THE COST OF HUMAN CLONING: A THREAT TO INDIVIDUALITY AND DIVERSITY

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Abstract

The process of human cloning is not one which dates back too long. However, in the short span of time that it has existed, it has not been short of controversy. In the simplest words, human cloning is the creation of an organism which is an exact genetic copy of another. Obviously, this has attracted numerous problems, across the spectrum of mankind. It is an undisputed fact that science and religion have long been in conflict with one another. This has led to religious leaders condemning the process of human cloning, leaving legislatures across the globe in a fix, regarding the laws relating to cloning. Through this paper, the authors try to elucidate each religions perspective on the concept of human cloning, as well as the legal issues regarding the same. Keeping in mind these issues, the authors try to come up with solutions, which respect the religious sentiments of the people, and are viable within the legal framework of countries, thereby benefitting mankind as a whole.

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INTRODUCTION

According to Genesis 2:7 of the Holy Bible, "Then the Lord God formed the man of dust from the ground and breathed into his nostrils the breath of life, and the man became a living creature."

Throughout much of human history, science and religion have been in conflict. In recent years, with the rapid developments in science and medicine, there have been many controversies brewing around socio-medical issues. One such issue is that of human cloning.

Human cloning is the creation of an organism which is an exact genetic copy of another. Thus, every single bit of DNA between the original and the clone remains the same.[3] It is done by a process called Somatic Cell Nuclear Transfer (SCNT). A somatic cell is any cell in the body other than the reproductive cells, i.e. the sperm and the egg. The nucleus is the part of the cell which contains all the Deoxyribonucleic Acid (DNA). A somatic cell is taken from the organism which is intended to be copied, and the nucleus of that cell is transferred to an egg cell from which the nucleus is removed. Some chemical tweaks are made, after which this egg cell and nucleus start behaving like a freshly fertilised zygote. It develops into an embryo which is then transferred to a surrogate mother and carried to term.[4]

It leads to a number of fundamental, yet powerful questions. Is it possible for man to play God? If so, is it correct and moral for man to play God?

The year 1996 saw the birth of the first cloned mammal, from an adult cell. Dolly, a sheep, born on 5th July, was cloned from an adult somatic cell, by using the process of nuclear transfer.[5]

Dolly was created as an extension to the interest of the Rosalin Institute, in Scotland, in the application of transgenic technology to farm animals. She started her life in a test tube. After six days, when normal development was seen, the embryo was transferred to a surrogate mother. Neither was there any problem during the pregnancy, nor did Dolly have any problems at birth.[6]

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[3]Genetic Centre, The University of Utah. Available at: http://learn.genetics.utah.edu/content/tech/cloning/whatiscloning/

[4]Id

[5]A. McLaren, 'Cloning: Pathways to a Pluripotent Future', Science, 9 June 2000.

[6]http://www.nms.ac.uk/our_collections/highlights/dolly_the_sheep.aspx

The birth of Dolly was kept under wraps for a while, and it wasannounced to the world only in 1997. After the announcement, the National Bioethics Advisory Commission in the United States, at the request of then President Clinton, issued two reports. The first of these recommended a several year moratorium on the reproductive cloning of human beings.[7] The second one, which was issued after the General Counsel of the Department of Health and Human Services (HHS) stated that the Dickey Amendment did not bar federal funding of stem cell research, so long as the destruction of the embryos involved in obtaining cells was privately funded.[8] The Dickey Amendment is an appropriation bill rider which is attached to a bill passed by the United State Congress in 1995 and signed by the then President Bill Clinton. It prohibits the using of federal funds for the creation of human embryos, embryos for research purposes or for research where human embryos are destroyed.[9] The second report, however, recommended that federal funds could be used for stem cell research so long as there was a ban on the buying and selling such embryos, and rigorously separating the process of obtaining donors' informed decision to discard these embryos from asking the donors for permission to use the discarded embryos for research.[10]

Due to the number of social, religious, ethical and legal issues arising from this process, every country, religion and community has a differing view on this.

1 ETHICAL ISSUES

Physicians involved in this process are under a moral obligation to look into the different ethical issues that could arise from this. They must weigh the pros and cons, though as of now, the potential costs far outweigh the benefits.

