Islam, Science and Biotechnology - An Islamic Model of Bioethics

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1. Introduction

This paper tries to present an Islamic model of bioethics. The model is basically normative, with descriptive and explanatory elements where norm and reality do not meet. Three main concepts come to bear in building this model: the paradigm of Islam and science; the identification of the Islamic approach to ethics as being primarily dependent on the Islamic legal system; and the main characteristics of the Islamic legal rule, *al-ḥukm al-shar'î*, in defining Islamic bioethics. As a supporting measure, the paper provides some basic understandings on key concepts of Islamic culture and civilisation and their function in today's world. Chosen case studies serve to illustrate the functioning of this model and the different ways in referring to it. The article attempts to make this model understandable to non-Muslim and Muslim readers with an interest in bioethics alike.

2. Islam – A Way of Life

Islam is, by definition, a message addressed to all of mankind. Based on the uncompromised concept of the oneness (*tawḥîd*) of Allah, the Creator and Sustainer, and His servitude to the exception of anything or anyone but Him (hence the name Islâm - submission), Muslims believe that Allah has sent a number of prophets to humankind with His guidance, the last of them being the Prophet Muhammad (pbuh)[17]. The Islamic *dîn* regulates, through its legal system, the sharî'ah, every human action, be it regarding the human's relationship towards his Creator, i.e. the way of worshipping Him, be it with respect to the human's relationship towards himself (the way to eat, dress, make use of medical treatment) or towards others (the organisation of human society in a wider sense). This regulation takes place in recognition of human instincts and needs, not in suppression of the same. Therefore, Islam is not just a religion in the contemporary understanding, but rather a way of life, composed of a set of beliefs (*'aqâ'id*) and legal rules or systems emanating or being derived from the sources of revelation, the Qur'an and Sunnah, or what is accredited by revelation; *ijmâ'* (consensus) and *qiyâs* (analogy). On this basis Islam as a way of life comprises of systems such as a political, economic, social and juridical system. Through these systems, the Islamic legal rules are the tool to bring the Islamic *dîn* alive. One of the basic convictions in Islam, as

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[17] Peace be upon him – a eulogy mentioned after the Prophet Muhammad's name.

in any monotheistic concept, is that the human being will be held accountable for all of his actions in the Hereafter and be rewarded or punished depending on whether he did or did not abide by the rules of his Creator. The difference with other monotheistic beliefs may be that Islam, due to its legalistic approach, is much more precise in pronouncing the norms of behaviour. Based on this premise, it is the task of Islamic law to categorise any human action as either *wâjib* (obligatory), *mandûb* (recommended), *mubâh* (legally indifferent), *makrûh* (discouraged) or *harâm* (prohibited). It is the task of the scholars of *fiqh* (Islamic jurisprudence), the *fuqahâ'*, to communicate the knowledge of these rules to humankind.

The preceding is necessary to understand the Islamic normative approach. This normative approach, however, is not enacted in its entirety today. With the advent of colonialism and the replacement of the Islamic political, economic and other systems, Islam tends to be found more in individuals, rather than in societal organisation. In consequence, the observer may notice contradictions between the normative approach on the one hand and reality in the Islamic world on the other. Nevertheless, it can be observed that Islam and *fiqh* have remained the major point of reference in the bioethical discourse in the Islamic world.

3. Islam and Science – A Paradigm

Within the context of Islamic civilisation, science was never considered as a challenge to the prerogatives of the Creator, but rather as a means to discover the secrets of His creations, understand His omnipotence and use these secrets, i.e. the rules and systems this creation is destined to follow, for the common good. In contrast to the European religious experience and the oppressive impact of Church authorities towards scientific development, there was never any contradiction between the stipulations of the Islamic *dîn* and science.

In order to reflect on an Islamic model of bioethics, it is crucial to ask whether there is an 'Islamic Science'? How do Islam and the (life) sciences relate to each other? Classical Muslim scholars have forwarded several classifications of the sciences or knowledge (*'ilm*). Al-Kindî (d.259 AH /873 AD), Al-Farâbi (d. 338 AH /950 AD), Al-Birûnî (d. 439 AH / 1048 AD), Fakhr al-Dîn al-Râzî (d. 605 AH /1209 AD), Al-Ghazâlî (d. 504 AH/ 1111 AD) and other prolific Muslim scientists have made major contributions to this classification. For the purpose of this paper, we may expound on the eminent historian and polymath Ibn Khaldun (d. 808 AH /1406 AD), who explained the distinction between rational (*'aqlî*) sciences and transmitted (*naqlî*) sciences[18]: Whereas the human being arrives at the *rational sciences* through his thinking and realisation of reality, the *transmitted sciences* have been laid down by the Lawgiver (Allah) and are therefore not subject to human ratiocination.[19] Ibn Khaldun

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[18] Ibn Khaldun, *Al-Muqaddimah*, Book 6, Chapter 4, *Fī aṣnâf al-'ulûm*, Dar Ibn Hazm, Beirut, 2003, p.333.

describes the rational or natural sciences as shared among nations, while the transmitted sciences are specific for the Islamic Ummah.[20] We may understand that Ibn Khaldun used the reference to the Islamic Ummah exemplarily, implicitly stating that other nations may have their own specific transmitted sciences.[21]

It seems to be rather in the wake of modernity that questions of the 'neutrality' or 'ideology' of science have been raised, in respect of the human sciences as well as the natural and life sciences. This question seems to be particularly important with regard to the new developments in biotechnology.

