

Modern Technology Urgency in the Development of Islamic Law

Salman Maggalatung¹

¹Universitas Islam Negeri Syarif Hidayatullah Jakarta, Jl. Ir. H. Juanda 95 Ciputat, Jakarta, Indonesia

²Faculty of Shariah and Law Syarif Hidayatullah State Islamic University of Jakarta, Jakarta, Indonesia

Keywords: Islamic law, modern technology.

Abstract: Modern technological advances have led to intersections with Islamic law, including areas of worship, family law and treatment through organ transplants. Islamic law though some are static but others are dynamic. In this connection on one side of modern technology has provided ease in the implementation of the pilgrimage, determination nasab children are swapped, get the child through IVF, healing of patients with heart failure. But on the other hand, modern technology can not change the provisions of the implementation of worship, the iddah wife who ditalak live and talak died. Nor can it alter the principle of keeping the offspring in the utilization of a baby tube with sperm, ovum donor or uterus rental.

1 INTRODUCTION

Islamic law comes from the Qur'an and hadith. Therefore on the one hand Islamic law is fixed (static) but on the other hand is flexible (dynamic). The static law of Islam stems from the qat'i proposition, such as the number of five-hour prayer rituals, the caning of young adulterers, the death penalty for the murderers of fellow believers, and so forth. While Islamic law that is dynamic is derived from the argument that is *zanni*, such as mandatory or not to read al-Fatihah letter, prohibition of bank interest, putting hands or knees when prostration, the longest pregnancy, and so forth.

Thus, Islamic law that is static is not changed by changes in space and time. Unlike the case with dynamic Islamic law changes with the changes of space, and time and conditions. Ibn Qayyim al-Jauzi (without years: 3) argues that Islamic law changes according to changing times, places, conditions, intentions and customs.

In line with the above description of modern technological advancements today it is necessary to examine in relation to Islamic law, both static and dynamic. Advances in air transport technology (aircraft) has facilitated the movement of humans from one region to another that has different times. For example, a fasting person, flying from Jakarta at 13.00 WIT to Ambon with Batik Air, arrives in Ambon at 18:45 EIT (already breaking the fast). And if he remains in Jakarta, at 18:45 EIT equal to 16.45

WIT (not fasting time). Is the person allowed to break the fast after being in the area where the sun has been set? So did prospective female pilgrims. In this modern era they can use anti-menstrual pill so as not to be hampered by the arrival of menstruation during the pilgrimage in the holy land. What is the legal use of anti-menstrual drugs? It shows that modern technological progress can be tangent to the implementation of mahdah worship.

Modern technological advances also come into contact with family law in Islam. Telecommunication technologies such as telephones enable marriage contracts by telephone. As well as medical technology, such as postpartum pills in relation to the iddah period, infant tube technology on the one hand may help couples who fail to have children through natural conception (La Jamaa, 2017: 49). Nevertheless the use of IVF infected with *maqasid al-syari'ah* (Syatibi, 2003: 10), especially the maintenance of offspring (*hifz al-din*). Even modern technology has enabled the use of a rented uterus. Can a woman's womb be rented to conceive another couple's fetus?

Based on some of the above issues, this paper will analyze the interlocking between Islamic law with modern technological advances. Moreover, according to Duski Ibrahim (2008: 233), that in the view of the first generation, Islamic law has a dynamic character. It shows a deep awareness of the existence of Islamic law as a rule that can solve various problems that occur in society. The issues

discussed in this paper are limited to the implementation of fasting, hajj and family law in Islam, as well as the use of illegally harvested organs for transplant purposes.

2 FASTING AND HAJJ

2.1 Fasting

Language fasting means restraint (al-imsak) against something material and non-material. While in terminology, fasting is restraint in the daytime of everything that cancels (eating, drinking and sexual relationship of husband and wife) with intention because Allah, starting from dawn to sunset (Abdul Mujib, 2007: 201).