The science of cloning is not particularly advanced.There are a number of physical harms associated with cloning. Somatic cell nuclear transfer is still developing, and is yet to be completely refined. There is no guarantee of long-term safety, and this has to be proved through trial and error. The greatest concern is the possibility of any cellular or genetic conditions, or any illness, that could be associated with cloning. Also, there would be a huge

[7]National Bioethics Advisory Commission , Cloning Human Beings. Rockville, MD June 1997

[8]Memo from Harriet S. Rabb, 'Rendering Legal Opinion regarding federal funding for research involving human pluripotent stem cells', General Counsel of the Department of Health and Human Services to Harold Varmus, Director of the National Institutes of Health, January 15, 1999

[9]Originally in the Balanced Budget Downpayment Act, 1996, subsequently reenacted in Sec.510, Public Law 106-554.

[10]See, note 3 supra

amount of risk involved in offering such new technologies to women as a mechanism for reproduction, with the knowledge of a host of potential harms. This might also result in a high rate of miscarriage. Due to the numerous problems involved in this process, the risk factor is still very high and could result in humans born with anomalies, or disabilities. Producing disabled human beings could give rise to the obligation to seek a better understanding of unforeseen consequences that could arise from human cloning and research on potential medical solutions.[11]

Human cloning also has the potential to bring with it situations that could severely affect the psyche of the cloned beings. If a person with known genetic predispositions is cloned, the cloned child's genetic predispositions will also be known, due to the nature of cloning. However, if the parents' genetic dispositions have been determined, it is possible to predict the child's genetic disposition to various degrees. It is this knowledge, which raises questions regarding the best interests of the child. This is of great significance, and the danger of abrogation of the child's right to privacy with respect to this knowledge must be weighed cautiously. There is also a possibility that physicians might choose which persons are ideal candidates for cloning, which goes against medical values and ethics.[12]

2 SOCIAL ISSUES

In most societies in the world, family ties and bonds are given utmost importance. Even the traditional idea of a family is looked at from a very orthodox point of view. A traditional family is when two people get married, procreate and raise the children as their own. With the advancement of science and technology, there is no longer any requirement for sexual intimacy for reproduction. Children can be tailor-made to suit the wants of the parents. Thus, in such cases, parental responsibility shifts from making decisions for the benefit of the child, to making decisions for the benefit of the parents. Here, babies come from a dish, and the parents choose what goes into the dish.[13] Thus, the basic concept and object of a family- love, and affection may be lost, in the process.

There will be immense pressure on the clone-child if he or she is being raised by the clone-parents, as there is a massive difference in the development of monozygotic twins and human

[11]Report of the Council of Ethical and Judicial Affairs of the American Medical Association, June 1999
[12]Id
[13]Glenn McGee, *Human Cloning will Redefine Families,* The Ethics of Human Cloning, Greenhaven Press

clones, time being one of the key factors of difference. This results in the clone child having an insight into his or her potentials, and thus putting immense pressure on him or herself, in order to live up to expectations. Cloning may therefore limit the clone-child's perspective of self, and result in the increase in inhibitions and external pressures.[14]

Apart from the various concerns regarding the clone child as an individual, there are several concerns regarding the family, society and environment this child is introduced into.Will the cloned child be given the same treatment as other children? Without having any emotional attachments to the parental world, can they be integrated into the human society?[15]Is it possible for a mother to have a normal mother-daughter relationship with her clone child, especially if they are genetically identical? What would be the consequences of the father-daughter relationship if the mother and daughter were genetically identical?[16]

It was once said by a famous philosopher, "cloning shows itself to be a major violation of our given nature as embodied, gendered, and engendering beings— and of the social relations built on this natural ground."[17]

If cloning were to become a widespread practice, human genetic diversity would decrease, which has helped humanity survive and succeed with high disease immunity and the variety of qualities. The possibility of physicians being agents in formulating a social policy is contrary to values of the medical profession.[18] The high cost of these new reproductive technologies renders it possible for only those who can afford it, to use it. Thus, there is a possibility of the entire gene pool being skewed in the direction of favoured social groups, and whatever are the characteristics that are thought of to be advantageous by them, at that point in time, though the long-term desirability of these will be unknown.[19]

It is likely that the somatic cells that from which clones originate will have acquired mutations. Thus, serial compounding might accumulate the mutations that occur in these

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[14]Id

[15]KamaruZzaman, *Human Cloning and its Social Impacts*, GroundReport. Available at: http://groundreport.com/human-cloning-and-its-social-impacts/

[16]Council on Ethical and Judicial Affairs, American Medical Association. "Opinion 2.138: Genetic Testing of Children." *Code of Medical Ethics: Current opinions and annotations.* Chicago, IL, 1998.

