



# TRADE AND KNOWLEDGE CREATION IN GCC COUNTRIES: THE CASE FOR SUSTAINABLE DEVELOPMENT

**Amer Al-Roubaie\***

Ahlia University, Bahrain

College of Business and Finance,  
Ahlia University, Manama, Bahrain

Fax: +973-17-290083

E-mail: aalroubaie@ahlia.edu.bh

**Abdulwahab Al-Ameen**

University of Bahrain, Bahrain

Department of Economics and Finance,  
College of Business Administration,  
University of Bahrain,

P. O. Box 32038, Kingdom of Bahrain

E-mail: abdulwahabalameen@yahoo.com

## ABSTRACT

**Purpose:** Knowledge creation, technology transfer and information dissemination have been widely discussed in the literature of development studies as important drivers for rapid economic growth and sustainable development. In the new economy, access to global markets has become essential for supporting development. International trade stimulates economic growth by providing new opportunities for countries to acquire knowledge, information and skills for development.

**Design/methodology/approach:** This paper uses data extracted from international institutions to analyse the state of development in the GCC countries. The relationship between trade and economic growth has been widely discussed in the literature, reflecting the importance of trade for global access to knowledge, skills and technology.

**Findings:** This paper highlights the potential of developing countries in general, and of those in the Arab world in particular, to participate in the new economy and the economic benefits that would accrue from such participation. Specifically, the paper sheds some light on the prospects of building knowledge capacity for development in GCC countries.

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\*Corresponding author

**Originality/value:** This paper uses secondary data published by international institutions to highlight the challenges facing GCC countries in their drive to promote change through knowledge creation and global integration.

**Keywords:** sustainable development; trade; institutions; knowledge; innovation; GCC countries.

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## INTRODUCTION

The relationship between international trade and economic growth has been widely discussed in the literature on development studies, reflecting the importance of global linkages to the socio-economic development of nations. For developing countries, trade not only provides the foreign exchange needed to pay for imported capital goods and services, but also increases the country's ability to acquire knowledge, skills, technology and information. By expanding trade, therefore, developing countries will be able to diversify their economies and build productive capacity for development. International trade stimulates economic growth by allowing greater interaction among sectors through linkage creation and output diversification. In the case of GCC countries, however, heavy dependence on production and exports of crude petroleum and gas provides limited potential for linkage creation and sustainable growth. As non-renewable resources, oil and gas are expected to be depleted after the elapse of a given period in time, causing substantial economic shocks likely to hobble development in the region. To reduce the risk of future economic downturn and to restore confidence in development, these countries need to develop strategies and construct policies to support sustainable growth and diversify their economic structure.

In the new global economy, driven by globalisation, international trade empowers development by providing nations with access to knowledge, information, skills and finance. The GCC countries should seize upon the opportunities offered by globalisation and make effective use of their petrodollars to convert their economies into knowledge-based economies. It is estimated that the Arab world needs to create 100 million jobs over the coming two decades to meet labour market requirements, and to create opportunities for the young generation to participate in the

economic and social development of their countries. Without economic restructuring involving diversification, the economies of these countries will continue to suffer from growth stagnation and low productivity.

International trade plays a critical role in building capacity for sustainable development, and Arab states should therefore formulate policies to integrate trade into the development strategy in order to empower the economy's capabilities to promote linkages and support rapid growth. Access to global trade increases the ability of these countries to make choices with regard to the selection of appropriate technology for diversifying productivity and sustaining development. Through trade, these countries gain access to knowledge, information and skills to strengthen the fundamentals for building capacity for development. Integration into the trade system induces both exports and imports, allowing countries to diversify their economic structures and meet international standards.

Due to their large financial endowments and rich energy resources, Arab economies can benefit from international trade by acquiring knowledge, skills, technology and information to re-engineer their economies and build capacity for development. Through trade, these countries can increase economic linkages and promote innovation. Integration into the new economy in this new age of globalisation holds opportunities for, yet poses challenges to, the Arab world.