Based on the definition of fasting above, it can be understood that the implementation of fasting takes place from dawn siddiq to sunset. This shows that the implementation of fasting in a long period of time. For Indonesia on average over 10 hours. Fasting is a mahdah worship, which the procedure of its implementation has been arranged in the Shari'a, must be done as exemplified by the Messenger of Allah. Therefore, the time of fasting and breaking the fast following the provisions of the Shari'a. Imsak started since the dawn Siddiq dawn and break the fast after sunset. This is in accordance with the provisions of the Quran Surah al-Baqarah: 187

“So now mix them up and follow what Allah has ordained for you, and Eat drink to the light you are white from the black thread of dawn. then complete the fast until (coming) night” (Ministry of Religious Affairs, 2009: 36)

Thus someone who is a member of the Imsak in western Indonesia then travels to the eastern part of Indonesia by plane, will break the fast according to local time (Eastern Indonesia time), and not western Indonesia time. The two hour span between western Indonesia and eastern Indonesia is still normal. Likewise on the contrary, someone who is in the eastern region of Indonesia and then travel by plane to the western part of Indonesia, he must wait for the sunset there to break the fast.

Looking at the above reviews it can be understood that modern transportation technology although cursory seems to change the time of fasting (speeding and slowing) it, but in fact fast and slow fasting time people who use air transportation is more due to the necessity to follow the sun circulation in the destination area.

Serious problems will arise to Indonesians traveling to the United States. Imsak time he was in Jakarta (Indonesia) then the morning flying by plane to Washington (United States). The time difference

between Jakarta and Washington is 11 hours. On one side Washington (United States) is a normal earth zone (Utomo, 2003: 241) so that even though the fasting time is long, the person will break the fast after the sun sets in Washington. Conversely, a Washington Muslim immigration then flies by plane to Jakarta, even though fasting time becomes faster, but he can break the fast according to the time in Jakarta.

In addition, modern medical technology produces menstrual dehydration. Can a Muslim woman be able to use a dehydration medication for the purpose of completing the fasting month of Ramadan? In this case the cleric has the consensus that women who experience menstruation is prohibited (haram) to fasting absolutely. Islamic law requires them to replace the fast that is not performed during the menstruation in 11 months outside the month of Ramadan. Therefore no need to use menstrual dehydration drugs. Should undergo a Ramadan fasting naturally. However, if there are women who consider it important to use a delayed drug to fast Ramadan a whole month, then it is permissible, provided that the use of the menstrual delay drug has no medically negative implications (Utomo, 2003: 243; Qardhawi 1995: 420). Thus the use of menstrual dehydration drugs should consider the benefits of its users, especially from the medical side (reproductive health).

2.2 Hajj

Hajj meaningful deliberate (al-qasd) on something that is glorified. While terminologically, the pilgrim is deliberate to go to the Ka'bah (Baitullah) to implement the conditions (Islamic, baligh, intelligent, independent, and capable), harmonious (ihram intention from miqat, wuquf in Arafat, tawaf ifadhah, sa'i, (ihram in miqat, staying at Muzdalifah, staying at Mina, throwing jumrah and tawaf wada) at the appointed time (Shawwal, Dzul Qa'dah and Dzul Hijjah) (Mujib, 2007: 295).

Tawaf ifadhah which is one of the pilgrims above must be done in the holy conditions of the great hadas, such as menstruation. In that connection the women who are conducting the pilgrimage can not perform tawaf ifadhah in menstruation. Can he use the menopause pill ahead of tawaf ifadhah? Although menstruation is closely related to the prohibition of the implementation of mahdah worship, especially prayers and tawaf, but the existence of the menstrual delay pills into the muamalah (worldly). In this connection the use of postpartum pills for women who are performing the pilgrimage is prohibited if there is a prohibition that prohibits it. Though there is

no clear proposition that prohibits it (Aspandi, 2016: 4).

