

THE KUWAIT FOUNDATION FOR THE ADVANCEMENT OF SCIENCES: A SUCCESSFUL MODEL

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INTRODUCTION

It is a well known fact that research and development (R and D) has not yet become among the top priorities in Muslim countries and that financial and human resources devoted to R and D and to other scientific and technological (S and T) activities are still very low. Furthermore, R and D expenditure in these countries is almost entirely contributed by the public sector due to lack of interest in or lack of demand for R and D by the private sector. Several Muslim countries tried through various means to stimulate the private sector to invest in R and D and other S and T activities, but success stories are very few indeed and one of these successes is the model adopted by Kuwait through the establishment of the Kuwait Foundation for the Advancement of Sciences (KFAS). Therefore, this short note will dwell on the nature and structure of KFAS and on its operations for the purpose of extracting lessons that can be learned by other Muslim countries for increasing the involvement of the private sector in the advancement of sciences that can provide the momentum for accelerating the socio-economic development. We begin in this note by providing some S and T indicators in Muslim countries as compared to OECD member states to show the existing vast gap between these groups. The subsequent sections dwell on KFAS and on the lessons learned.

INDICATORS

Muslim countries suffer from a severe weakness in their endogenous capacity in S and T which led to their current stage of underdevelopment. For example, the weakness of R and D, which is a primary S and T activity, is evident from comparing the ratio of R and D expenditure to gross national product (GNP) between the larger 32 Muslim countries, which have a combined population of 750 million, with that in the 19 OECD member states, which have a comparable combined size of population. This ratio varies between 0.1% and 0.5% in the first group of countries and between 1.5% and 2.8% in the second

group. This means that if we take average of 0.3% for the first group and 2% for the second, the total R and D expenditure in 1987 was US\$ 1.85 billion for the first group and US\$ 242 billion for the second, i.e., 131 times higher than that of the first group. Translated to Dollars per capita, R and D expenditure per capita is around US\$ 2.5 in the first group and around US\$ 323 in the second group. In addition, the share of the private sector in the national R and D expenditure is less than 10% in the first group while this share is between 30% and 50% in the second group. Furthermore, the average full-time (FTE) number of researchers per million of population is around 170 for these Muslim countries while this number is around 3500 for the OECD countries, i.e., a ratio of 1 to 21. Indicators in Kuwait are not substantially different from the averages for Muslim countries. In 1989, the national R and D expenditure was around US\$ 85 million, which is 0.32% of GNP, and the FTE per million population was around 190. All these facts show us that every effort should be made in Muslim countries to increase the financial and human resources devoted to R and D.

STRUCTURE OF KFAS

KFAS was established in 1976 through the initiative of H. H. the Amir of Kuwait Sheikh Jaber Al-Ahmad Al-Sabah as a private, autonomous, and non-government foundation devoted to stimulate and finance R and D and other scientific activities in Kuwait. The financial resources of KFAS are secured through donations from individuals, annual contributions amounting to 5% of net profits paid by share-holding companies, and the returns on investment of these donations and contributions. KFAS is managed by a Director General who reports to the Chairman of its Board the Amir of Kuwait. The six members of the Board are selected by the contributing shareholding companies for a three-year term. The Board formulates the general policies, approves the annual programs and budgets, decides on way and means for investing the KFAS fund, appoints the Director General, and approves the financial and administrative rules and regulations which govern the operations of KFAS. This system of

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management has combined the political support from the highest level in the nation, the skills of the private sector representatives and their direct involvement in decision making, and the elements of efficiency in management and operation through the Director General and his small staff and through the flexible rules and regulations. The contributing share-holding companies, which are around 300, include banks and financial institutions and companies in the fields of industry, contracting, real estate, insurance, investment, food, transportation, and services.