## THE ARAB WORLD

Economic development in the Arab world remains inadequate to support rapid socio-economic transformation. Poverty, inequality, high unemployment, low manufacturing production, gender discrimination and inadequate investment in science, technology and innovation distinguish most Arab economies. Economic development

entails the creation of an enabling environment that allows the utilisation of both human and natural resources in a productive way to create linkages and promote innovation. It requires equity in production, consumption and distribution of societal resources to ensure equal opportunity and increase public participation in the economy. On an intra-regional level in the Arab World, such equity is starkly absent. The six Gulf Arab states, while representing about 13% of the total Arab population, generate about one half of the Arab GDP. Per-capita Income in these countries accounts for \$30,000 per person compared to about \$4800 in the rest of the Arab world, or about half of the world average (UN, 2014). Income gaps exist not only among but also within countries in the region. Income inequalities weaken the ability of the country to build capacity for development. In addition, lack of cooperation and collaboration among Arab states has weakened linkages creation and innovation to stimulate growth and sustain development (see Ahmed and Al-Roubaie, 2012).

In Table 1, Arab countries are classified according to their stages of development, which are driven by factor, efficiency and innovation. As

shown in the table, most Arab countries are still in stage 1 or in transition to stage 2, reflecting the low productivity features of most Arab economies. Development in these stages is driven by basic requirements illustrating weak infrastructure, inefficient institutions and a low level of skills. In the Arab World, only the economy of the United Arab Emirates is classified as a stage 3 innovation driven economy in which creativity and knowledge contribute to the local economy. Arab countries should initiate strategies and construct policies to re-engineer the productive structure and foster economic growth by building capacity driven by knowledge and innovation. Globalisation offers Arab countries the opportunity to acquire knowledge and technology to enhance productivity and support national development. On the other hand, meeting the challenges of the new economy will require technological readiness, which involves building a digital infrastructure and cultivating human resource development.

Exploiting global knowledge through external trade is important for building local knowledge capacity and fostering economic growth. Globalisation has increased opportunities to

**Table 1 Allocation of Arab countries to stages of development**

<i>Stage</i>	<i>Arab Countries at this Stage</i>	<i>Non-Arab Countries at this stage</i>	<i>Important areas for competitiveness</i>
Stage 1 (factor-driven) GDP per capita less than \$2000	Yemen	Bangladesh, Kenya, Pakistan, Vietnam	Basic requirements (60%) and efficiency enhancers (35%)
Transition from 1 to 2 GDP per capita \$2000–\$3000	Algeria, Egypt, Kuwait, Libya, Qatar, Saudi Arabia	Iran, Venezuela, Brunei Darussalam	Basic requirements (between 40% and 60%) and efficiency enhancers (between 35% and 50%)
Stage 2 (efficiency-driven) GDP per capita \$3000–\$9000	Jordan, Morocco	China, South Africa, Ukraine	Basic requirements (40%) and efficiency enhancers (50%)
Transition from 2 to 3 GDP per capita \$9000–\$17,000	Bahrain, Oman, Lebanon	Chile, Poland, Trinidad and Tobago	Basic requirements (between 20% and 40%) and efficiency enhancers (50%) Innovation factor (10% to 30%)
Stage 3 (innovation-driven) GDP per capita \$17,000 and more	United Arab Emirates	Germany, Korea, Norway, Spain, UK, USA	Basic requirements (20%) and efficiency enhancers (50%) Innovation factors (30%)

Source: World Economic Forum (2013), The Arab World Competitive Report 2013.

access global markets. Arab countries can use global markets to supplement indigenous knowledge through technology transfer, joint programmes, multinational business and collaboration with foreign universities and research centres. Domestic enterprises can benefit from market competition leading to innovation and productivity diversification. Access to digital technologies facilitates the dissemination of information and communication of knowledge to facilitate access to global markets by local enterprises. Governments should selectively provide incentives for projects with higher linkages to give local enterprises greater opportunity to engage in market activities. Multinational corporate activities should be consonant with national economic policies to ensure that they contribute positively to the economy, particularly by facilitating transition to a knowledge-based economy. In addition, FDI should be channelled into projects, thus enhancing productivity of local enterprises as well as strengthening local market capabilities to access to knowledge, information and innovation. To strengthen the fundamentals for building the knowledge economy, foreign firms should enhance local skills through training and lend assistance to local enterprises in the process of upgrading imported technologies.

Arab countries should encourage inflows of foreign capital as well as create enabling environments for multinational companies that ensure political and economic stability, provide training of workers, cut down on red tape and build an adequate Information and Communication Technologies (ICT) infrastructure. Technology transfer entails knowledge acquisition and trained labour that can be acquired from foreign companies.