Menstruation is a natural phenomenon experienced by women during the fertile period (Ida Emilie Brantalid, et al., 2104: 600). So the existence of menstruation for each woman should be allowed to take place naturally. Thus the use of the menstrual delay pills should be recommended by obstetricians. In order not to cause harm to reproduction. Although permissible, however if he has finished carrying out tawaf ifadhah, then no longer need to use menstrual delay pills. Because all the series of hajj pilgrimage that is prohibited during menstruation is tawaf ifadhah. The use of postpartum pills for female pilgrims is merely a dispensation so as not to impede the implementation of the Hajj. Therefore, if the obstacle is lost, then back to the law of origin. In this case the rules of fiqh apply: *maa jaaza li'udzrin bathala bizawaalihi* (what is allowed because of obstacles, it is not allowed anymore with the loss of the obstacle) (A. Djazuli, 2006: 62).

Thus the existence of the menopause pill is only suitable for use in the context of difficulty (*masyaqqah*) and not exploited under normal conditions. Moreover menstrual delay pills function to change the menstrual cycle so that potentially cause medical side effects to reproductive health of women who use menstrual pills that. Based on the above description can be understood, that modern technology, especially transportation and medical technology on the one hand can provide *kemajuan* in the implementation of worship. But on the other hand the existence of modern technology can not change the law in the implementation of fasting and hajj.

3 FAMILY LAW

3.1 Marriage Agreement through Phone

There are 5 pillars of marriage, namely (1) the presence of the bridegroom; (2) the existence of the bride; (3) the guardian of the bride; (4) two fair witnesses; and (5) the marriage contract (*qabul*). Marriage will be considered valid if it has fulfilled the five pillars of the marriage is accumulative (whole) and vice versa marriage is considered invalid if it does not meet one or part of the marriage pillars. The marriage contract is based on the principle of willingly willingness. Because the willingness is abstract (not visible), then manifested in the form *ijab qabul*. So the *ijab qabul* became one of the pillars of marriage (Satria Effendi M. Zein, 2004: 2).

The implementation of the marriage contract (*qabul ijab*) under certain conditions is facilitated by using the telephone. It must be done because the groom or guardian can not be present in the assembly of the ceremony. In this case the question arises: whether the ceremony conducted by phone is legitimate or not? The debate about the validity of the marriage contract by telephone is closely related to the unified requirements of the assemblies in the consent and *qabul*. Satria Effendi M. Zein (2004, 3) quotes al-Jaziri, that the mujtahid scholar has agreed to require united assembly in the consent and *qabul*. Consequently, if it does not coincide with the assembly with the assembly of the *qabul*, the marriage contract is considered invalid. By means of united assembly in the *qabul's* consent, the two opinions arise, namely:

1) The united assembly is that the *ijab* and *qabul* must be made within the time span of a marriage contract, not done in two separate time intervals. Thus united the assembly is concerned with the necessity of time continuity between *ijab* and *qabul*, rather than relating to the unity of the place. Therefore, although implemented in one place but different time, the continuity of time between *ijab* and *qabul* is not achieved. Conversely though not one place, but most importantly should not be broken between the consent and *qabul*.

2) Unified assembly is required not only to ensure continuity between *ijab* and *qabul* but is closely linked to the duty of two witnesses who must be able to see with their eyes that the consent and *qabul* are actually spoken by the person making the contract.

The first opinion has implications on the validity of the marriage contract by telephone. For despite the different assemblies but there is continuity between the bride made by the bride's sisters witnessed by two formal witnesses in a place with *qabul* made by the bridegroom witnessed by non-formal witnesses elsewhere. Both formal witnesses directly witness both through sight and hearing guardian of the bride has expressed a favor. The two formal witnesses have listened to the guardian of the bride having said a consent. Likewise, the non-formal witness has witnessed the same thing the bridegroom has pronounced *qabul*. The non-formal witness also listens to the bride's guardian having said a favor. Whereas in the second opinion, the marriage contract by telephone is not legal. For both witnesses can not see directly the bridegroom pronounces *qabul*.