[17]Kass, Leon R. "The Wisdom of Repugnance." In: The Ethics of Human Cloning Kass, Leon R. and Wilson, James Q. Washington, D.C.: American Enterprise Institute for Public Policy Research, 1998.

[18]Leon Eisenberg, "Would Cloned Humans Really Be Like Sheep?" New England Journal of Medicine, 1999. 340:6, p. 471-475.

[19]PhilipKitcher. The lives to come: the genetic revolution and human possibilities, New York: Simon & Schuster, 1996 Edn. p. 123

somatic cells. Though these might not be apparent at the time of cloning, it could become apparent, as also exaggerated, in the generations to come.[20]

[20]See, note 7 supra

3 RELIGIOUS ISSUES

Over the past decade or so, with the massive advancements in science and technology, cloning seems to have generated its fair share of publicity. This has raised the obvious question about 'man playing god', with humans creating life without divine intervention. Every religion has its own belief regarding cloning and the likes. Some of them are elucidated below.

CHRISTIANITY

Greek Orthodox pastor and geneticist Rev. DemetriDemopulos once said, "As an Orthodox Christian, I speak out in opposition to any attempt to clone a human being because humans are supposed to be created by acts of love between two people, not through the manipulation of cells in acts that are ultimately about self-love.[21]"

When it comes to cloning, there are many different stances taken by Christians, with orthodox and non-orthodox groups having different views in this regard.

The orthodox Christians, including the Roman Catholics and the Southern Baptists, remain unmoved in their opposition to cloning. They believe that it directly challenges the authority of the Lord, as it is for Him, and Him alone to create life and so the balance of life is disturbed.[22] They consider the human embryo to have the status of a human being right from the time of the fertilisation of the egg, thereby having its own right to life, which cannot be violated.[23] They feel that cloning includes a 'third party' in the process of child conception, which will make the child a product not of love, but scientific procedures. In fact, they question whether the clone is human at all, as sometimes the DNA of other animals is also added.

The Orthodox Church too, believes the process towards human personhood begins right from the zygote. It goes through a series of developments before ultimately becoming a human person. They therefore affirm the sanctity of human life at all stages. However, they are not

[21]John Woodward, Introduction, *The Ethics of Human Cloning*, Greenhaven Press. Available at :http://www.dikseo.teimes.gr/spoudastirio/E-NOTES/T/The_Ethics_of_Human_Cloning__At_Issue_Viewpoints.pdf

[22]William Sims Bainbridge, *Religious Opposition to Cloning*, Journal of Evolution and Technology, October 2003, available at: http://www.jetpress.org/volume13/bainbridge.html

[23]Landry DW, Zucker HA, *Embryonic death and the creation of human embryonic stem cells*, J. Clin Invest, 2004

opposed to using these human stem cells for therapeutic purposes since they have already been created, and cannot be undone.[24]

The less conservative Christians, have a slightly differing view. They too believe that the embryo has full human status, as it gradually develops to a foetus. According to them, some forms of embryo research may be permitted. The life of the embryo must be weighed against the benefits available to society from such research. There are circumstances under which embryo research may be permitted prior to the 'primitive streak' stage, which is around the fourteenth day after the fertilisation. This too, is after bearing in mind the seriousness of medical conditions which could possibly be treated.[25]

JUDAISM

In the Jewish tradition, it is believed that it is God who has given the power to create new technologies.[26] Man is obliged to develop and build the world in any direction which is favourable to humanity. Thus, any activity that leads to advancement cannot be thought of as contradicting the decree of God.[27] The importance of saving lives is also emphasised upon. In Judaism, not only is healing permitted, it is required to be an active partner in the repair of the world, which is to lead to perfection.[28]

There is still no consensus in Jewish law regarding cloning. However, scholarly analyses have been published by Rabbis with their reasoned arguments. Two prominent Rabbis in Israel strongly disagree with the concept of cloning.[29] However, it is reported that at least one American *halachic*authority has stated that cloning is permitted under circumstances.[30]

