



Science and Technology

Some Cases in Islamic Perspective

Foreword by
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Science and Technology

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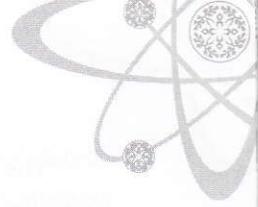
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Preface



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

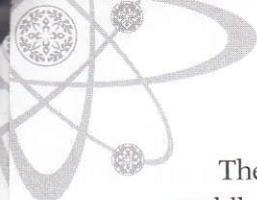
In the Name of Allah, the Most Gracious, the Most Merciful.

Praise be to Allah, the Lord of the worlds, Who says in His Glorious Book. There has come to you from Allah a Light and a Plain Book. Peace and blessings of Allah be upon the Noblest of the Prophets and Messengers, our prophet Muhammad and his family, his companions, his followers and the followers of the followers till the Day of Judgment. Prophet Muhammad has said: “the best of you is who learns the Quran and teaches it.”

The presence of messengership of Muhammad that enables the faith people to understand the Quran, the heavens and the worlds.

The writers have the pleasure to present this book, and let us praise Allah Subhanahu wa Ta'ala for His favour to read it. This book entitles Living Issues in Science and Technology.

We do realize that to undertake this book composition is in the frame work of the fulfillment of injunction of the prophet: “Convey my message even if it be one single ayah”.



The contents of the Quran are more concerned with people's worldly affairs. So that, Islam is looked upon as a realistic and natural religion. It teaches social behaviour, religious obligations and prohibitions, facts of biology, history, astronomy, cosmology, medicine are found in abundance in the Quran. The Quran stresses scientific investigation by urging people to find out the secrets of the creation by themselves. We can instance some verses as follows:

1. Do not the Unbelievers see that the heavens and the earth were joined together (as one unit of creation), before we clove them asunder? And the verse as
2. Do they not consider the camels, how they are created?

The Quran abounds in such verses asking people to consider for themselves and to use their minds to reveal the secrets of the universe, and in this way they may have firm belief in Allah, the Creator.

There are a lot of references to the pursuit of knowledge in the Quran. Allah orders us to travel through the earth even to the outer space (if we afford) to see how Allah originated creation.

Tears streaming on our prophet Muhammad's cheek, because he knew the future fate of his followers. There would be very little number of muslims who industriously seeing and thinking of natural phenomenon.

Now a days, as we are all realized, the concerned of the prophet about the fate of *ummah* (muslims) are appearing in the very sight. We are split in factions, quarrelling each other, poor and lack of food (hunger), backwards in mastering the science and technology as if we are retarded people.

Natural phenomena of physical material and the life of organisms in our surrounding are the facts to be studied. When we understand the phenomena and master how to deal with them, then we are able to manage them for the sake of our prosperity.

Actually Allah had encouraged us to pursue knowledge and will give rewards for those pursuing as in chapter al-Mujadilah part of verse 11:

يَرْفَعُ اللَّهُ الَّذِينَ آمَنُوا مِنكُمْ وَالَّذِينَ أُوتُوا الْعِلْمَ دَرَجَاتٍ

The darkest ages in history of Europe when most of Greek philosophy and scientific discoveries had been completely unknown. At that time the Quran was revealed. The Quran was revealed in the middle of the seventh century. Europe was then in utter darkness and anarchy, while Arabia was the only part of the world that was beginning to revive by the new light based on the new belief "Islam".

Concerning the general belief in the medieval period lasting from the year 500 to about 1450, was that the earth was flat and stationary. It means that the earth was the centre of the universe around which all the heavenly bodies revolved. The Ptolemaic theory was then prevalent. The mistaken view of the solar system was everywhere accepted.

Islamic taught with the Quran corrected the mistaken theories then existing about the universe. The shape of the earth stated in the Quran is exactly proved as it is proven by modern scientific investigation. The verse in the Quran tells us the earth is more like an egg. Chapter 79 verses 30 and 31 read

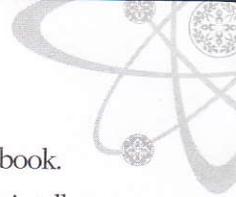
وَالْأَرْضَ بَعْدَ ذَلِكَ دَحَاهَا ﴿٣٠﴾ أَخْرَجَ مِنْهَا مَاءَهَا وَمَرْعَاهَا ﴿٣١﴾

"After this He shaped the earth like an egg, whence He caused to spring forth the water thereof, and the pasture thereof.

The shape which causes water to spring is of course not flat or plain, it must be other form than flat. Flat form makes water swampy and unmoved. Ball-like shape makes water dynamic. In Arabic, the noun dahiah means round form like an egg and its verb is daha.

