

## THE CULTURAL ROLE OF ISLAMIC SCIENCE IN SOCIO-ECONOMIC DEVELOPMENT

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### **ABSTRAK**

*Untuk membina sistem sosio-ekonomi yang beretika, dinamik, progresif dan berjaya memerlukan masyarakat yang ahlinya adalah literat agama dan sains. Penulis mempunyai kepercayaan bahawa budaya sains Islam mempunyai peranan dalam pembangunan sesebuah masyarakat. Budaya melambangkan pemikiran, nilai, amalan dan artifak yang mempengaruhi cara gaya apa jua kegiatan yang dilaksanakan oleh masyarakat berkenaan. Budaya sains Islam memainkan peranan positif ke arah menyumbang kepada pembangunan dan pertumbuhan sosio-ekonomi yang menepati harapan matlamat pembangunan masyarakat. Dimensi agama sesebuah budaya memastikan setiap individu yang terlibat dalam kegiatan sosio-ekonomi adalah beretika. Individu demikian menganggap adalah tanggungjawab mereka untuk mematuhi undang-undang dan peraturan yang memastikan perlaksanaan aktiviti berjaya. Dimensi sosial pada sains sebaliknya memastikan pula semua kegiatan adalah berasaskan ilmu dan dilaksanakan secara saintifik menggunakan strategi yang disokong oleh infrastruktur yang bersesuaian. Kertas kerja bermula dengan penerangan ringkas mengenai apakah yang dimaksudkan dengan sains Islam dan seterusnya menjelaskan bagaimana agama dan sains membentuk sifat budaya kerja yang mempengaruhi kualiti dan kuantiti produktiviti sesebuah masyarakat atau pun organisasi.*

**Kata Kunci:** Sains Islam, budaya, agama, sistem sosio-ekonomi

### **ABSTRACT**

*To establish an ethically, dynamic, progressive and successful socio-economic system requires a society whose members are religiously-scientifically literate. The author believes that an Islamic science culture has a role in the socio-economic development of a given society. A culture reflects shared communal thoughts, values, practices and artifacts that affect the way activities are being*

*carried out by the community. Islamic science culture plays a positive role in contributing toward any organization successfully the socio-economic growth and development of a society toward the society achieving her developmental goals as expected. The religious dimension of the culture ensures that individuals involved with socio-cultural activities are ethical. Such individuals will take it to be their responsibility to observe organisational administrative and managerial rules and regulations that ensure successful operations of activities. The social dimension of science on the other hand ensures that all activities are knowledge based and that they are conducted scientifically using strategies supported by appropriate infrastructures. The paper begins with a brief explanation of what Islamic science is and then elaborates on how religion and science actually shape the nature of work culture that affects the quality and quantity of productivity of either society or organisation.*

**Keywords:** Islamic Science, culture, religion, socio-economic system

## INTRODUCTION

The phrase Islamic science culture consists of three key words: Islam, science and culture. Each of the key words can on its own be discussed at great length. What has it to do with business, socio and economic development within a given society? This is what the author wishes to discuss in this paper. It begins with a brief explanation of what Islamic science is. It then elaborates on how religion and science actually shape the nature of work culture that affects the quality and quantity of productivity of either society or organization very much involved with the development process.

## WHAT IS ISLAMIC SCIENCE

Islamic science is a science that is based on principles that are drawn from the teachings of Islam and cultivated within the framework of Islamic worldview (Osman Bakar 2007). Islamic worldview rests upon the fundamental concept of tawhid that recognises and acknowledges the existence of a Creator, Lord of the world. The basic teaching of Islam is that man is both a servant of the Allah the Almighty and a khalifah. As a servant of Allah man is subjected to thoughts, behavior and actions as prescribed by Islamic teachings. Islamic teaching emphasizes on good, proper and behavior (*berakhlak*) in whatever action an individual undertakes whether in relation to another human being or material things.

The special thing about practicing Islam is that it internally motivates the believer whether man or women, young or old to act in accordance with the command of Allah without being imposed from outside. The standards of human actions and behavior are the highest comparable to none. In terms of human material actions these standards rest on the principles of the truth, right,

proper, correct behavior recognizing fairness, justice and rights of others. There is no doubt that an organization or a social system that subjects itself to the highest standards of existence will itself works toward becoming a good functional and sustainable system. In fact making Islam part of the business culture helps individuals to develop their personality particularly when these individuals understand the meanings of the Qur'anic text. For example Surah al-'Asr (103:1-3) reminds us that:

*“In the name of Allah the most Gracious the Most Merciful, By (the Token of) Time (through the ages), Verily Man is in loss, Except such as have Faith, and do righteous deeds, and (join together) in the mutual teaching of Truth, and of Patience and Constancy”.*

This surah when learnt by heart and consciously recited provides an *insan* with a principle that motivates him/her to do what is commanded. It is therefore clear that when a thought system excludes consideration for the Creator, it will not be surprising that the individual will automatically excludes consideration for the teachings and command of the Creator. The teachings and commands are actually meant for the development and sustenance of the well being of the inner self under whatever circumstances and that activities are seen as opportunities to exercise good deeds that contribute toward the well being in *akhirat*. These activities include business as well as any other activities. Such deeds can also be regarded as investment for the afterworld.