The twentieth century has seen fervent discussions concerning the ideology of or behind the sciences, and the historico-political background to this may be alluded to here. This time witnessed the dissemination of "modern science" in a capitalist secular garb, being the consequence of structural, intellectual and institutional dependence rooted in colonialism which subjected large areas of the world to existence as a 'Third World'. The ideological confrontation with communism involved the sciences to a large extent, as a propagandist means of showing its progressiveness, advancement and truth, as well as a means of exclusiveness. Third World Liberation, Anti-Westernism and the renaissance of Islam as a way of life in the collective Muslim awareness also contributed to the discussion.

The main arguments forwarded by contemporary voices in the inner Islamic discourse are either that science is ideologically bound and that there is "no divorce of science from values, and never has been"[22], or that science is neutral and value free (Hoodhboy[23]). "Islamic science" has been postulated as "the totality of the mathematical and natural sciences, including philosophy and cognitive science, cultivated in Islamic culture and civilisation for more than a millennium beginning from the third century of the Islamic era."[24]

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[19] The term transmitted sciences would refer to the core Islamic sciences as derived from the texts of revelation and having them as their main focus, such as the sciences of the Qur'an, the transmitted narrations of the Prophet Muhammad (pbuh), the sciences of Islamic jurisprudence (fiqh) and its theoretical foundations (usūl al-fiqh).

[20] The worldwide community of Muslims.
[21] Muhammad 'Ali al-Hasan, al-'Alāqāt al-Duwaliyyah fī l-Qur'ān wa l-Sunnah, Jordan, Maktabat al-Nahdah al-Islamiyyah, 1982, p.294.

[22] Ziauddin Sardar, Explorations in Islamic Science, London, Mansell, 1989.
[23] Pervez Hoodbhoy, Islam and Science: Religious Orthodoxy and the Battle for Rationality, London, Zed Books, 1991.

[24] Osman Bakar, The History and Philosophy of Islamic Science, Islamic Texts Society, Cambridge, 1999, p.viii. See also Seyyed Hossein Nasr, Science and Civilization in Islam, Harvard University Press, 1968; The Need for a Sacred Science, Albany, State University of New York Press, 1993. For a discussion of the different views on "Islamic Science", see Ahmad F. Yusif, Islam and Science: A Southeast Asian Perspective, IIUM Research Centre, Kuala Lumpur, 2004.

The question of whether or not there is an "Islamic science" with regard to the rational (natural) sciences, and which intellectual and scientific fruits may be taken over from other cultures and civilisations may best be answered by referring to a *fiqhi* model, a model guided by and based on Islamic jurisprudence.

I would suggest following a distinction between any scientific finding or knowledge that is not bound by a particular point of view in life (worldview, religion or ideology) and generally is a result of the experimental method, and whatever is essentially linked to a particular culture or viewpoint in life and does not result from experimental science. As the first kind of knowledge is a description of a particular reality of life, it is universally usable and accessible, without any impact on the particular worldview of the scientist or the person who makes use of it. Whether, for instance, the table of chemical elements was developed by an atheist, a Muslim or a Hindu is not relevant. The construction of human cells and the role of proteins are descriptions of reality that do not succumb to any point of view in life. From an Islamic point of view, we may understand that the usage of this knowledge comes under the general permission of things, unless there is an evidence in the Qur'an or Sunnah prohibiting them - *Al-aṣlu fi l-ashyâ' al-ibâḥah ma lam yarid dalîl al-taḥrîm*. Research findings and objectives in contradiction to evidences in the Qur'an and Sunnah are not considered as permissible knowledge, even if claims are raised that it is neutral. It is the revelation which is in authority over science, not science which is in authority over human knowledge.