“The technologies of industrial countries are not always suited or easily adaptable to the socio-economic and environmental conditions of developing countries. To compound the problem, the bulk of world research and development addresses few of the pressing issues facing these countries, such as arid-land agriculture or the control of tropical diseases. Not enough is being done to adapt recent innovations in materials technology, energy conservation, information technology, and biotechnology to

the needs of developing countries.” (WCED, 1987, p.60)

Under such circumstances, Arab countries need to be selective with regard to technological requirements to ensure appropriateness, and reduce negative externalities on the environment. The selection process should also be applied to imported technology or the technology acquired via multinational corporations. Currently, the share of manufactured goods in total imports in Arab countries accounts for 70.5% reflecting the high dependency of these countries on the rest of the world for capital goods and technology for development. This illustrates that the manufacturing sector in Arab countries remains inadequate to meet these countries' requirements for industrial products. Furthermore, the share of total trade in total GDP of Arab countries accounts for about 92%, the highest among all the world's regions (UN, 2014).

The rise of the knowledge economy in recent years has shifted attention towards the role that knowledge plays in development. Two important forces drive the new economy: knowledge intensity in production and globalisation. In both cases, digital technology, derived from ICT, has increased access to global markets, creating new opportunities for developing countries to acquire skills, technology, information and knowledge. Rapid liberalisation of markets and privatisation has given nations greater access to trade, finance, technology and skills. In this age of globalisation, increases in factor mobility and advancements in digital technologies have given many developing countries greater access to global markets.

Knowledge-based development requires building capacity for human capital to provide the necessary skills for supporting knowledge creation and promoting innovation. Human capital represents the skills and know-how embodied in people, and increases an economy's productive, creative and innovative capacity. Development is about the allocation of society's resources to diversify the productive structure and increase human welfare. Transition into a higher stage of development involves not only higher investment, but also changes in the social, cultural, educational, technological and environmental features of society. Education and training are critical for supporting structural transformation and re-engineering the productive structure. The complexity

of the process entails skilled labour forces and educated populations to enhance an economy's capabilities to absorb knowledge, upgrade technology and disseminate information. In the knowledge economy, human capital is considered as an important factor input used in production, not only to enhance productivity and innovation, but also to create wealth. Economic productivity depends on the skills and creativity of knowledge workers, and, therefore, more training and higher levels of skills are necessary for strengthening the fundamentals of the knowledge economy.

Arab countries must deepen global integration to facilitate knowledge absorption by adapting policies and formulating strategies to attract foreign direct investment, increase collaboration in global scientific and technological activities and promote trade. Technology transfer and engagement in international trade increase the ability of these countries to build knowledge capacity and enhance technological learning. Such capacity entails technical skills and competencies to support re-engineering the economic structure and improve innovation.

Sustainable development requires knowledge of the local environment in order to institute balanced development that reduces environmental risk. By attracting multinational businesses, countries gain access to foreign know-how to support building local competency, create linkages, encourage domestic entrepreneurship and increase scientific and academic exchanges. Most Arab countries are still behind the rest of the world in building adequate facilities to encourage innovation and create new knowledge.

Access to global knowledge and technology helps countries to shorten development paths by speeding up the process of transformation. In this regard, governments should encourage the inflow of foreign capital by streamlining regulations for foreign firms that set up businesses in host countries. Governments should identify projects that will stimulate long-term economic growth and sustain development. However, the dominance of the government sector in most Arab countries reduces market competitiveness. Restructuring and rationalising state institutions could facilitate rapid transformation by increasing the scale of entry of foreign firms as well as supporting development of the local knowledge system utile, particularly in tailoring foreign technology to local

conditions. Unmodified introduction of foreign technology on a large scale could engender environmental damage in host countries.

## **INTERNATIONAL TRADE**

The contemporary role of international trade in development involves access to knowledge, technology and skills. Countries lacking resources for exports are given an opportunity to gain access to global knowledge through the use of modern technologies and engagement in international trade. Liberalisation of trade and privatisation of markets have eased participation in international trade allowing countries to acquire technical know-how, scientific application, information and knowledge produced in the rest of the world. The Internet has provided substantial choices for countries at low cost. The new economy relies more on the use of knowledge to generate wealth than natural resources or manufactured products. In addition, FDI can serve as a provider of technology and technical knowledge to support building capacity for local entrepreneurs. FDI facilitates the acquisition of technology and technical skills by host countries, which are essential for linkage creation and productivity diversification.