The Qur'an also has basic teachings that lead to the development of scientific attitude and thinking.

بَيَّنَّا لَكُمْ الْآيَاتِ إِن كُنْتُمْ تَعْقِلُونَ

*“We have indeed made the signs [thereof] clear unto you, if you would but use your reason”* (Al 'Imran 3:118).

إِنَّ فِي ذَلِكَ لَآيَاتٍ لِّلْمُتَوَسِّمِينَ

*“Verily, in all this there are messages indeed for those who can read the signs”* (al-Hijr 15:75).

وَمَا نُرْسِلُ بِالْآيَاتِ إِلَّا تَخْوِيفًا

*“And never did We send those signs for any other purpose than to convey a warning”* (al-Isra' 17:59).

قَالَ لَقَدْ عَلِمْتَ مَا أَنْزَلَ هَؤُلَاءِ إِلَّا  
رَبُّ السَّمَاوَاتِ وَالْأَرْضِ بِصَآئِرٍ

Answered [Moses]: “*Thou knowest well that none but the Sustainer of the heavens and the earth has bestowed these [miraculous signs] from on high, as a means of insight [for thee]*” (al-Isra’ 17:102).

The Qur’an informs us that from signs which include physical phenomena, there are messages for man if they read these signs and that from these signs man is given warnings, and can gained insight. These are suggestions that we should do what we now call science; observations and study of physical phenomena termed as signs in the Qur’an.

Considerations for religious teachings have practical implications as in Islam whatever actions that man does are being recorded. So for the believers, their actions in the course of their work are subjected to what they have learnt from their religion. Their moral bound behavior influence them to exercise ethical practices when they are acting or interacting with tools, materials and other human beings who may be their superiors, co-workers or subordinates. InsyAllah the work environment will be of a high moral standard.

### WHY ISLAMIC SCIENCE CULTURE

A culture reflects shared communal norms that affect the way activities are being carried out by the community. Hence work culture is about thoughts, values, practices and artifacts which include products, and in a given organisation it will be these thoughts, values, practices and artifacts that determine the quality of performance or productivity of that organisation. The author believes that the state of the socio-economic development of a given society depends on the culture underpinning it. So when the work culture is underpinned by both religion and science, then we can expect that the people’s working behavior would be in consonent with the teachings of the religion and what is prescribed as scientific. Thus how we perform depends on the knowledge and understanding that we have about both religion and the scientific processes which include skills required when using on the job instruments or tools. When we are scientifically and technically competent we can perform our tasks effectively and efficiently.

Islamic science culture has the potential to induce the desired work culture. Thoughts, beliefs and values regarding work that are influenced by Islamic teachings results in individuals look upon their work as entrusted. As Islamic teaching touches the inner state of the human soul as it concerns one’s relation-

ship with the almighty God. Such an awareness and consciousness instill in the individual with a sense of responsibility to perform in accordance with the job specifications. The individual knows that he/she is accountable for the time, energy and material spent while working and whatever is done contributes to the individual's well being in the afterworld. Thus consciousness about Islamic rules and regulations of behavior can act as internal policing for individuals to observe organisational administrative and managerial rules and regulations that ensure successful operations of activities. The standard set by Islam surpasses any of the man-made standards.

A given business company may have all the structural and regulatory guidelines and principles that individuals have to adhere to but the bottom line boils down to the actual practice by individuals in the work force. As Rozel (2008) stated:

*“The very tenet of doing the right thing, being fair to all concerned, being truthful and transparent, and being accountable for ones’ own actions. The real corporate governance happens when doing the right thing has become the only way of doing business...”*

What is the rationale for practicing Islamic science work culture apart from individuals wanting to exercise a religious way of life? Well what need to be remembered is that whenever man takes an action on himself, on others or even on material things, objects or systems, as found in nature or simple apparatus, everyday items or utensils, our action is just seen as an intervention of change. What will be the consequent of man's action has been proportionately predetermined by the laws or *sunnatullah* that the material things of objects have been subjected to. We learnt from the Qur'an

إِنَّا كُلَّ شَيْءٍ خَلَقْنَاهُ بِقَدَرٍ

*“BEHOLD, everything have We created in due measure and proportion”* (al-Qamar 54:49).