The Quran statement was revealed 15 centuries ago, while scientist found the fact quite recently, as it has also found out that there are slight differences between its shape and that of a perfect sphere, since there is a slight flattening around the poles and a slight curving around the equator.

The famous and success of muslim scholars in medieval era should encourage our spirit to pursue knowledge. Westerners acknowledged when they compared the contributions of world scholars to the development of sciences, that muslim scientist placed far greater emphasis on experiment than had the Greeks.



All of these are described in the five chapters of these book.

Man is ordered to utilize their all capacities of mind and intellect to reveal the secret of the nature and the whole universe. In this way people may come to conclusion to have firmer belief in God, the Creator.

The writers are aware of the fact that this book, however accurate it may be, must fall short of conveying the broad and wealth of Islam original taught by the prophet Muhammad. This is only the sum total of what the writers have understood from the books, the hearing says, and of my so short experiences when working at and dealing with management in a Governmental Owned Agricultural or Estate Crops Corporation (PT Perkebunan XI) nourished with the wise guidance from the Islamic professors, and Islamic theologian in the consortium of sciences of the State Islamic University of Sunan Gunung Djati of Bandung chaired by Prof. Dr. H. Ahmad Tafsir, they are all my teachers in the Islamic.

This book is dedicated to Allah Swt. for all the favour He has bestowed upon us, in creating and bringing us to this world.

The authors wish to thank all those friends who help us in composing this book that it is available to the readers, special thanks and appreciation to Prof. Dr. H. Nanat Fatah Natsir, MS, the Rector of the State Islamic University (UIN) Sunan Gunung Djati who has encouraged us to deal with the UIN Mission:

“the Revelation Guides Science”, may Allah Swt. blesses all. Aamiin Yaa Rabb al-Aalamiin.

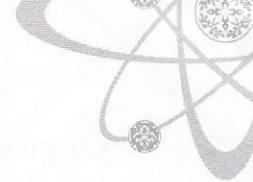
Hoping, this book will give us much valuable. Insya Allah.

Bandung, 24 Maret 2010 M

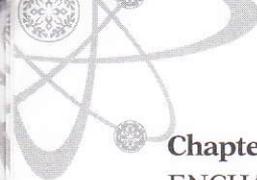
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Chapter 1

Science and Revelation

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the Name of Allah, the Most Gracious, the Most Merciful.

The authors pray to Allah Swt. (glory be to Allah, and He is high) to bless Prophet Muhammad Saw. (peace be upon him) and the family of Prophet Muhammad in as much as He blessed Prophet Ibrahim and the family of Prophet Ibrahim. The authors also pray to Allah Swt. to bless the Khulafa ar-Rasyidun and the Shahabat of the Prophet as well as the followers and the followers of the followers till the day of judgment. The authors pray to Allah Swt. to reward all the ulama, who carried the message of Allah and His Prophet, and who transmitted it to the generations till our today generation. Amin.

A. Oneness of God Objective

As time goes and human culture develops, scientific theories as the product of human intelligence have changed from time to time, but scientific information in divine revelation that may appear at that time to be unreasonable, prove to be right in this time and in the long run. The stupidity in view of scientific or blunder in our ancestors as the result of unable to interpret scientific verses accordingly. Technological development as the outcome of scientific finding in Islamic world is backward and stagnant compared to the scientific and technological development in the western world.

In several chapters of this book are tried to see the guidance of revelation on the science and the finding of it. In general, Islamic epistemology recognizes three orders of logical argumentation or knowing, they are:

1. Reason ('Aql);
2. Experience ('Ada); and
3. Revelation ('Syar').

These reasonings or argumentations as the basis for keeping the faith in oneness of Allah or *tauhid*.

Muhammad Taqi-un-Din Al-Hilali and Muhammad Muhsin Khan (1335 H) on the Noble Quran describe that Islamic monotheism or tauhid consists of three aspects:

1. Tauhid al-Rububiyah; Oneness of the Lordship of Allah: Believing that there is only one Lord for all the universe that is Allah. Who is its Creator, Organizer, Planner, Sustainer, and the Giver of security, etc., and that is Allah.
2. Tauhid al-Uluhiyyah: Oneness of the Worship of Allah: Believing that none has the right to be worshipped (e.g. praying, invoking, asking for help from the unseen, swearing, offering sacrifice, giving charity, fasting, pilgrimage) but Allah.
3. Tauhid al-Asma was-Sifat: Oneness of the Names and the Qualities of Allah: Believing that:
 - a. We must not name or qualify Allah except with what He or His Messenger (Muhammad Saw). has named or qualified Him.

- b. None can be named or qualified with the Names or Qualifications of Allah; e.g. Al-Karim.
- c. We must believe in all the qualities of Allah which Allah has stated in His Book (the Quran) or mentioned through His Messenger (Muhammad Saw). without changing their meaning or ignoring them completely or twisting the meaning or likening them (giving resemblance) to any of the created things e.g. Allah is present over His Throne as mentioned in the Quran.