We may stipulate that applied sciences, mathematics, chemistry, physics, engineering, etc, fall under this kind of knowledge which is basically universal. However, the way to *interpret* these findings as well as the way to *use* this knowledge is very much linked to an underlying worldview. A person believing in the evolution of matter may see in the setup of a cell a particular stage of evolutionary development, whereas a Muslim will recognise this as one of the astonishing secrets of Allah's creation. A utilitarian will opt for GM technology in food on the basis that it offers material benefit, with disregard of the implications for humankind and the environment. A Muslim will link the use of knowledge of any kind to the Islamic legal rule, *al-ḥukm al-shar'î*. In other words, the ideologically bound evaluation, access and way of usage of this universal type of science cannot be accommodated on the basis of the general assumption of its neutrality. At this stage, the category of *thaqâfah*, the ideologically bound type of knowledge or the sciences comes to bear. For the Islamic context, the transmitted sciences, the sciences of Qur'an and Hadith, Fiqh and Usul al-Fiqh, are clearly an expression of the Islamic worldview. All the same, other worldviews have produced their very own scientific expressions. Most of what has been summarised under the title "human sciences" today is an expression of a Western capitalist culture and worldview or, to a limited extent today, a Marxist *weltanschauung*. We cannot speak of a neutral, universal description of reality anymore, but rather of an expression of an underlying very specific point of view in life, such as historical materialism, or the theory of evolution. In this case, the *hadîth* of the Prophet (pbuh) needs to be the basis of evaluation:

"Whoever introduces into our *dîn* that which does not belong to it, will have it returned (i.e. it will not be accepted)."[25]

A lot of knowledge related to the life sciences and its usage come under the described second type. We may also say that a large number of bioethical dilemmas are a direct result of a particular culture in which life science related technology is used and developed. Where do you set the limits in medical treatment? Is there a medical treatment for any price? Should IVF fertilisation be used for unmarried couples? Is brain death actually *death*? The way to answer these exemplary questions is linked to the intellectual and cultural *überbau*, the concepts about life. A lot of what is today happening under anti-aging research, for instance, seems to be but the capitalist translation of the search for the Holy Grail or the stone of wisdom: the secret to eternal this-worldly life. As the underlying concept is incommensurable with Islamic teachings, so is the research with its aim of bringing about eternal this-worldly life in humans.

The Qur'an clearly stipulates:

"Every soul shall taste death." [Sûrat Âl 'Imrân, 185] - Death is an inevitable fact of life.

"And if their term (ajal) has expired, they can neither postpone nor precipitate it for any period of time." [Sûrat al-A'râf, 34]

The predestination of our lifespan does not, however, influence our efforts in seeking medical treatment just because we ignore when it will be terminated. Seeking medical treatment when ill is either recommended or obligatory, but the existence of an end to life is a given.

Having clarified this distinction between ideologically unspecified or universal knowledge, and ideologically bound knowledge, we may concede that Muslims in the past, more precisely, as long as Islam was present as a way of life, have rather naturally observed this distinction. It may be for this reason that we do not find extensive classical treatises on this topic in the classical literature.

Muslim scientists harvested much of the available human knowledge from other cultures, particularly but not only, the Greek, since early Abbasid times. They took whatever was not in contradiction to their belief system and concepts and developed it further. Their work and the work of non-Muslims in the realm of the Islamic state have made an undeniable contribution to the intellectual heritage of mankind. Given the above mentioned distinction between different types of knowledge, is it justified to refer to this contribution as *Islamic science*? And what are the implications for our model of (bio)ethics?

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[25] Transmitted by *Bukhari*, Hadith No.2499, and *Muslim*, Hadith No.3242. Sakhr Software - Al-Hadith Al-Sharif.

The term *Islamic Science* (as applied to natural and applied sciences, not to the transmitted Islamic sciences which naturally bear this name) would presuppose that the science itself is Islamic. This denies our aforementioned distinction. Is it the science itself which can be attributed as being of a particular denomination or value orientated background? Or is it not rather the framework of reference, the societal model in which the science has been developed and the way in which it is used, which can be attributed as such?

It may be more suitable to speak of an *Islamic scientific model* than an *Islamic science* in the sense of *science as developed within or being the result of the framework of an implemented Islamic reference system*. It is not necessarily a scientific model derived from the texts of revelation, but rather a model that develops within the framework of the rules and guidelines stated in these texts, and that does not stand in contradiction to their implications. Specific contributions can be made by Muslims working in this framework and observing the commands of their *din* as well as by non-Muslims. In turn, these findings may become operational in any other culture. Research findings or means not in contradiction to this framework can be incorporated. As to the application of research results, it is in line with the macro framework and conditions as specified by Islamic law.

As we will see from the following deliberations, the *Islamic bioethical model*, in contrast to this, is derived from the texts of revelation in that it evaluates every action in the framework of the categories of the Islamic legal rules, *al-hukm al-shar'î*, and evaluates the usage of science. The Islamic bioethical model would be naturally linked to "Islamic science" as the framework of its development is an Islamic one. Difficulties or inconsistencies in applying the Islamic bioethical model may arise if science is not in this way Islamically contextualised, as is generally the case today with the absence of Islam as a way of life.

4. Islam and Bioethics

The term bioethics is generally referred to as a set of ethical considerations (philosophical, theological, social and legal) with regard to the development or usage of techniques and cures in the field of medicine and the life sciences.[26] This "branch of applied ethics"[27] emerged as a distinct field of study in the 1960s. With the immense advancements in the life sciences in the last decades, bioethics seems to have become as important and prominent as the hard core sciences themselves. The public and academic bioethical discourse worldwide is as diversified as the philosophical, ideological and professional background of those who are involved.