International trade could become an important channel for acquiring global knowledge and foreign technology for building capacity for development. Access to capital goods through trade increases national knowledge capabilities to produce manufactured goods more applicable to the local environment. In addition, competition from foreign firms enhances technological learning. To survive, domestic firms have to face competition from foreign firms forcing domestic firms to improve their product quality and become more efficient. This motivates local firms to streamline their operations to gain competitive advantages that are often generated through innovation – a return from investment in human resources. Furthermore, exports force local producers to adapt international standards to gain access and then to increase their share in global markets. On the other hand, the demand for exports increases the generation of supply, and in the process, spillover effects across a wide range of industries and services. Economic development represents incremental growth driven by linkage creation and market activities.

International trade and multinational corporations can provide access to knowledge for development. Arab countries have the opportunity to gain access to existing knowledge at affordable cost rather than investing in the creation of new knowledge. Advancement in digital technologies has given considerable advantage to non-producers of knowledge and information by allowing them to acquire knowledge and information produced in the rest of the world. Countries can be connected to global markets by building their ICT infrastructure, which facilitates knowledge absorption, technology diffusion, information dissemination and innovation. Technological learning and skill acquisition can be achieved via transfer of technology, joint venture, exchange programmes, trade and multilateral agreements. Local firms can benefit from the adaptation of foreign technologies to support building capacity for manufacturing production and industrial development. Domestic institutions facilitate the adaptation of foreign technologies by encouraging enterprises to participate in trade and acquire new competencies.

Arab countries need to formulate joint projects to expand production and trade regionally. Regional trade accounts for less than 10% of total trade of all Arab countries cumulatively. Weak trade ties reflect not only the failure of these countries to increase cooperation and expand business within the region, but also their inability to diversify economic structure away from the energy sector. The share of exports in total GDP of Arab countries accounts for about 40%, 80% of which is made of crude petroleum and natural gas. This high degree of trade concentration represents the duality of the Arab economies reflecting low levels of diversification and inadequate linkage creation within various sectors. Increasing productivity among Arab countries and stimulating economic growth will require a new form of development. These countries need to take advantage of the knowledge revolution and implement strategies for strengthening the fundamentals of knowledge creation and technology dissemination. Policy reforms, including economic and institutional regimes, need to be undertaken to support the knowledge-based economic activities.

In addition, considerable efforts should be made to enhance the quality of education and prepare

students to assume active roles in the incipient knowledge economy. Tacit knowledge, critical for indigenous development, can be tapped and used if an enabling environment is created; the key to this is the greater involvement of young people in the labour market. Governments in the region should focus on building modern institutions to speed up the process of transformation by encouraging investment in knowledge creation, skills development and innovation. Governments should increase national readiness for the knowledge economy by building the technological and physical infrastructure to support access to global knowledge, skills, technology and information. Investment in ICT, for instance, has become necessary for building knowledge capacity for development and, therefore, greater investment must be allocated to the development of the ICT sector.

Foreign Direct Investment into the Arab states averaged at 2.4% of their GDP between 2007 and 2011, the lowest among the world's regions. With the exception of the petroleum industries, FDI did not contribute to the rest of the economy. This dour reality reflects the low manufactured contents of production and exports in Arab countries. Similarly, Arab economies have not, to date, been able to benefit from technology transfer and innovation to support a vibrant knowledge economy. Rather, oil-and-gas exporting Arab economies maintain a dependency on the energy sector. In addition, the dominance of the public sector over the economy has impeded creativity and innovation in Arab economies by encumbering private enterprises and new entrepreneurs seeking to take advantage of the opportunities offered by globalisation. Arab states' exports in total world exports account for 4%, two-thirds of which comprised exports of crude oil, leaving the non-oil exports share to about 1.5%. This illustrates the lack of competitiveness of Arab economies, neither being productive nor able to diversify the productive structure to enable increased production and export of manufactured goods. Arab countries import about 71% of the manufactured goods they consume annually. The share of manufactured exports accounted for about 18% in total Arab states exports. Primary commodities, mainly oil and gas, constitute almost two-thirds of the total exports from the Arab world. High dependence on these commodities has subjected these

economies to cyclical fluctuations in global markets causing, in the process, instability in export earnings, government revenues and expenditures. In contrast, the non-oil exporters have been adversely affected by the rise in energy prices by reducing their capacity to import, especially the capital goods needed for development.