الرَّحْمَنُ عَلَى الْعَرْشِ اسْتَوَى

"The Most Gracious (Allah) rose over (Istawa) the (Mighty) Throne (in a manner that suits His Majesty)".

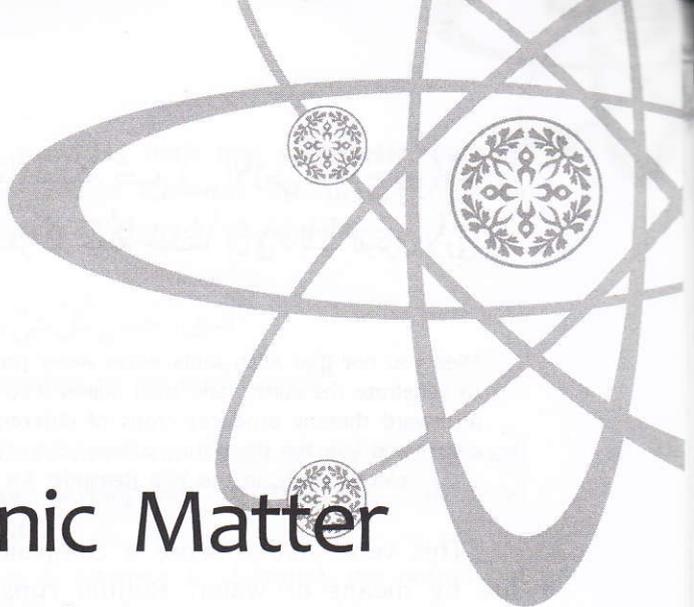
Over the seventh heaven; and He comes down over the first (nearest) heaven to us on the day of 'Arafah (Hajj, i.e. the 9th of Dhul-Hijja), and also during the last third part of the night as mentioned by the Prophet Saw, but He is with us by His Knowledge, not by his Personal-Self (*bi-Dhatihi*).

This is the belief of all true believers, and was the belief of the Prophets of Allah from Adam till the last of the Prophets, Muhammad Saw.

These three aspects of Tauhid are included in the meaning of *Laa ilaha illallah* (none has the right to be worshipped but Allah). It is also essential to follow Allah's Messenger, Muhammad Saw. This is included in the meaning, "I testify that Muhammad Saw Allah's Messenger," and this means, "None has the right to be followed after the Quran, but Allah's Messenger. "Allah says "And whatsoever the messenger (Muhammad Saw) gives you, take it, and whatsoever he forbids you, abstain (from it)

وَمَا آتَاكُمُ الرَّسُولُ فَخُذُوهُ وَمَا نَهَاكُمْ عَنْهُ فَانْتَهُوا

Accepting Islamic monotheism means follow the Quran and the *Sunnah* (legal ways of the Prophet Saw.)



The Organic Matter Cycle Effect

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the Name of Allah, the Most Gracious, the Most Merciful.

A. Organic Matter Cycle

Emperical reality showed that plants and vegetations grow better in humid soil than in arid soil. Wild animals migrate due to drought and seek for dryer grassing pasture. General theory in the soil fertilization states no nutrition in effect to plant growth in absence of water as nutrient solvent. Potential nutrition of vegetation may derive from earthy minerals and organic substance. Organic matter constitutes important roles in maintaining the survive of living organisms (vegetation and animal). The life chain in the earth surface evolves from the present of micro vegetation (algae) to semiaquatics, terrestrial woody shrubs and woods. Herbivorous animal breeds easily with the available of vegetation, and the carnivore takes benefit of the herbivore. This chain of life is innitiated by the organic substance cycle as illustrated in verse 21 chapter az-Zumar.

أَلَمْ تَرَ أَنَّ اللَّهَ أَنْزَلَ مِنَ السَّمَاءِ مَاءً فَسَلَكَهُ يَنْبِيعَ فِي الْأَرْضِ ثُمَّ يُخْرِجُ بِهِ زَرْعًا
 مُخْتَلِفًا أَلْوَانُهُ ثُمَّ يَهِيَجُ فَتَرَهُ مُضْفَرًا ثُمَّ يَجْعَلُهُ حُطَامًا إِنَّ فِي ذَلِكَ لَذِكْرًا لِأُولِي
 الْأَلْبَابِ

“See you not that Allah sends down water (rain) from the sky, and causes it to venetrate the earth, (and then makes it to sping up) as water-spings, and afterward thereby produces crops of different colours, and afterward they wither and you see them turn yellow; then He makes them dry and broken pieces. Verily, in this is a Reminder for men of understanding”

This verse makes sense a complete cycle of vegetation (crop) life by means of water. Rainfal runs on the soil surface then venetrates through micro and macro soil-pores till the unpenetrable soil layer on which the water accumulates forming subterranean water surface. This water provision flows away gravitationally or emerges with some pressures as spring, or is sucked and absorbed by vegetation roots.