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[26] The online version of the Encyclopaedia Britannica defines it as a "branch of applied ethics that studies the philosophical, social, and legal issues arising in medicine and the life sciences." www.britannica.com, article "bioethics", retrieved 05/05/2008.

[27] ibid

Considering the fact that this branch of applied ethics is linked to meta- and normative ethics in all their dimensions, these ethical considerations in the life sciences may have different sources. Depending on the cultural and civilisational context of their formulation, they may be humanist, Jewish, Christian, Buddhist, utilitarian, Islamic, or others. What is deemed to be ethical or unethical may differ tremendously from culture to culture, from background to background. In a secular capitalist environment, the recommendation to abort a Mongoloid foetus, even in a very late phase of pregnancy, may seem 'ethically justifiable' as it 'alleviates the mother (and society) of the unbearable burden to take care of this child'. Abortion on the grounds of this psychological pressure is still commonplace in many industrialised countries. From an Islamic perspective, abortion in such a late phase would be justifiable only if the mother's life is materially and feasibly endangered, not on grounds of any foetal 'malformation'.[28]

From an Islamic perspective, the term "ethics" (*akhlâq*), its scope and place within Islamic culture and civilisation may require some explanation. Where are ethics to be placed in the history of Islamic thought? Is the human mind able to determine what is good or bad in matters and actions? And, as a consequence, is he or is he not dependent on revelation to distinguish? Can he be held accountable for committing a wrong action prior to his knowledge on any communication by the Lawgiver, Allah? The early generations of Muslim scholars have discussed these pivotal ethical questions under the famous headline of "*al-taḥsîn wa l-taqbîḥ al-'aqliyain*", i.e. to declare something as good or bad by reason. They came to answer with different approaches. We ought to be aware that this discourse, which involved a number of other questions as well, took place in the wake of the formation of *'ilm al-kalâm*[29] and was personally and conceptually linked closely to the formulation and formation of Usul al-Fiqh, the theoretical foundations of Islamic law.

These developments, although being initiated by and in turn generating many questions, have not lead to an *independent* science of "ethics". As a matter of fact, famous titles like Ibn Miskawayh's (421 AH / 1030 AD) *Tahdhîb al-Akhlâq wa Ta'thîr al-A'râq* rather reflect the absorption of the Greek-Hellenic (Neoplatonic) philosophical tradition, although the link between practical ethics and *sharî'ah* values is prevalent even here. Or they focus on the self education with *shar'î* values and are firmly rooted in the Qur'an and Sunnah[30], as are the ethical ideals advocated in the Sufi tradition. However, ethics can never be seen in separation from Islamic law.

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[28] There are contemporary *fiqhî* discussions on the permissibility of abortion of a severely handicapped foetus prior to ensoulment, though. The exact time of ensoulment is controversial; some scholars date it at 40 days, others at 120 days after fertilisation of the egg cell. See Dariusch Athighetchi, *Islamic Bioethics: Problems and Perspectives.* Springer e-book, 2007, p.91ff).

[29] *Kalâm* stands for the science involved in seeking theological principles through dialectic.
[30] See for instance *Mudâwât al-Nufûs wa Tahdhîb al-Akhlâq wa l-Zuhd fî l-Raḍâ'il*, Ibn Ḥazm (456 AH / 1064 AD).

The various answers given to our initial questions testify to this. A group known as the Mu'tazilah stipulated that the human mind is indeed able to make that judgment (about good and bad) independently of any revelation and that humankind is, accordingly, accountable for their deeds even prior to any communication by the Lawgiver, i.e. before Allah has sent them any prophet or before the message has been communicated to them. Mu'tazili views, albeit prominent for a period of time, remain at the fringes of Islamic thought today. The second fraction, the Ash'ariyyah, advocated that the human being is in absolute need of revelation to differentiate between good and bad. The human mind is therefore not able to evaluate what is good or bad in the absence of revelation. The third main fraction, the Mâturîdiyyah suggested a middle way saying that the human mind may arrive at some conclusions concerning the good and bad actions himself, but that he is still bound by the Islamic legal rule. In other words, the human intellect is subject to revelation, even if it cannot follow it in every case. With regard to ethics, we may conclude from the majority views, the Ash'ariyyah and Mâturîdiyyah, that the human being is not able to define his ethics without any reference to the texts of revelation.