## SUSTAINABLE DEVELOPMENT

In recent years, the concept of sustainable development has evolved to represent sustainable growth through innovation, knowledge creation, conservation of natural resources and environmental management. In the Arab world, particularly in GCC countries, the scarcity of water resources, low level of public awareness, inadequate investment in science and technology, and high consumption of energy are among the important features characterising the current state of development in the region. There is a need for serious restructuring of both the productive structure and the social system to ensure good management of domestic resources and greater participation and cooperation from the public to manage environmental risk. There is a need for building mechanisms to improve coordination among all levels of government in the region to increase the effectiveness and relevance of decisions concerning the environment. Governments in the region should introduce guidelines and adapt regulatory measures to improve the selection criteria for the identification of appropriate technologies in order to optimise allocation of investment resources.

Sustainable development is no longer a new concept. It was first proposed by the World Commission on Environment and Development (WCED) in 1987 in a celebrated document known as the Brundtland Report. In this report, the environment was viewed as a critical factor in sustaining growth and reducing the risk of resources depletion. In other words, the emphasis in development has shifted from the financial and human perspective to the physical aspect of the environment. Recent environmental studies highlight sustainability as a link to the future survival of human society. Mismanagement of the environment and depletion of natural resources creates imbalances between supply and demand. Sustainable development, thus, is defined as “development that meets the need of the present

without compromising the ability of future generations to meet their own needs” (WCED, 1987, p.8).

In the case of developing countries, the environment has also been affected by the use of modern technologies produced in the west. Western technologies, involving certain features that are not amenable to developing countries, generate pollution and environmental damage. “Mahatma Gandhi once reflected on how many planets might be needed if India were to follow Britain’s pattern of industrialization” (UN, HDR 2007/2008, p.3). Today, environmental problems are geographically connected making people in far places vulnerable to environmental changes. Poor countries are at a disadvantage to protect themselves from the degradation of the natural environment:

“When people in an American city turn on the air-conditioning or people in Europe drive their cars, their actions have consequences. Those consequences link them to rural communities in Bangladesh, farmers in Ethiopia and slum dwellers in Haiti. With these human connections come moral responsibilities, including a responsibility to reflect upon-and change- energy policies that inflict harm on other people or future generations.” (UN, HDR, 2007–2008, p.3.)

In developing countries, sustaining development will require the cooperation of several actors, including Western countries, international organisations, national governments and various other private and public agencies. In 1992, the United Nations conference held in Rio de Janeiro was an important step forward toward sustainable development.

Among other things, the impact of rapid population growth and urbanisation on the environment were important issues highlighted in the Brundtland Report. In this regard, environmental degradation is largely attributed to human action, including market activities, allocation of resources and urban settlement, reflecting the multidimensional features of sustainable development. No individual policy or action is adequate to sustain development; rather, it requires collective measures to be taken including social, political, economic and educational policies. The role of women is extremely important because of

their direct link to population growth and environmental degradation, especially in developing countries. These environmental linkages operate across countries and, therefore, collective action involving regional and international cooperation is necessary to control population and minimise environmental stress. In this context, the political dimension is critical for sustainable development where macro policies are made to support public awareness and improve public education (see Marstrand et al., 1991).

Economic activities and functioning of markets are impacted by political decisions that manage the economy and society including legal, financial, environmental, educational and economic measures. "Economic growth and development obviously involve changes in the physical ecosystem" (WCED, 1987, p.45). Equity and justice in society must be enforced to ensure that people are given equal opportunity and their basic needs are met.

"A world in which poverty and inequality are endemic will always be prone to ecological and other crises. Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life." (WCED, 1987, pp.43–44)

"The accumulation of Knowledge and the development of technology can enhance the carrying capacity of the resource base. But ultimate limits there are, and sustainability requires that long before these are reached, the world must ensure equitable access to the constrained resource and reorient technological efforts to relieve the pressure." (WCED, 1987, p.43)

Sustainability requires the development of suitable technology to reduce environmental risk and to enhance the productivity of natural resources. Environmental technology is defined by the OECD as referring to all "techniques, processes and products playing an important role in reducing pressures on scarce natural resources, in reducing pollution flows, and in preventing or reducing environmental stresses" (OECD, 1996, p.114). In this regard, sustainable development requires substantial funding for conducting research to develop new technologies and

promote innovation. As pointed out by the World Bank: "when the impacts are global, action has to be international" (World Bank, 2003, p.103).