Looking at the two opinions above, that the current technological advancement of the phone has actually been able to eliminate doubts about the

authenticity of the voice of the bridegroom when pronouncing qabul. Moreover, the presence of mobile phones that have android 3T application capable of displaying live images of the groom in the mobile phone screen.

3.2 Iddah Periode

Etymologically iddah comes from the verb 'adda-ya'uddu, which means counting or something that is counted, ie menstrual or holy days in women. While in term, iddah is a time to wait for the sanctity of a wife divorced or abandoned by her husband, who before it is exhausted, she is forbidden to be married to another man (Chuzaimah T. Yanggo and A. Hafizh Anshary AZ, 1999: 149). The determination of the iddah period for a wife who is distracted by her husband is based on the menstrual and sacred cycle. Is the existence of a menstrual delay pills can be used to change the legal provisions of the iddah period?

Observing the function of the menstrual delay pills, and the legal position of iddah mentioned above can be argued that the menstrual delay pills are not used to determine the short length of the iddah wife's wife who is distracted by her husband. Likewise, although there is now medical technology (USG) is able to detect early conditions of wombs that were wiped out or died by her husband was not pregnant, but the provisions of the iddah still apply. For the purpose of iddah to know the condition of the womb of a wife who was diverted or left by the husband, is only one of the wisdom of iddah in Islamic law. Though there are many other wisdom behind the provisions of iddah period, for example the existence of a husband and wife opportunity to reconcile (Huzaimah Tahido Yanggo, 2005: 175-176), especially for the dickak live, and other wisdom that is still a secret from God.

Thus although the provisions of iddah in Islamic law have a human dimension (rational-ta'auqli), but more dominantly the charge of the divine dimension (ta'abbudi). So the provisions of the iddah period can not be changed with the use of modern medical technology. The provisions of the iddah period in the Islamic Shari'ah should be obeyed as part of the faith in God.

Modern medical technologies such as DNA testing, however, can be used to solve problems with the child's nasol (Muh Tamimi, 2014: 95), for example in the case of a child who is confused during hospital delivery or other causes. Without DNA testing, they may be treated and raised by people who are not their biological parents. It has serious implications both in education, marriage, inheritance.

The rich children are nurtured, brought up by poor parents who will get inadequate education. If she is a girl, after marriage will be given a guardian by a person who is not her genetic father, as well as in inheritance. Conversely, children are less able to be maintained by the rich so they can get an adequate education. If she is a girl, then when married will be given a guardian by someone who is not his biological father. Inheritance surely he gets a great inheritance.

3.3 Baby Tubing

The presence of children in the household becomes the dream of each married couple. Even the failure of getting a child through a natural pregnancy can be a source of conflict between husband and wife. Not even a little that ended in divorce. Such problems in the modern world have been overcome with infant tube technology. But in this connection needs to be examined from Islamic law.

Baby tube in the medical world is known as artificial insemination. Artificial means "artificial," while insemination is derived from Latin, inseminatus which means "income or delivery." According to dictionary meaning, artificial insemination means "artificial conception" (M. Ali Hasan, 2000: 70). While in term, artificial insemination is an attempt of conception in the uterus (uterus) to get offspring without going through the process of natural conception. Artificial insemination in humans is done by taking male sperm and injected into the woman's vagina or uterus, whether the woman is the wife of the sperm owner or not (donor) (Abdul Azis Dahlan, 2003: 727). Thus the baby tube is a reproduction that uses an artificial uterus that allows the occurrence of conception outside the uterus, especially the baby tube through the process of Fertilization in Vitro (FIV), by taking sperm husband and ovum wife, and processed in vitro (tube). After conception, the embryo is transferred into the womb of his own wife (Abdul Azis Dahlan, 2003: 729-730).