Whatever we refer to as 'ethical' or 'unethical' on Islamic grounds needs to be backed up by evidences in the Islamic texts, the Qur'an and Sunnah. Ethical values as such, like saying the truth, abiding by the given word, helping those in need, are not self subsistent as they are never separated from actions. Some *fiqh* scholars have categorised the Islamic legal rule (*al-hukm al-shar'î*) into three categories: 1) the legal rule related to belief (*al-hukm al-i'tiqâdî*), 2) the legal rule related to actions (*al-hukm al-'amalî*), and 3) the ethical legal rule (*al-hukm al-khuluqî*). However, we will realise upon scrutiny that the ethical legal rule never stands in isolation of an action and is therefore part and parcel of the second category. Based on the very fact that ethics are bound by actions, they are bound by the evaluation of this action as prohibited, disliked, optional, recommended or obligatory.

It has been stated above that the ethical value itself needs to be evidenced in a text - *nass*, i.e. in the Qur'an or Sunnah, and is contextualised by an action. This statement has two implications. One, that the human being does not judge about the ethical or unethical factor in something based on his own mind (according to the majority Ash'ari position which we abide by here). Rather he is in need of revelation to guide him. Two, what may be referred to as ethical in other cultures is not necessarily ethical from an Islamic point of view; and even if there are a lot of ethical concepts to be found in a number of different cultures as compared to the Islamic one, particularly in comparison with the monotheist religions, they can only have validity if they are evidenced on an Islamic basis in their own right. From an Islamic perspective, the commonalities in a number of ethical concepts of divergent provenance may be explained by the fact that all human beings are created in a state of what the Islamic texts refer to as *fitrah*, the natural and uncorrupted state of being. It is part of the

human *fitrah* to worship one Creator, and the inclination to recognise truth is likewise innate.[31]

The Qurʾan states: *"And (by) a soul and Him who perfected it, and inspired it (with conscience of) what is wrong for it and (what is) right for it."* [Sûrat al-Shams, 7-8]

However, the natural state of *fitrah* may be superseded by socialisation processes. The Prophet Muhammad (pbuh) reportedly said that "Every baby is born in the state of *fitrah* but it is his parents who make him into a Christian, Jew or Magian."[32] In this light, it does not seem farfetched to state that some basic ethical values, being rooted in *fitrah*, should be recognisable upon comparison of different cultural contexts.

Having said this, the blind subscription to an ethical catalogue set up on another than an Islamic basis is not recommended and rather subject to scrutiny of the contents in detail. As has been stipulated above, any action from an Islamic perspective needs to be guided by the Islamic legal rule which in turn is in need of textual evidence in the sources of Islamic law.

On a meta-ethical basis, i.e. reflecting the nature, origin and source of ethics, we clearly have to state that, from an Islamic perspective, ethics originate in the Creator's communication to mankind. Even if the human mind is able to develop basic ethical concepts based on the inclinations of the natural state he was created in, he cannot be left alone in defining what is ethical or good and what is unethical or bad. Further, the human being will automatically behave ethically if he abides by the Islamic legal rule in all of its aspects. Realising ethical values is therefore a result of abiding by Islamic rules. To ask others to abide by them, i.e. to command good and forbid evil, a recurrent theme in the Qurʾan, completes the societal effect of ethics.

As an *Islamic model of bioethics*, we may therefore describe the set of Islamic legal rules and their application in actions and questions related to the life sciences. On a meta-level, these actions are guided and decided on the basis of the sources of *Sharîʿah* which are revelation based.

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[31] The interested reader is kindly referred to the theory of Beauchamp and Childress on the four cross cultural principles (Respect for autonomy, beneficence, non-malfeasance, justice) and the reception of this theory by some Muslim authors (Aksoy, S and Elmai, A, *The Core Concepts of the 'Four Principles' of Bioethics as Found in Islamic Tradition*, Medical Law, 2002, 21 (2), 211-24, and Aksoy, S and Tenik, A, *The 'Four Principles of Bioethics' as Found in 13th Century Muslim Scholar Mawlana's Teachings*, BMC Medical Ethics, 2002, 3, E4.

[32] Sahih al-Bukhari, *Kitāb al-Janāʾiz*, Hadith No.1270. Sakhr Software - Al-Hadith Al-Sharif.

5. Bioethics and the Role of the Islamic Legal Rule

Based on the comprehensiveness of the Islamic legal rule on any activity of life, vital questions of medical treatment and science have from the earliest times been of interest to Islamic legal scholars, the *Fuqahâ'*. The observer of the history of what we may refer to as "medical ethics" in the Islamic context will find that rules, regulations and general manners in the relationship between doctor and patient, for instance, are to be found within the legal compendia and the professional *(âdâb)* literature. In the same way, we may find professional ethics related to other professions. It may be helpful to reflect on why classical Islamic literature does not offer a terminological equivalent to our modern term *bioethics*.

We may find terms like *al-âdâb al-ṭibbî* or *al-akhlâq al-ṭibbiyyah*, both referring to the medical field; as well as we may find *âdâb al-qâḍî* (the judge's professional ethics) and others. The reason for this is most likely not that the field covered by bioethics is too new to be part of Muslim scholars' concern, but rather that what was known of the life sciences in the past has always been integrated in the deliberations on the related Islamic legal rule and the related professional ethics.