UNDER JEWISH LAW, FAMILIES ARE OF UTMOST IMPORTANCE. A CLONED INDIVIDUAL WOULD BE A 'NEW CREATION'; 'A BABY WITH NO PARENTS'. THUS DUE TO THE DIFFERING VIEWS AMONG THE RABBIS AND OTHER RELIGIOUS SCHOLARS, IT IS DIFFICULT TO ASCERTAIN THE JEWISH ECCLESIASTICAL STANCE. ISLAM

Chapter 23, verse 12-14 of the Quran reads:

[24]Walters L, *Human embryonic stem cell research: an intellectual perspective,* Kennedy InstituteEthics J, 2004
[25]Bruce D., *Therapeutic uses of cloning and embryonic stem cells*, Church and Society Commission of the conference of European churches, Church of Scotland, 5 September 2005, available at: http://www.srtp.org.uk/clonin50.htm
[26]Lampman J., *Different faiths, different views on stem cells*, Christ Sci Monitor 2001; 93:1-1
[27]Guigui A., *Ethics in medicine and Judaism,* Round table "*Ethical aspects of Human stem cells research and uses",* Brussles, 26 June 2000.
[28]See, note 16 supra
[29]Daniel Eisenberg, M.D., The Ethics of Cloning, Jewish Virtual Library. Available at: http://www.jewishvirtuallibrary.org/jsource/Judaism/clone.html
[30]Id

We created (khalaqna) man of an extraction of clay, then we set him, a drop in a safe lodging, then We created of the drop a clot, then We created of the clot a tissue, then We created of the tissue bones, then we covered the bones in flesh; thereafter We produced it as another creature. So blessed be God, the Best of creators (khaliqin)!

There have been some important conclusions that have been drawn by Muslim commentators, from this, and other passages of the Quran, regarding the development of the embryo into a full human being. Firstly, human creation is part of the divine will which determines the journey of the embryo to a human creature.[31] Secondly, it is suggested that perceivable is possible only at the later stage of embryonic development, when God says "thereafter We produced him as another creature.[32]" Thirdly, an important question is raised. Should the foetus be given the status of a legal person once it lodges in the uterus?[33] Fourthly, the Quran does not provide any criteria for when the 'breathing-in' of the soul takes place in the foetus.[34] The thinkers make a decision between a biological and a moral person after the first trimester of the pregnancy.[35]

Most Shia and Sunni thinkers,make a distinction between the two stages of pregnancy which is divided by the fourth month of pregnancy (after 120 days). According to traditions ascribed to the Prophet, ensoulment takes place at this time. However, it is interesting to note that eradication of the embryo even at the pre-ensoulment stage is thought of as a sin.[36]

The Quran does not give any particular definition for 'embryo'. The fundamental sources of the Sharia law do not talk in detail about modern biological data about the beginning of life from the moment of impregnation. Therefore, the conclusion that can be drawn from this is that Islam does not forbid humans from participating in the act of creating with God, though God always remains the best of the creators. Human beings are permitted to actively engage themselves in the betterment and advancement of society, by intervening in the natural process, even in the early stages of embryonic development, if it is for the benefit of human health.In Islam it is believed that there is a cure for every disease, and therefore the cure must

[31]See, note 16 supra
[32]Verse (23:14), The Holy Quran
[33] Dr. AbdulazizSachedina, *Islamic Perspectives on Cloning*, University of Virginia. Available at: http://people.virginia.edu/~aas/issues/cloning.htm
[34]Id
[35]See, note 16 supra
[36]See, note 22 supra

be sought. Thus, cloning for specific parts of the body such as the heart or kidneys, for the purpose of treatment, is recommended and even rewarded by Allah.[37]

[37]Id

HINDUISM

With respect to Hinduism, there is no conclusive stance regarding cloning. SomeHindu theological scholars opine that since Hinduism sees not the body but the soul there is no difference between a cloned human being and a normal human being. Others believe that Hindu narratives refer to the creation of a person, a deity, or social groups through cells of skin or drops of blood. Thus, some Hindu spiritual leaders feel that society has little control over ensuring only good outcomes of cloning. There are some Hindu scholars who state firmly that cloning is permissible under certain circumstances only.[38]