The law of utilizing infant tube technology for married couples who fail to have children is examined from sources of sperm and ovum and the owner of the uterus. Clearly, the tube baby may be in Islamic law if the sperm comes from the husband, the ovum (ovum) of the wife, and the fertilized embryo in a tube baby is transferred into the womb of his own wife. In this case, only its fertilization technique is different from natural conception (pregnancy). However the seeds (sperm and ovum) are from husband and wife and embryos are developed in the womb of the wife and owner of the ovum itself. The permissibility of such a tube baby is based on the consideration that the

child is a descendant of the offspring and is the primary purpose of marriage. So that the baby tube is a very important requirement (dread) couples who failed to get a child through a natural pregnancy. The rule of Islamic law affirms:

الحجة تنزل منزل الضرورة و الضرورة تبيح المحظورات
 “Hajat (a very important requirement) is treated as in an emergency situation whereas an emergency is forced to do things that are forbidden” (Masfuk Zuhdi, 1997: 21-22).

The existence of the source of seed (sperm and ovum) and Rahim is very urgent because it is closely related to the maintenance of the offspring that became one of the elements in maqasid al-syari'ah. Therefore, if one source of seed or the owner of Rahim does not meet one of the three conditions above, then the baby tube is haram law. The use of a rental uterus in a tube baby is legal haram despite the source of the seeds from a legal husband and wife. Likewise vice versa haram also if using sperm or ovum donor, although the embryo produced in the baby tube was developed in the womb of the wife. It is based on the hadith of the Holy Prophet:

لا يحل لإمرئ يؤمن بالله و اليوم الآخر ان يسقي ماءه زرع
 (غيره) رواه أبو داود عن رويغ بن ثابت
 “It is not lawful for a man to believe in Allah and the last day to sprinkle his water (sperm) into the plant (womb of the wife) of others” (Abu Dawud from Ruwaiifa 'bin Sabit) (Abu Daud: 1990: 478)

This Hadith not only implies sperm sprinkling into the womb of a woman through sexual intercourse, but also contains the understanding of entering the donor sperm through the process of the baby tube, which is the mixing of sperm and ovum outside the womb, which is not bound by a legal marriage. Whereas the biological relationship between husband and wife, in addition to enjoying the blessings of God in channeling sexual desire, also aims to obtain a legitimate offspring in the sight of Allah. Therefore the sperm of a husband can only be channeled into the womb of his own wife.

The prohibition of the use of sperm or ovum of a donor or a rented uterus is also based on the rule of Islamic law: dar'u al-mafasidi muqaddamun 'ala jalbi al-masalihi,' rejecting mafsadah precedence rather than achieving maslahat '(A. Djazuli, 2006: 11). In this case the benefit of the baby tube by using the donor is to help the couple get the child, which is difficult to obtain through natural pregnancy. However, mafsadah (danger) of the tube baby with the donor is far greater than the benefits, among others: (1) Mixing nasab, whereas Islam greatly

maintains the sanctity of honor and purity nasab, because it relates to tranquility and inheritance; (2) contrary to sunnatullah; (3) the same as for adultery, for the mixing of male sperm and female ovum without a legal marriage; (4) the child born in the IVF can be a source of conflict within the household; (5) children born through IVF who are mixed with nasabnya are veiled and donor secret, more ugly than adopted children are generally known origin/nasab (Setiawan Budi Utomo, 2003: 190-191).

Children produced through infant tube technology that use sperm or ovum donors are similar to children produced through adultery, especially from the aspect of legality of sperm or ovum. Thus the difficulty of getting a child through a natural pregnancy can not legalize the use of sperm or a donor ovum in a baby tube. So is the use of the rental uterus. Children born through such tube babies are categorized as adulterous children, having only a civil relationship with the mother who gave birth to them.

In addition, infant tube technology should not be abused through fetal gene selection. Obviously, it can not be used to select the desired fetus and abort the unwanted fetus, either from consideration of intelligence, skin color, or physical properties (physical disability). Because the life of the fetus must obtain legal protection (S. Aksoy, 2005: 400). Based on the above description it can be argued that tubular infant prohibition using sperm or ovum donor and rental womb is closely related to the existence of the born child, so that he does not experience problems either legally; marriage, and inheritance and social status in society. Thus for infertile couples according to doctor's diagnosis, should not use sperm or ovum donor. They better adopt other people's children..