However, the complex of Islamic bioethics seen through the legal system is not as harshly rigid and legalistic as the occasional observer may assume. Within the legal system, there are a number of mechanisms and guidelines which may come to bear in any legal decision, and so it is the case in bioethical decision making, particularly in borderline cases of human fates. Although Islamic law is not 'flexible' in the sense that it may be bent according to personal likes and dislikes, it has an innate dynamism in incorporating any newly arising situation into the corpus of the law.

Iftâ' or the pronunciation of the legal rule on particular cases in particular circumstances follows its own criteria. It may happen that a Mufti issues two different legal verdicts in two similar cases, due to the different backgrounds of the people and their circumstances involved. First and foremost, the intention or *niyyah* in an action needs to be taken into account with regard to the implementation of any legal rule, i.e. the performance of any action. It is the correct *niyyah* in performing an action which leads to the reward for this action in the Hereafter, whereas the incorrect intention would annihilate the reward. However, the best of intentions cannot validate a wrong, i.e. prohibited action. In this context, the creation of 'human spare part depots' has met vehement opposition with Muslim scholars. The Machiavellian approach of a maxim 'the end justifies the means' is not Islamically justifiable. In other words, Islam not only specifies a particular aim to achieve, but also defines the way of achieving it. Means and ends are both subject to the Islamic legal rule.

Stem cell research is one of the controversially discussed areas of genetic engineering which shows that the above postulated guideline is sometimes met with oblivion. Praised as a

source of future remedies for juvenile diabetes, Alzheimer's, spinal cord injuries, etc, by one fraction, and criticised by conservatives and pro-life activists mainly for the source of stem cell material.[33] From an Islamic point of view, one of the main concerns lies here. As observable in other related legal questions (organ transplantation), some Islamic legal scholars are inclined to give a legal view on a current contemporary research or scientific practice without scrutinizing the logic of its existence. The provenance of stem cells from surplus in vitro fertilised eggs in an embryonic stage of development is seldom questioned, but rather pragmatically accepted as given.[34] Some scholars, like Dr. Yusuf al-Qaradawi, forbid the use of embryonic tissue as the embryo is in possession of a *ḥurmah* (inviolability).[35]

Characteristically, the existence of alternative sources for stem cells, i.e. the usage of adult stem cells taken from bone marrow or those available in the umbilical cord, which would ordinarily lead to support for a ban on the use of embryonic stem cell lines, are not considered in most legal verdicts (*fatâwâ*).[36]

Legal maxims or *qawâ'id fiqhiyyah*, which are succinct expressions of commonalities between numbers of legal rules, and need themselves to be derived from evidences, may also be helpful in deciding a case of bioethics. It is important to state that these legal maxims, such as 'actions are judged by intentions' (*al-umûr bi-maqâsidihâ*), 'necessity renders the prohibited lawful' (*al-ḍarûrah tubiḥ al-maḥẓûrah*), 'what is certain cannot be removed by doubt' (*al-yaqîn lâ yazûlu bi l-shakk*), 'there shall be no harm, nor reciprocating harm' (*Lâ ḍarar wa lâ ḍirâr*), are summarisations of common characteristics of legal rules and do not represent a juristic device or loophole to evade the injunctions of the law. They cannot be used to forfeit or overrule definitive evidences in the texts of revelation, the Qur'an and the Sunnah. Having said this, the overemphasis on legal maxims is quite characteristic in contemporary treatises and articles on bioethical issues, especially those written by legal lay authors and bioethicists.[37]

The Islamic legal rule may provide exceptions in particular cases. Scholars of fiqh have treated these under the headlines of *'azîmah* (the initial rule) and *rukhsah* (the exception). A case of utter necessity, for instance, may 'render the unlawful permissible'. However, the cases coming under this rule have been restricted by the texts, such as the permission to consume unlawful food and drink under peril of death to preserve life, the permission to combine and shorten the obligatory prayers while travelling, or to break the obligatory

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[33] Christopher Thomas Scott, *Stem Cell Now - A Brief Introduction to the Coming Medical Revolution*, Plume, 2006.

[34] See Shahid Athar, American-based medical doctor and affiliated with the Islamic Medical Association, according to Dina Rashed, *Cloning is Not Playing God*, www.islam-online.net, published on 9/2/2000.

[35] www.islam-online.net - Fatwa application, published on 13/08/2000.

[36] For the state of research see Scott, *Stem Cell Now*, 2006.

[37] e.g. Abdulaziz Sachedina, 'Human Clones, An Islamic View', *The Human Cloning Debate*, edited by Glenn McGee (Berkeley, California, 1998). See also contributions of Gamal I. Serour, International Islamic Centre for Bioethics.

fasting in the month of Ramadan due to travelling, illness or pregnancy. A number of contemporary views extend the case of necessity (*darûrah*) to organ transplants or even the creation of organ banks[38], again, generally without reflecting the rationale of their existence.