Water has dual functions, it is an element of nutrient and it is a solvent that solves other nutrients facilitating the vegetation to absorb nutrients for its metabolism. Growth curve of crop begun with the germination of seeds. Dormant seed may germinate when water penetrates the skin and then influences the state of seed hormon.

Seedlings come out, grow opening the top soil layer, and emerge on the soil surface as a newly erected entity. Biologically named, the plumulle, grow faster and faster, drawing a rapid curve as a rapid vegetative growing period. In the peak vegetative growth, generative comes with primordial inflorescence which is followed by fruiting. The Crops are harvested. Determinated plant ends in time of harvest. Morphologically, parts of plant change in colour, green chloroplast turns yellow (مُضْفَرًا mushfarron) indicating senescence or the end life period.

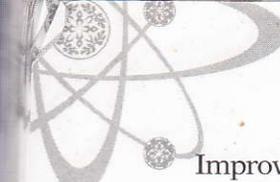
The erected plant cut down or the leaves fall as debris on the earth. Anywhere the decomposer bacteria is awaiting for digesting and recycling processes. The mass organic is gradually broken down into its original chemical components, and then is eroded by rain water back to earth. This cycle is continuously restarted



Tentang Penulis

M.SUBANDI, He obtained Doctoral Degree in Agriculture Science in January 2002 from Padjadjaran University of Bandung. He learned Arabic grammar from his parents and Arabic language courses and in the Language College of Al Jawami. Academic experiences began as agronomy lecturer in Agricultural College of Tanjungsari in Sumedang. He was appointed as head of Educational Biology Study Programme of the Tarbiyyah Faculty, and in 2006 he was elected as the first and now is the second dean of the newly established Faculty of Science and Technology of the State Islamic University of Sunan Gunung Djati of Bandung.

His published books are: Dasar-Dasar Mikrobiologi; Sains dan Teknologi di Perguruan Tinggi Islam; Bioteknologi. Teoritis dan Panduan Praktik; Dinamika Pertumbuhan dan Produksi Serat Rami (*Boehmeria nivea* (L) Gaud); Mikro Biologi, Perkembangan, Kajian dan Pengamatan dalam Perspektif Islam; and Budidaya Tanaman Perkebunan. He is a member of Scientific Consortium of the Islamic University and he has written and presented revelation based scientific papers in national and international seminars. He attended the



Improving of Lecturer Competences Course in Melbourne Univ. Australia, workshops in National University of Singapore and in Universiti Industri of Selangor-Malaysia, managed the faculty lecturers comparative study delegation to the Thailand Islamic School, and was as single representative of Indonesia Ministry of Religious Affairs to the Revision of Textbooks and Sub-regional workshop on the Incorporation of Environmental Education in Bangladesh.

HANY HANIFA HUMANISA. She obtained degree in English Education in 2002 from the Tarbiyyah Faculty and she is now completing her English Master degree in the Indonesian Education University of Bandung. Her parents as chairman of Husainiyyah Islamic Boarding School inherited her a strong Islamic strengthened with the education in which she spent her younger in Islamic College of Pabelan in Central Java. She teaches English in Secondary Schools in Cicalengka and as English Assistant in Faculty of Tarbiyyah and Teacher Training of the Islamic University of Sunan Gunung Djati and she is also an English lecturer in Agriculture Faculty of Winaya Mukti University. She is one of the management of Husainiyyah Foundation where she acts as a murabbiyyah (woman teacher or Islamic guide)

Science and Technology

The contents of the Quran are more concerned with people's worldly affairs. So that, Islam is looked upon as a realistic and natural religion. It teaches social behaviour, religious obligations and prohibitions, facts of biology, history, astronomy, cosmology, medicine are found in abundance in the Quran. The Quran stresses scientific investigation by urging people to find out the secrets of the creation by themselves.

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Natural phenomena of physical material and the life of organisms in our surrounding are the facts to be studied. When we understand the phenomena and master how to deal with them, then we are able to manage them for the sake of our prosperity.

Water has dual functions, it is an element of nutrient and it is a solvent that solves other nutrients facilitating the vegetation to absorb nutrients for its metabolism. Growth curve of crop begun with the germination of seeds. Dormant seed may germinate when water penetrates the skin and then influences the state of seed hormon. Other opinion is widespread that today trends of science has resulted in the disenchantment of the world. The enchantment of life is due to the presence of religion values.

Based on verses of the Quran, developing logical reason on natural phenomenon is a way for a person to get the truth by discovering the nature of Allah as reflected by His creation. Al-Quran talks about nature and creation being an expression of God's attributes. Therefore, we can look inside the "Mind of Allah" so to speak by studying His creation.



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