وَإِنْ مِنْ شَيْءٍ إِلَّا عِنْدَنَا خَزَائِنُهُ وَمَا نُنزِّلُهُ إِلَّا بِقَدَرٍ مَّعْلُومٍ.

*“For, no single For, no single thing exists that does not have its source with Us; and nought do We bestow from on high unless it be in accordance with a measure well-defined”* (al-Hijr 15:21).

وَجَعَلَ فِيهَا رَوَاسِيَ مِنْ فَوْقِهَا وَبَرَكَ فِيهَا وَقَدَّرَ فِيهَا  
أَقْوَامًا فِي أَرْبَعَةِ أَيَّامٍ سَوَاءً لِّلسَّالِئِلِينَ

*“He set on the (earth). Mountains standing firm, high above it, and bestowed blessings on the earth, and measured therein all things to give them nourishment in due proportion, in four Days, in accordance with (the needs of) those who seek (sustenance)” (Fussilat 41:10).*

وَأَنْبَتْنَا فِيهَا مِنْ كُلِّ شَيْءٍ مَّوْزُونٍ

*“And the earth -We have spread it out wide, and placed on it mountains firm, and caused [life] of every kind to grow on it in a balanced manner” (al-Hijr 15:19).*

These verses mean that everything that Allah creates are created in due measures and balanced. The magnitude of our actions determines the magnitude and the kind of change brought about as a result of our actions. But there is a limit to the magnitude of action if the change to take place is not to destroy the object or system that we are working on. For quality control, it is important for front liners operators to be sensitive to proper or right measurement of materials to be used in the production of products or rendering of services. Otherwise the end results will not be in accordance with the designs. In fact these results in errors and it can be disastrous. Thus the Qur'an provides man with general information regarding properties and behaviors of matter.

What we need to remember is that every form of human endeavour involves i) the use of materials whether in raw form or used as tools and ii) the human factor. The use of materials to produce whatever products the company has committed to develop require actions according to certain procedures accompanied with right measurements simply because everything is created in accordance with certain measurement and subject to *sunnahtullah*. It will be these procedures that cause the transformation of the materials into the desired products. These however require proper knowledge and understanding about the properties, behavior and laws that these materials are subject to. Scientific empirical knowledge gives us specific information about the materials that we use and the procedures that we follow. This is thus the role of the knowledge and understanding of science, skills and the scientific method. It is to ensure effective and efficient performance for quality production in particular by those who are passionate and committed to their work to perform their tasks satisfactorily.

Another point to note is that socio-economic development is a very complex process. It involves technical operations and the management of funds, resources and infrastructures by various groups of people at different levels. But whatever it is at the very foundation of it all, the man-material interaction can begin with doing research, translating research findings into product development, production of the products or services, marketing, utilizing and finally dispensing wastes that are produced as by products. The whole cycle of production process involves the acquisition of raw materials, processing and disposing wastes. Finished products need to be distributed and this requires that packaging, storage and transportation are done in a manner that the products continue to be in good quality and safe for the consumers.

To ensure that economic and social activities bring about growth and development as desired requires that operations at various levels by individuals be done correctly and properly. Because of the complexity it requires operators to observe the scientific and ethical practices in their work performance. Success is then dependent on whether individuals within the system work collectively in a manner that support and complement each other. So at the very foundation it depends on the work culture adopted by the members of the organization. When members of the organizational work force share the same thoughts, beliefs, values, and practices they can then be expected to work collectively in tandem that in the long run efforts by individuals result in a positive constructive cumulative effect to achieve the organizational goals.

The challenge is then how do we organize such a complex social system that is diversified. The government can formulate policies, and via the top bottom mandate, organizations appear to have implemented the policies while the quality of performance depends on the technical practical competencies of the workers. Key factors will therefore be knowledge, skills values and attitude of the workers. We need knowledge and skills in particular in science and technology to ensure that our human resources can carry out efficiently and effectively the technical operations. This is an area of concern as findings of several studies have shown signs that the society has several challenges to face.

## **ISSUES AND PROBLEMS**

To ensure economic growth and development of the country there is a concern that the overall mindset, culture, values and social institutions has to be more in step with the country's economic development. There is a danger of the country possessing first-class infrastructure but third-class mentality. In order to pursue further growth and development, Malaysia will need to fortify its moral and ethical foundations while enhancing its mindset and attitudes towards excellence and performance (Economic Planning Unit 2006).