4 PIG ORGAN TRANSPLANT FOR HUMANS

Organ transplants are generally done to replace the body organs that do not work anymore, such as kidney, heart, in addition to corneal transplantation. One type of transplant is hetero transplantation, which is human recipient, while the donor is animal. For example, a pig's heart valve is transplanted into the human heart (Abu Yasid, 2005: 220). Utilization of pig heart valves (donors) for humans (recipients) poses a problem because pigs are one of the types of animals forbidden in QS. Al-Maidah: 3

“Forbidden to you (eat) carcasses, blood, pork, (meat) of animals slaughtered not on (name)

Allah” (Ministry of Religious Affairs of the Republic of Indonesia, 2009: 142)

The prohibition of pigs in this verse is general, whether the meat is to be eaten or other parts of the pig's body for other purposes. For example sea urchins for making quaskue, accessories. Pork ensim for cake making, and so on. Even in medical technology allows the utilization of pig heart valves to be transplanted into the human heart.

Starting from the above description can be stated, that basically the hog heart valve is transplanted into the human heart. However, if a human heart valve has been attempted, and not found, it may be used in the condition of the pig heart valve (donor) for humans (recipient) (Abu Yasid, 2005: 224). This skill is based on the consideration that a person's heart failure (recipient) function is very threatening to the safety of his life. Thus the recipient has been in hazard (emergency) condition. Whereas the emergency conditions allow things that are prohibited in the Islamic Shari'ah (al-dlaruratu tubihu al-mahzhurat) (A. Djazuli, 2006: 72).

In that connection the pig's heart valve is God's right so that his servants may be used in times of emergency. Unlike the case if utilizing human heart valves that are not allowed to be transplanted to the recipient. In the latter case even if the heart valve is from a human being, it is haram transplanted to the recipient because there is no permission from the donor. Thus, advances in modern medical technology, especially organ transplant technology can be utilized for the benefit of human life while maintaining the provisions of Islamic law in the field of medicine. In this connection it is necessary to consider the impact of pig heart valve transplant. For a heart transplant certainly has serious side effects on the recipient (Kerry J. Stewart, et al, 2003: 2105-2106). In order for the recipient is not in danger after the transplant of the pig's heart valve.

5 CONCLUSIONS

Based on the discussions described earlier, it can be concluded that modern technological advances can be tangent to various aspects of Islamic law, including worship (fasting, pilgrimage), family law (iddah, baby tube) and organ transplants. Advances in transportation technology while facilitating the transfer of someone from one region / country to another region/country in a fast time, but time of breaking fast still follow the time in the region/country of destination. Menstrual dehydration

drugs need not be used to complete the fasting of Ramadan. But it can be used for women who will perform the pilgrimage, on the recommendation of obstetricians. So also modern medical technology such as ultrasound can not change the period of iddah in Islamic law.

Islamic law allows married couples who fail to get a child through a natural pregnancy to use infant tube technology with the sperm requirement of the husband, the ovum of the wife and embryo transferred into the womb of his own wife. Conversely, it is unlawful to use a donor sperm, or ovum donor or uterus rental. While recipients who have heart failure (an emergency condition) and do not get a human heart valve, are allowed to use pig heart valves. Thus modern medical technology has facilitated the implementation of women's pilgrimage, can overcome doubts about child nasab (through DNA ice), can overcome the difficulty of getting children through natural pregnancy (through infant tube technology) and save the lives of people with heart failure (through transplantation)