'Azîmah and *rukhsah* are initially bound by legal evidences and may not be arbitrarily extended, and the application of the legal maxim of 'necessity renders the prohibited lawful' cannot be stretched to cover all of the ethical considerations brought about by modern biotechnological possibilities.

The relationship between the legal rule and ethics cannot be elaborated on without mentioning the theory of *Maqâsid* or the objectives of *Sharî'ah*, which may be summarised as stating that the Lawgiver, Allah, has sent the *Sharî'ah* to safeguard this and otherworldly benefits (*masâlih*) for mankind and ward off harm (*madarrah*) from them. The protected values may be summarised under the basic values of religion (*dîn*), life (*nafs*), intellect ('*aql*), offspring or honour (*nasl* / '*ird*) and property (*mâl*). A number of bioethical questions, particularly in the field of genetic engineering, embark on the maqasidic scheme of benefits and harms. Whatever has overweighing benefits is treated as permissible, whereas that which brings about an overweighing harm is considered prohibited. The Islamic Fiqh Academy announced in 1997 that "it is legally permissible (in Islam) to make use of the techniques of cloning and genetic engineering in the fields of bacteria and other microbiological beings as well as animals and plants, in the framework of the *shar'i* rules, in what realises benefits and turns away harm".[39]

Supplying water, fighting poverty, providing medication for the impoverished masses are generally referred to as some of the objectives to be achieved through genetically modified organisms.[40] The crux of this interpretation lies in the reference framework used to evaluate the benefits and harms.[41] Also, as others have pointed out, most of the possible harms will only crystallise after years or generations.[42] Serious concerns have been expressed about environmental implications such as habitat destruction, hybridisation, toxic pollutants, insect resistance, herbicide tolerance, and health implications, like antibiotic resistance, bacteria and viruses taking up transgenes and spreading diseases, allergies, and so forth.[43]

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[38] Muhammad Dhahabi, *Naql al-A'dâ'*, Damascus, n.d. controversially discusses this approach.
[39] *Resolutions and Recommendations of the Council of the Islamic Fiqh Academy 1985-2000*, http://irtipms.iskandertech.com, p.212, accessed May 2008.

[40] Huda Hilal, *Taf'îl Maqâsid al-Sharî'ah fi l-Ijtihâd fî Qadâyâ al-Handasah al-Wirâthiyyah*, International Conference on Islamic Jurisprudence and the Challenges of the 21st Century, 8-10 August 2006, Conference proceedings, v.2, p.640-661.

[41] Anke Iman Bouzenita, *Maqasid and Related Legal Tools in Current Bioethical Questions - Prospects and Limits*, International Conference on Islamic Jurisprudence and the Challenges of the 21st Century, 8-10 August 2006, Conference proceedings, v.3, p.385-402.

[42] Rosli Omar, *Genetically Modified Organisms and their Implications*, http://www.imase.org
[43] ibid

Some of these concerns are already traceable, while others are to be expected. Shall we therefore treat these impeding dangers as non-existent? Or would it be advisable to prohibit the otherwise lawful means leading to an unlawful end, making use of the tool of 'blocking the means' (*sadd al-dharâ'i*)[44]? As to possible benefits, they might be as debatable. For instance, is a Vitamin A producing rice plant an authentic or a conjectural benefit?

What ought to be problematised in this context is that the definition of Islamic ethics, or more precisely in this case, the definition of what is a benefit or a harm, cannot be separated from the entire framework that makes up society, legislation, the political system, peoples' values, and how they are enacted and characterise society. The holistic Islamic framework is a condition to define and enact Islamic (bio)ethical values correctly. Particularly, the definition of benefits and harms within a maqasidic scheme is - consciously or not - prone to being used as a means to utilitarianism, if the major paradigm shift in the value systems in the Islamic world is not taken into account.

If the answer to particular questions, and a large number of questions arising from the contemporary life sciences, is not explicit in the texts, it is the task of the specialist scholars or *Mujtahidûn* to interpret the text so as to derive the Islamic legal rule from the sources. This procedure is in need of a very high qualification and follows a catalogue of conditions, criteria and procedures. Whatever has not been mentioned explicitly in the texts of revelation and is subject to *ijtihâd*[45] may take different rulings. In other words, two scholars may arrive at different conclusions on a particular case, depending on their way of understanding the texts and the usage and evaluation of the evidences.[46] *Iftâ'* would refer to the mere communication of knowledge on a legal rule, whether or not it is already established in the texts, or has been previously derived in a process of *ijtihâd*.

