of research and development conditions

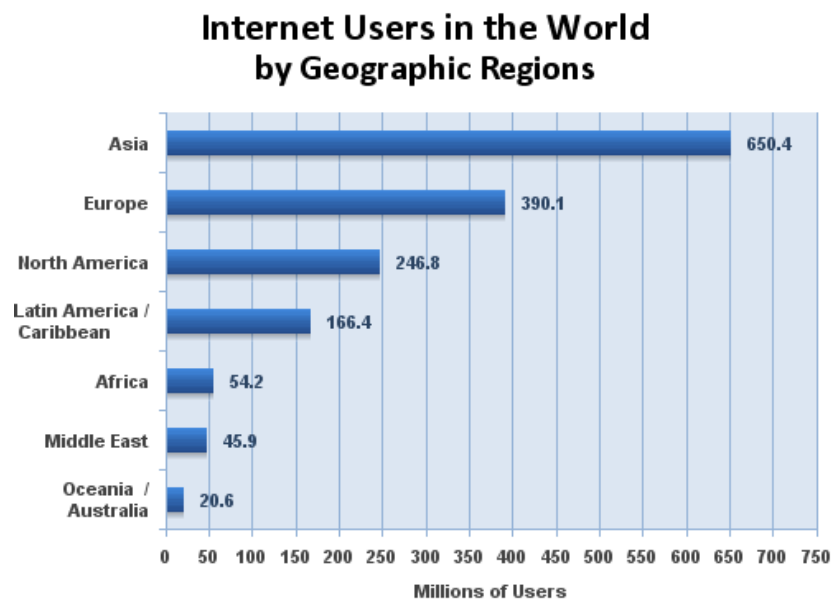
The OIC region occupies the centre of the globe with the bulk of countries lying in the Middle East, Asia and Africa. Additionally it's a region endowed with natural resources from oil to minerals. This position would thus be thought of as a meeting point between the East and West and therefore an opportunity to develop. Facts on the ground however do not bear witness that this opportunity has been duly utilized.

Human Development

The United Nations Development Programme Human development Index statistics (undp.org) are an important evaluation tool for levels of human development around the world. The 2008 data places only Kuwait, Saudi Arabia, Bahrain and Qatar among the High development Index countries. The rest (over 90%) are either medium or low development countries.

Technological Advancement

We shall use internet access to evaluate the levels of technology access in the OIC region. Statistical data indicates that Africa and the Middle East – where the bulk of OIC members are located contribute only 100 million of the globe’s over 1 billion users. Such figures are of no encouragement at all.



Source: Internet World Stats - www.internetworldstats.com/stats.htm
Estimated Internet users is 1,574,313,184 for year 2008
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Research and Technological spending

The entire OIC region including some non-members spent only 114 billion US Dollars on research and development in 2007 as indicated in figure ... This is contrasted with the 344 billion Dollars for only the United States. Such radical differences in research spending cannot support an effective development strategy.

Government and Peace

The OIC region is the centre of nearly all global conflicts today. From Palestine, Iraq, Pakistan to Afghanistan, war and death characterizes the region. The direct impact of such conflicts on development range from accumulation of refugees to hampered development implementation owing to security. The same region is subject to a number of undemocratic regimes. The Middle East – the wealth centre of the OIC region is plagued with despotic governments that have not allowed participatory governance to flourish. Such governments carry out their programmes without much needed checks and balances due to subjugation of the masses. The secondary effects of poor government and insecurity is that governments spend abominable amounts of money on military hardware. For example Saudi Arabia alone spent 52.8 billion US dollars on the military alone [].

Research Funding: A justification

The above problems in the OIC region are grave and cannot easily be addressed by a single solution. However, the most pressing ones including but not limited to improvement of quality of life for citizens through access to technology and better services can be duly addressed by additional research funding.

Research funding can provide much needed resources for making technological discoveries that would further ease access to health care, improve food production, processing and storage technology and thus result in better life for OIC citizens.

Research funding can also lessen the expenditure on military hardware that drains countries of their hard earned foreign exchange. By producing such hardware locally funds can be relocated to more pressing sectors of government such as health and education.

Research funding would create jobs for services that support the research industry. Education institutions that are involved in research would therefore expand their funding base and improve on the quality of their academic programmes – most of which are currently in an appalling state.

Research funding would reduce on the current rate of brain drain. Many highly qualified personnel leave the OIC region for “greener pastures” in Europe and the United States. Countries like Bangladesh have now become like departure centres for technical personnel seeking new lives in European lands. Such manpower would be kept at home for national development instead of manning the rapid development of other regions.

Conclusion

Our main aim of this essay has been to justify additional expenditure on research and development as a key ingredient for sustainable development in the OIC region. We have indicated the key benefits of research, highlighted the requirements of research and discussed the current situation of the OIC region in a number of aspects. We have finally provided a justification for research spending as a multiple effect solution to the key problems that plague the OIC region. It is our hope thus that the OIC leadership rises to the occasion and takes the needed initiative to encourage research funding throughout its member nations if sustainable development is to be even dreamt of.

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