In the Arab World, particularly in GCC countries, sustainable development has yet to be practiced to ensure environmental management and reduce the risk of human activities. Economic activities in GCC countries are driven by production and consumption of energy, which exhibits a serious danger to the local environment. Petroleum and gas related activities, including exploration, extraction, transport and refining, comprise multiple risks that need effective management to ensure safety and maintain environmental balance. Oil spills and excessive consumption of energy could have considerable impact on the ecosystem, polluting the environment and causing health hazards for both humans and animals. As pointed out by Our Common Future:

"Sustainable development involves more than growth. It requires a change in the content of growth, to make it less material- and energy-intensive and more equitable in its impact. These changes are required in all countries as part of a package of measures to maintain the stock of ecological capital, to improve the distribution of income, and to reduce the degree of vulnerability to economic crises." (WCED, 1987, p.52)

Regional integration among countries in the Arab region could play a significant role in building capacity for development. Due to the small size of their economies and because of the increase in oil prices over the past few decades, revenues from oil production and exports from GCC countries in particular continued to finance modernisation, mainly changes in lifestyle and consumerism. More than two-thirds of imported goods into the GCC countries are for consumption purposes, reflecting the inability of the economic system to produce enough goods and services to support domestic demand. In recent years, changes in lifestyle and an increase in per capita income have created demand for mainly Western products and material goods. The small share of capital and investment goods in total imports reflects the failure of the economic system in most Arab countries to increase productivity and strengthen the capacity of the local economy to produce goods and services. Sustainable development underscores

the importance of production to bridge the gap between present and future generations, and, therefore, building capacity for knowledge development will increase the economy capabilities to diversify the economic structure and enhance innovation (World Bank, 1999).

In GCC countries, economic development is influenced by government revenues from oil and gas, reflecting a high dependency of the economy on oil production and exports. Diversification of the economic structure and building capacity for manufacturing production were kept more of a policy statement than action. Currently, oil revenues from oil exports account for about two-thirds of government revenues and expenditures, 90% of foreign exchange earnings, and about 80% of gross domestic products of most energy-exporting-reliant countries in the region. Recently, these figures have soared higher in real terms compared to those of previous periods, reflecting the failure of economic policies in these countries to diversify productivity and reduce economic dependence on oil revenues. This in turn, has subjected the economies of these countries not only to high inflationary trends, but also to wide cyclical changes driven by global financial crises and recessionary trends in oil consuming nations. Volatility in oil prices has subjected the economies of the countries to similar shocks, which weakened their ability to diversify production and increase productivity of the non-fossil-fuel sectors in the economy.

### **INSTITUTIONS OF THE STATE**

State institutions have a special role to play in the way societies allocate both human and natural resources to produce, consume and distribute goods and services. What, how and for whom to produce are influenced by government regulatory measures to allocate resources and influence production patterns. Sustainable development is a complex process comprising social, cultural, political, economic, financial, scientific, technological and environmental forces, which require effective national strategies and strong political backing for endorsement and implementation. In addition, some environmental problems originate outside the boundaries of the state, reflecting the need for regional and international cooperation to solve them. Due to their low investment in research and development and inadequacy of

their scientific knowledge, the Arab countries are not yet ready to meet a range of environmental challenges.

Managing the environment entails institutional bodies capable of constructing research and formulating policies to minimise the environmental risk and preserve the ecosystem. Balancing between the costs and benefits of the environment not only depends on constructing policies to manage the environment, but also on the country's ability to work closely with neighbouring countries and international institutions.

State institutions, including universities, research centres and vocational training, are essential for sustainable development. These institutions empower society's capabilities to balance development by constructing strategies aimed at increasing national awareness and integrating sustainable development into the educational system to ensure that the school system and universities contribute to sustainable growth. The involvement of the public is vital due to the variations of beliefs about the "natural world held in different societies, cultures and historical settings and at the individual levels" (Baker, 2006, p.28).

In the new economy, the private sector, especially multinational enterprises, plays a pivotal role in the creation of knowledge, dissemination of technologies and promoting innovation. Competition in the market economy underscores the importance of investment in human capital as well as in research and development to reduce cost and enhance efficiency. However, the profit motive of private enterprises may engender negative externalities incurring high social costs. Under such circumstances, the institutional structure of the state could reduce environmental risk by introducing regulatory guidelines and undertaking legal measures to support sustainability and minimise the risk of environmental degradation. Sustainable development needs the support of the state to increase public awareness, conduct research, provide information and enhance management of resources.