Vital for the comprehension of the roles of the *faqîh*, *mujtahid* and *muftî* within an Islamic system is that they are not policy makers. With Islamic law not being codified, the state authorities (within an Islamic system) generally do not interfere in the process of *ijtihâd* and *iftâ'*. The communication of a legal rule by any one of the above mentioned people is not binding, unless pronounced by a judge in court. In the absence of Islamic institutions

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[44] *Sadd al-Dharâ'i'* or blocking the means, refers to a secondary legal principle. It means to prohibit otherwise legally permissible means or actions if these will definitely or very likely lead to an unlawful end.

[45] The process of deriving legal rules from the sources. The term refers to the efforts spent by the specialist in doing so.

[46] A definitive legal rule, *al-ḥukm al-shar'î al-qaṭ'î*, has been explicitly mentioned in definitive texts and is therefore not subject to a difference of legal opinions. The consumption of pork or alcohol would fall under this category. However, what may be understood (linguistically) in different ways or is a result of the process of *ijtihâd* may be subject to diverse legal opinions. The term *al-ḥukm al-shar'î al-ẓannî* applies to this category. Most Islamic legal rules fall under this category. In the case of divergent legal rules, the choice would be based on the stronger evidenced view, in case the person can follow up the procedure of *ijtihâd*.

(political and economical), the institutionalised *iftâ'* bodies are often mistaken for policy makers, and the public perception is sometimes one of confusion as to the possible divergence or 'pluralism' in legal views on one question. There is a mechanism in the Islamic system which allows the head of state or Imam to choose one *ijtihâd* in case unity is needed on this particular issue, being described under the headline of *tabannî al-ahkâm*, the adaptation of a *hukm shar'î zannî*. In case of adaptation, this rule is legally binding on the Ummah, as including judges and muftis. It is only with the absence of the Islamic systems and the lack of activation of this principle that the decision on which *fatwa* or legal verdict to abide by is left to the individual in any case. In the absence of this framework, the concept of Islamic (bio)ethics will remain individual and fragmentary, and it will rather emerge in reaction to other systems than in its own right.

We should also realise that a particular societal model which acts as a reference framework may be responsible for raising particular questions, which will then be 'exported' to different bioethical frameworks to be answered. The question of brain death may illustrate this point. The equating of brain death with death is a direct result of the technical developments in the field of life support technology and the exigencies to serve a highly developed organ transplant industry. Organ transplantation is more successful if the organs are sufficiently provided with oxygen; as is the case when blood circulation still takes place, even after the occurrence of brain death. Hence, to declare brain death as death may be viewed as a requirement to keep the transplant industry going. The *fiqh* views on organ transplantation are controversial, and there is still an amount of scholarly reservation with regard to using the organs of a deceased person, as their *hurmah* or personal inviolability is violated, and the foremost right of any deceased person is to be buried intact. The views permitting the removal are a result of outweighing the saving of a life against the violation of *hurmah*. The above mentioned principle of necessity is used as a supportive argument. The acceptance of brain death has been discussed without reflecting the rationale of its existence. To declare a person as dead, from an Islamic perspective, demands for absolute certainty. Based on the legal principle that certainty cannot be removed by doubt (*al-yaqîn lâ yazûlu bi l-shakk*), the criteria to declare a person as dead need to be as certain as life itself.

6. Conclusions – The Bioethical Model in Reference and Actualisation

The Islamic model of bioethics is, first and foremost, bound by the injunctions of Islamic law (*fiqh*). In contrast to science itself, the bioethical model - as being made up of Islamic legal rules - is derived from the sources of revelation, Qur'an and Sunnah, and what revelation guides to. Just like *fiqh* itself, it involves definitive and non-definitive rules, the latter being subject to differences of specialist scholarly opinion.

One of the dilemmas of Islamic bioethics as defined above is that it is expected to answer questions which have come into being within a mainly secular capitalist model of science, and its application which, as a model, has been disseminated worldwide. This fact tends to force any Islamic bioethical approach into the position of reacting instead of pro-acting. As the two underlying paradigms do not match, the Islamic bioethical approach will either appear as a stale hindrance to technological development (without ever questioning if that development is justifiable, asking for the rationale of its existence or looking for alternatives), or compromise and stretch some Islamic principles to make them match the reality at hand.

Upon scrutiny of the bioethical discourse in the Islamic world and among Muslims worldwide, we may conclude that the paradigms and model described here are referred to by scholars, medical professionals, scientists and the educated public to various degrees, sometimes selectively.

The mentioned principles of law apply in all areas of *fiqh* and are, as such, not particularly "(bio)ethical". It ought to be stressed, though, that some of these principles are controversial in their acceptance and application on the part of Muslim scholars, which in turn accounts for a number of different *ijtihâdât*. These differences of opinion will persist even if the above mentioned 'disruptive factors' to fully implement an Islamic bioethical model are abandoned.

As has been expounded above, this is due to the structure of Islamic law itself. However, this should not be mistaken for an arbitrary introduction of personal desires. Any *ijtihâd* needs to be evidence based. If it is, it would be formally acceptable, even if disputable against a *fiqhî* background.