While it is laudable that the government wants to accelerate economic growth and elevate income levels in the east coast of Peninsular Malaysia through the East Coast Economic Regional (ECER) Program, it needs to take note of the concern as expressed in the recent 9th Malaysian Plan. There are two challenging areas to manage: i) the moral and ethical foundations which is basically related to religion and ii) the mindset and attitudes towards excellence and performance. Thus it is a step forward taken by the conference organizing committee to adopt *Thrusting Islam, Knowledge and Professionalism, in ECER development of Business Management in different development areas that include* business / financial, infrastructure, tourism / financial, agriculture, human capital, Islamic education and management, manufacturing, environment and transportation.

*“However Bernama (2008) reports that “if ECER is to ensure development goes toward meeting the communities’s needs, then it requires the adoption of new practices and improvement of the livelihood. Surely new practices and improvement the use of new technology hence new scientific technical knowledge, skills and also positive attitude. Indeed there is much to be desired in this area as well”*

Rahmah et al. (2003) conducted a study on 574 Malay entrepreneurs in 2001/2002 manufacturing and services and found that the competitiveness of Malay Entrepreneurs need to be improved in particular the labour skills that can withstand global competitiveness. Faridah et al. 2003 found that there were: three negative work culture raised by 300 participants in a survey (237 Malays and 72 non Malays). These are office politics, lack of administrative efficiency and effectiveness and communication. The Government of Malaysia in collaboration with the National Chamber of Commerce and Industry organized in Kuala Lumpur on 3 July 2008, a side event of the 6th Summit Meeting of i.e D-8 Business Forum emphasized the need for capacity building, awareness and education. While the 2007 Action Plan by ISESCO proposed the need to promote scientific research then to disseminate the knowledge gained and to channel its results into development if it is to be sustainable (ISESCO Final Report 2007).

With regards to use of current technology, a survey was carried out in May 2007 exploring the use of physics in kite making. It found out that the formal knowledge of physics is absent among the 30 flyers who participated in the survey. Coincidentally the study was fortunate enough to include the use of modern technology in kite making among the international participants of Indonesia, Thailand, Cambodia, Japan, Australia and Malaysia and Brunei when an international kite exhibition was also held in Pasir Tujuh Kelantan about the same month. Of these countries only Australia and Japan were found to be advanced in designs and use of technology. Australia had produced three dimensional



kites, and use alternative materials like cloth, fibre, to make kites while Malaysia was found interested to continue using traditional designs and paper. Japan has set up kite industries and exports their products while Malaysia has not (Siti Nurultina 2008).

In another observation at the padi station at the Department of Agriculture Lundang and BERNAS Pasir Putih both in Kelantan, it was found that equipments and machines operators require use of basic knowledge of physics when they were using their machines. At times they need to innovate either technically or environmentally. It is technical innovation when workers introduce modifications to use of machines or do maintenance work when machines become faulty. Environmental innovation is when innovation is required ergonomically especially when machines imported from foreign countries do not suit Malaysian working environment. E.g machine operators at the padi station in Lundang invented a fan that can suck the dust in the padi milling area that can disturb their breathing. The operators also improved the height position of the conveyer belt to match their shoulder level hence preventing them from having to bend down when they have to upload the rice sacks from the conveyer belt (Tengku Hasnan 2005). But the levels of education of operators are of concerns. A survey on 93 (40 + 53) of the operators at the two rice refineries showed that while 48% of them were technical workers, 72% of them were with just upper secondary qualification. This means that the workers were primarily graduates at secondary level. They did not have the technical background that would be to their advantage if they had it. They gained the technical knowledge and skills through working experiences. The point is had their level of education been technically higher we can expect their work performance to be better.

The practical question is how Islam, knowledge and professionalism can be enthused in ECER development of Business Management.

### **CHALLENGES IN OPERATIONALISING ISLAMIC SCIENCE WORK CULTURE**

Those in the technical area of activities have been practicing secularized science whether they are aware of it or not. The reason is simple. Our practices of science have hardly been subjected to scrutiny simply because we have been trained within the system and have not been involved with questioning the underlying philosophy that shape the patterns of work. Thus it will indeed be a big challenge to make Islamic Science culture a reality in socio-economic areas of development.

The basic strategy is creation of awareness and acquisition of knowledge and skills through education and the creation of a conducive working environment. The teaching of science and technical knowledge should also include the

use of Qur'an as references to learn more about basic properties of nature, the scientific method and man-matter, man-man interaction.