The state is also responsible for building an infrastructure and constructing strategies to create a balance between the present use of resources and future consumption. Providing incentives for private enterprises could influence entrepreneurial capabilities to select appropriate technologies and support green projects. It is

worth to mention that the term 'institutions' refer to both

"the institutional environment (the set of political, social, and legal ground rules that establish the basis for production, exchange and distribution – for example, systems of property rights) and institutional arrangements (regular relationships amongst economic agents which govern the way in which they cooperate and compete)" (UNCTD, 2006, p.74).

"The national institutions which matter for the development of productive capacities are various. They encompass, for example, the social values which govern attitudes towards capital accumulation and technological progress that are embodied in diverse culture, as well as the household and wider gender institutions which govern how the social relations of production are integrated with the social relations of reproduction." (UNCTD, 2006, pp.74–75)

The effectiveness of state institutions is critical for economic growth and capacity-building for development. In this age of global competitiveness, the state could help private enterprises to gain competitive advantage by acquiring the knowledge and skills needed for knowledge creation and innovation. Trading countries must mobilise indigenous knowledge and domestic resources to build national innovation systems capable of exploiting tacit knowledge and generate linkages. In most Arab countries, linkages between local firms and foreign enterprises are very weak. In particular, this weakness has prevented Small and Medium Enterprises (SMEs) from acquiring knowledge, skills and credit to support their market activities and participate in the economy. The public sector in the Arab world remains dominant over the economy causing market imperfections and weak linkages of private enterprises. In the GCC countries, family businesses account for about 80% of market activities, leaving the private sector with little access to resources. In the new knowledge-based economy, SMEs play a vital role in linkage creation and innovation. Thus increasing linkages between SMEs and foreign firms enhances the economy's capability to generate innovation and enhance productivity.

Local enterprises gain competencies for technology upgrading, which facilitates human resources development, technology diffusion, information dissemination and innovation. Benefits to local enterprises occur from both demand and supply side measures to support rapid expansion and increase market share. Business expansion and increasing market access depends on the institutional ability to strengthen linkages and promote trade with the rest of the world. Government policies facilitate linkages through the development of trade relations and the promotion of clustering and knowledge creation.

"The important changes taking place in North Africa and the Middle East have brought to light a number of socio-economic challenges – such as youth unemployment, regional inequalities, corruption, weak institutions, limited entrepreneurship, and the need to advance the role of women in the economy – that must be addressed if the aspirations of the region's citizens are to be met." (The Arab World Competitiveness Report, 2013, p.7)

Sustainable development requires adequate knowledge of the environment in order to reduce the risk of environmental degradation and strengthen the relationship between human activities and use of resources. Environmental risk not only adversely affects productivity, but also generates a range of social costs spanning health problems and urban overcrowding (stimulated by migration to urban centres from spoiled rural habitats where, for instance, desertification has been endemic). Government regulations should encompass both incentives and deterrents to reduce the risk of environmental degradation. Government intervention should involve the establishment of special institutions not only to conduct scientific research about climate change and natural diastases, but also to fund incentives and public educational programmes about protecting the ecosystem.

## **KNOWLEDGE FOR SUSTAINABLE DEVELOPMENT**

Knowledge has been regarded as a key input in building capacity for sustainable development. Compared with capital, which depreciates over time, knowledge appreciates as users make use

of it. As a consequence, knowledge increasingly becomes more affordable to developing countries due to its low costs of acquisition as well as to its increasing value brought about by its use. Countries that lack financial and natural resources to support development can nonetheless afford to build knowledge capacity to create linkages and generate growth. Finland, Singapore, New Zealand and South Korea were able to convert their economies through knowledge creation and innovation in unprecedented time. Building knowledge capacity for development entails effective institutions, skilled workforces, adequate innovation systems and well-established physical and ICT infrastructures. These pillars are regarded as vital for knowledge absorption and linkages creation, which encourages economic diversification and enhances entrepreneurial capabilities to disseminate knowledge and innovate. GCC countries must invest in these pillars in order to increase their readiness for speeding up the process of knowledge-based development (see Al-Roubaie, 2010).

In this age of global interdependence, global integration is vital for sustaining development. As pointed out by the United Nations "capital accumulation, technological progress and structural change within a country, as well as the relationship between the development of productive capacities and the growth of demand, are all strongly influenced by the relationship of the country with the rest of the world" (UNCTD, 2006, p.72). In recent years, due to the rise of globalisation and the emergence of the knowledge-based economy, global linkages have become very important for fostering economic growth and sustaining development. In the new knowledge-based economy, scientific development, knowledge creation, human capital, technological advancement and innovation are vital for building capacity for development. GCC countries still lack these essential building blocks requisite for erecting knowledge-based economies.