KFAS FINANCIAL RESOURCES

The annual contributions of the share-holding companies (5% of net profits) and the donations received, which are small compared to the former, constitute the KFAS fund. This fund is invested in safe and secure ventures in Kuwait and the return on investment is partly used to cover KFAS expenditure on programs and administration and the rest is added to the fund. Annual contributions from share holding companies increased from US\$ 20 million in 1979 to US\$ 25.4 million in 1986 (assuming 1US\$ = 0.29 KD). Donations from individuals and institutions were US\$ 1.69 million in 1979 and US\$ 7.9 million in 1986. The total fund has grown considerably over the years and reached around US\$300 million in 1987. In 1987, KFAS total expenditures reached US\$ 12.26 million of which 16.5% was spent on administrative expenses and the rest was used to support R and D and other scientific activities in Kuwait. Thus, this system shows that while the fund supports S and T activities, it is invested in Kuwait to further activate the economy. Meanwhile, the fund continuously increases, because the annual expenditure is smaller than the sum of the annual contributions and the annual returns on investment.

KFAS PROGRAMS

KFAS supports, through a relatively small staff, five major running scientific programs: financing R and D and contract research, supporting symposia and cultural activities, presentation of prizes, supporting science education projects, and providing financial assistance for authorship, translation, and publications. It is worthwhile to note that these programs are mainly designed for the advancement of sciences in Kuwait, however individuals and institutions from outside Kuwait have been supported through collaboration with one of the scientific institutions in Kuwait. In addition to basic research, KFAS supports applied R and D projects in areas such as food resources, natural resources, environment, water, materials, energy, medicine, engineering, social sciences and humanities R and D program at KFAS constitutes around 50% of its expenditures. The programme on symposia supports

conferences, seminars, workshops, specialized training for Kuwaities inside and outside Kuwait, and study fellowships and visits. KFAS program on prizes include the Kuwait prizes, which are offered in the general fields of basic sciences, applied sciences, social sciences and humanities, arts, and Arab and Islamic Culture. Other prizes include the authorship, translation, and publication prizes, Islamic Medicine Prizes, best research prizes, and prizes for scientific achievement. Science education program includes activities that utilize the public television and broadcasting to popularize science among citizens. This program also supports science clubs and societies in Kuwait. In addition, KFAS publishes *Majatlat Al-Oloom*, which is the Arabic translation of the *Scientific American Journal*. KFAS work in close coordination and cooperation with Kuwait University (KU) and the Kuwait Institute for Scientific Research. In addition, KFAS has cooperation programs with various regional and international scientific institutions including the Islamic Academy of Sciences.

A notable recent event in Kuwait is the formulation of a Five-year Development Plan for Scientific Research and Information covering the period 1990 / 1991 – 1994 / 1995. The plan calls for among other things, the establishment of a focal point for science policy formulation, the establishment of the national R and D priorities, the strengthening of R and D capabilities, R and D institution building, and the increase of R and D expenditure in priority areas. When the Plan goes into action, KFAS will play a prominent role in the further support of R and D activities at KU, KISR, and other institutions and in forming the critical mass in R and D activities according to national priorities.

LESSONS LEARNED

KFAS model teaches us lessons that can benefit other Muslim countries. The main lessons learned are:

- (a) Political initiative and support at the highest level can stimulate the private sector in supporting R and D and other S and T activities to supplement government spending on such activities.
- (b) The establishment of a fund through a small tax on net profits of companies and the utilization of returns on investment of this fund for R and D financing is a good method for securing income on a sustained basis.
- (c) Contributing companies should have a decision making role in the utilization and investment of the fund. Furthermore, a portion of the R and D fund should be directed to R and D projects that directly benefits the companies, thus, linking a portion of R and D performed with actual short-term needs.
- (d) Generated funds should be internally invested to further activate the economy.

(e) Flexible rules and regulations contribute greatly to the efficiency of operation. In addition, administrative expenses should constitute a small portion of expenditure on S and T activities.

In addition to the establishment of such a fund, the private sector (especially the industrial sector) in Muslim Countries should be encouraged through tax incentives to establish their own R and D units. Other means for boosting R and D resources include levy of a small tax for R and D on all imports. Such a tax exists in Jordan to finance the universities where a portion of the revenues is used to support R and D carried out by the teaching staff.

It is often argued by decision makers and planners that Muslim Countries can not afford to increase R and D expenditure because they are poor. This argument is not acceptable, because the weakness of the S and T system perpetuates poverty. On the contrary, Muslim countries are rich in natural resources, but most of the primary commodities produced are exported as raw and semi-raw materials which constitute 75% of all their exports. After all, converting primary commodities into high quality and high value added manufactured products and the provision of advanced services is what S and T, including R and D, is all about.