REFERENCES

- Abu Daud. *Sunan Abud Daud*, Volume 1, Beirut: Dar al-Fikr, 1990.
- Aksoy, S. "Making Regulations and Drawing up Legislation in Islamic Countries under Conditions of Uncertainty, with Special Reference to Embryonic Stem Cell Research," *Journal of Medical Ethics*, June 2005.
- Aspandi. "Pemakaian Obat Siklus Haid Bagi Jamaah Haji Indonesia Telaah Kaidah Al-Masyaqqatu Tajlibu al-Taysir," *Jurnal Syari'ah dan Hukum (Al-'Adalah)*, Vol. 1, No. 1, 2016.
- Brantelid, Ida Emilie, et al. "Menstrualition During a Lifespan: A Qualitative Study of Women's Experiences," *Health Care for Women International*, 30 January 2014.
- Dahlan, Abdul Azisn, et al. (ed.). *Ensiklopedi Hukum Islam*, Volume 3, Jakarta: PT Ichtiar Baru van Hoeve, 2003.
- Departemen Agama RI. *Al-Qur'an dan Terjemahnya*, Jakarta: Ditjen Bimas Islam, 2009.
- Djazuli, A. *Kaidah-Kaidah Fikih*, Jakarta: Kencana, 2006.
- Hasan, M. Ali. *Masail Fiqhiyah al-Haditsah Pada Masalah-Masalah Kontemporer Hukum Islam*, Jakarta: Raja Grafindo Persada, 2000
- Ibrahim, Duski. *Metode Penetapan Hukum Islam: Membongkar Konsep Al-Istiqra' al-Ma'nawi Asy-Syatibi*, Yogyakarta: Ar-Ruzz Media, 2008.
- Jamaa, La. *Fiqih Kontemporer (Kajian Problematika Hukum Islam di Era Modern)*, Yogyakarta: Deepublish, 2017.

- , "Dimensi Ilahi dan Dimensi Insani dalam *Maqasid al-Syari'ah*," *Jurnal Asy-Syir'ah*, Vol. 45, No. II, Juli-Desember 2011.
- Al-Jauziyah, Ibn Qayyim. *I'lam al-Muwaqfi'in 'an Rabb al 'Alamin*, Volume 3, Beirut: Dar al-Jail, t.th.
- Mujib, Abdul. *Kepribadian Dalam Psikologi Islam*, Jakarta: Raja Grafindo Persada, 2007.
- Qardhawi, Yusuf. *Hady al-Islami Fatawi Mu'asirah*, translated by As'ad Yasin, *Fatwa-Fatwa Kontemporer*, Volume 1, Jakarta: Gema Insani Press, 1995.
- Stewart, Kerry J., et al. "Cardiac Rehabilitation Following Percutaneous Revascularization, Heart Transplant, Heart Valve Surgery, and for Chronic Heart Failure," *Chest Journal*, Vol. 123, Issue 6, June 2003.
- Al-Syatibi, Abu Ishaq ibn Musa. *Al-Muwafaqat fi Usul al-Syari'ah*, Volume 2, Beirut: Dar al-Kutub al-'Ilmiyyah, 2003.
- Tamimi, Muh. "Tes DNA dalam Menetapkan Hubungan Nasab," *Istinbath*, Vol. 13, No. 1, Juni 2014.
- Utomo, Setiawan Budi. *Fiqh Aktual Jawaban Tuntas Masalah Kontemporer*, Jakarta: Gema Insani Press, 2003.
- Yanggo, Chuzaimah T., dan A. Hafizh Anshary. *Problematika Hukum Islam Kontemporer*, Book One, Jakarta: Pustaka Firdaus dan Lembaga Studi Islam dan Kemasyarakatan, 1995.
- Yasid, Abu. *Fiqh Realitas*, Yogyakarta: Pustaka Pelajar, 2005.
- Zein, Satria Effendi M. *Problematika Hukum Keluarga Islam Kontemporer*, Jakarta: Kencana, 2004.
- Zuhdi, Masjfuk. *Masail Fiqhiyah*, Jakarta: PT Toko Gunung Agung, 1997.

SCIENCE AND TECHNOLOGY PUBLICATIONS