Science, technology and innovation are essential for sustainable development. Problems arising from human activities, including production, consumption, transportation and trade, increasingly have damaging effects on the environment causing pollution, health hazards and population migration. Solving ecological problems entails scientific research and the development of new

techniques beyond the reach of the scientific capabilities of developing countries. Globalisation has increased access to global markets, providing GCC countries greater access to knowledge and information. GCC countries must formulate strategies to make use of scientific knowledge developed in other countries, mainly in Western countries, to solve their own environmental problems. They should pursue policies to avoid overindulgence in Western luxury goods, the consumption of which could be taxed, with proceeds earmarked for the support of a green economy.

In the GCC countries, the influence of Western culture has increased waste and excessive consumption of goods and services causing substantial impacts on resource stress especially water and energy. To this end, scientific assessment of the country's capacity to ensure balance in consumption becomes necessary to sustain development. The pressure on resources can be eased by reducing excessive consumption and introducing measures to allocate resources in a sustainable pattern. The industrial countries must actively participate in building capacity for sustainability knowing the fact that their energy consumption is causing damaging effects to the biosphere. In the GCC countries, production should be diverted from energy production to reduce pollution and balance growth.

In 2030, the world urban population is expected to reach five billion compared to about 750 million in 1950, reflecting the pressure on resources to meet the demand for such a rapid increase in population. In the Arab world, population is expected to reach to about 500 million in 2030 putting great pressure on existing resources. Water, food, transportation, health, education and other public services will all have to increase in order to sustain this rapid increase in population. Unfortunately, the current trends in consumption do not support an adequate response to these challenges. Nor are governments in the region responding with adequate policy measures to remedy the situation and sustain development. As pointed out by Roosa, sustainable development is viewed to be "the arrangement of technological, scientific, environmental and social systems in such a way that the resulting heterogeneous system can be maintained in a state of temporal and spatial equilibrium" (Roosa, 2008, pp.39-40).

## CONCLUSIONS

In this paper, the need for restructuring the GCC economies has been discussed to strengthen the fundamentals for knowledge creation and sustaining development. The new economy entails investment in human capital to increase the contribution of the non-government sectors in the process of development. In GCC countries, the public sector remains influential over decisions concerning the allocation of economic resources and distribution of income and wealth. In the new economy, a greater role in development is assigned to private enterprise, especially SMEs and multinational businesses, which reflects the importance of the private sector in managerial decisions and supporting economic growth. Kick-starting the economy into pursuing sustainable knowledge-based activities also requires cooperation between both private and public institutions – combining forces to increase market flexibility and diversify economic structure.

In the new age of globalisation, engagement in international trade provides access to global markets to support knowledge creation and promote innovation. In the case of the GCC countries, economic activities are dominated by the production and exports of crude petroleum and petroleum related products with limited involvement from private enterprises and foreign investors. Restructuring the productive structure requires the participation of all economic agents in order to build capacity for knowledge sharing and strengthen the indigenous knowledge system.

Without support of reformed state institutions, the twin goals of economic diversification and sustaining development cannot be attained, unless the state provides the necessary ingredients for economic development by constructing policies and formulating strategies to support rapid growth and sustain development. In most Arab countries, development is currently financed by revenues from the production and export of natural resources, mainly oil and gas. Recently, some countries in the region have begun to introduce economic reforms to overcome some of the

challenges of the new economy. They came to realise that building modern economies will require greater use of knowledge, technology, innovation and information. The pressure of a rising population, urbanisation, scarcity of water resources and high unemployment will force Arab countries to act in order to enhance rapid economic growth and sustain development.

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## **BIOGRAPHICAL NOTES**

**Professor Amer Al-Roubaie** currently holds the position of Dean, College of Business and Finance, Ahlia University, Bahrain. He obtained his doctorate in Economics from McGill University in Montreal, Canada. In addition to economics, his experience lies in the fields of knowledge-based development, Islamic Banking and Finance, development economics and globalisation and international business. His publications include books, research papers and many articles, which have appeared in a number of international journals.

**Professor Abdulwahab Al-Ameen** is currently working as a Professor at the University of Bahrain. He obtained his PhD from the University of Southern California Los Angeles, USA. He taught in several universities in the USA, Canada and the Arab world. He is the co-author of several books, some of which have been adopted as textbooks in some Arab universities. He has published several articles in regional and international journals in areas related to energy, economic development banking and finance and knowledge-based economy.