The Qur'an needs to be read and its meaning understood. As the Qur'an can be a great motivator for human action, then it is hoped that the verses related to nature or the physical world can motivate man to take interest in learning nature like what has happened to our great Muslim scientists of the past like Ibn Hathym, Ibnu Rushd and Ibnu Sina. Formal introduction to Islamic science starting at the primary level will go a long way to develop the culture of Islamic science in society.

In fact through the curriculum of Islamic science we can develop an Islamic approach toward science i.e doing and learning science not just for the sake to gains factual information about the world that Allah has created but also to get to know the Creator. It is pondering over the creations of Allah, questioning and reflecting over it that will result in man learning about the truths or facts of nature, rationalizing about cause and effect or interrelatedness of things and becoming logical in terms of explanation since there is order in sequence of events and organization of structures. The Qur'an does not provide the details but general statements that can be used as guiding principles for man to deduce specific information that lead to the exploration of nature and the development of scientific knowledge. Islamic science make individuals more God centered compared to secular science. Under such circumstances, doing science not only enhance the intellectual state of man but contributes towards the individuals' God-fearing character development. This is absent when doing secular science. As Islamic teaching promotes good deeds and avoidance of bad deeds, then application of Islamic science will be more directed to activities that benefit mankind and care of the ecosystem, something that is very much desired under present state of affairs.

## CONCLUSION

Socio-Economic Development is a complex process. It involves administration and management of human resources, materials and the infrastructures needed to conduct the various socio-economic activities. At the individual level, it involves man-material interaction and man-man interaction. In order that the man-material and man-man interaction bring about results as desired, the work culture of the organization has to be one whose activities are conducted in the right appropriate way, with harmonious human relationship. The culture of Islamic science has features that ensure the human resources perform their tasks with a sense of responsibility and integrity and the technical tasks being conducted efficiently and effectively.

## REFERENCES

al-Qur' an al-Karim.

Bernama. 2008. Education to drive socio-economic development in ecer. <http://malaysia.news.yahoo.com/bnm/20080926/tts-khaled-ecer-993ba14.html> [27 September 2008].

Economic Planning Unit. 2006. The National Mission. <http://www.epu.jpm.my/RM9/english/Mission.pdf> [9 Jun 2008].

Faridah Karim, Ramlee Mustapha, Ruhizan Mohd Yasin, Abdul Wahab Mohammad & Mohd Sobri Takriff. 2003. Pencapaian pendidikan dan kerjaya terhadap peningkatan keupayaan sosio-ekonomi Melayu dalam arus globalisasi. Prosiding Seminar Kebangsaan Arus Perdana II: Pembinaan Keupayaan Melayu dalam Arus Globalisasi. Anjuran Kumpulan Arus Perdana II-1/2000, Institut Alam dan Tamadun Melayu, Universiti Kebangsaan Malaysia. Bangi, 30-31 Julai.

ISESCO Final Report. 2007. The 28th Session of the Executive Council of the Islamic Educational, Scientific and Cultural Organization 2007. <http://www.isesco.org.ma/english/executiveCouncil/Rapports/Final%20Report%20CE28.pdf> [27 September 2008].

Osman Bakar. 2007. Environmental wisdom for planet earth the Islamic heritage. Kuala Lumpur: Centre for Civilizational Dialogue, University of Malaya.

Rahmah Ismail, Nor Aini Idris, Mohd Nasir Mohd Saukani and Noorasiah Sulaiman. 2003. Daya Saing Usahawam Melayu dalam Arus Globalisasi. Prosiding Seminar Kebangsaan Arus Perdana II. Pembinaan Keupayaan Melayu dalam Arus Globalisasi. Anjuran Kumpulan Arus Perdana II 1/2000, Institut Alam dan Tamadun Melayu, Universiti Kebangsaan Malaysia. Bangi, 30-31 Julai.

Rozel Corazon negre-Fonancier. 2008. The Phillipines. In Nelson Oly Ndubisi (Ed). *Small and Medium Enterprises in the Pacific Rim*. Shah Alam, Selangor: Arah Publications.

Siti Nurultina binti Ibrahim. 2008. Layang-layang @ Wau dalam Pembudayaan Fizik. Tesis Sarjana Sains. Fakulti Sains dan Teknologi, Universiti Kebangsaan Malaysia.

Tengku Hasnan bin Tengku Abdul Aziz. 2005. Mengkaji Aplikasi Fizik dalam Pertanian Melalui Tahap Pengetahuan, Tahap Inovatif dan Pengetahuan Tempatan. Tesis Sarjana Muda Sains. Fakulti Sains dan Teknologi, Universiti Kebangsaan Malaysia.

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