In 1997, the editors of *Hinduism Today*conducted a survey on the spiritual views on cloning, after President Clinton called for a spiritual viewing of the same.[39] They prepared a report based on the responses they got from spiritual men and women. They too, had mixed opinions. Some asked if it would draw them closer to God, and if it would speed up their spiritual enlightenment. They said that there were instructions in ancient Indian texts, explaining how to conceive a child of a passionless and poised nature, all based on the thoughts and yogic practices of the parents during coitus. Though this is not cloning, they pointed out that reproduction with the complete elimination of human sexuality was recognised, indicating that the religion did not condemn such practices. Some, though not opposed to the idea of cloning, argued that it would be difficult for those with passionate, old-fashioned bodies to accept reproduction in any other way, other than the traditional process of sexual production.[40]

BUDDHISM

Like Hinduism, Buddhism too, does not have astance on cloning. Buddhism is based on intelligence, knowledge, and science. One of the aims of this religion is to reduce or eliminate the source of suffering and by extension the suffering itself.. One of the main teachings of Buddha is to think rationally before doing anything. According to Buddhism, every action that treats human beings as non-human beings is to be considered immoral. Some Buddhist scholars feel that so long as it benefits the couple who wish to have a child and does not bring

[38]MuhammedMuhsinVarikkodan,*Hinduism v. Cloning,* Biotechnology, November 2012. Available at :http://muhsinv.wordpress.com/tag/hinduism-vs-cloning/
[39]http://www.hinduismtoday.com/modules/smartsection/item.php?itemid=5043
[40]Id

about pain or suffering, it can be permitted. Buddhism does not see cells as human beings, and so destruction to cells during the process of research is not seen as morally wrong. However, intention is important. It must be for the benefit of humanity.[41] Others feel that,"It marks a diminished creativity and diversity, analogous to the difference between the creativity, initiative, and investment that is required for an original painting and the mechanistic process required to reproduce the painting.[42]" According to them, conducting any form of research or cloning, or the likes, would not be in consonance with Buddha's 'Noble Eightfold Path', which prohibits infliction of pain of any sort, on any living being.[43]

ATHEISTS

As compared to those of with a religious bent of mind, non-believers and agnostics, atheists are, as a group the most favourable towards the idea of cloning. It is the only group which is more conducive to the idea of cloning and its reservationsif any areattributed to other issues.

[41]Changthavorn T., *Bioethics of IPRs: What does a Thai Buddhist think?* Round Table, *Ethical aspects of Human stem cells research and uses*, Brussels, 26 June 2000.
[42]Courtney S. Campbell,*Cloning Human Beings: Religious Perspectives on Human Cloning*, Oregon State University. Available at: http://bioethics.georgetown.edu/nbac/pubs/cloning2/cc4.pdf
[43]See, note 26 supra

4 LEGAL ISSUES RELATED WITH HUMAN CLONING

Before enumerating the various legal issues that human cloning is shrouded in, it is pertinent to talk about the two types of cloning. Therapeutic cloning, or the cloning of embryos with the intention of destroying those embryos to harvest stem cells is in theory acceptable to most lawmakers in the world as it is a life-saving advancement in medical technology. Reproductive cloning, or the cloning of embryos for the purpose of implantation on the other hand is still banned by most countries as it is against the moral, social, and religious values of the nation's people.The debate is deeply entrenched in politics, and even where it is possible to infer the legitimacy of research cloning from existing embryo research laws, states seem to want to make an exception for research cloning and to find means to exclude the applicability of embryo research laws to research cloning.

CONSTITUTIONAL CONCERNS

RIGHT TO LIFE

Right to life is an essential right to live and is regarded as the most fundamental right available to man. Article 3 of the United Nations Universal Declaration of Human Rights (UDHR) is dedicated to the right to life as is article 6 of the International Covenant on Civil and Political Rights (ICCPR), making it a legally enforceable right in every member state of the United Nations, state: "Every human being has the inherent right to life. This right shall be protected by law. No one shall be arbitrarily deprived of his life." Pro-life advocates who support this concept argue that human fetuses (as well as embryos and zygotes) are unborn human beings who have the same fundamental right to life as that of a human being after birth. These pro-life advocates believe that human cloning research denies one the right to life. The research process inevitably requires scientists to destroy and discard their failed experiments. Furthermore, cloning would violate human dignity as the intrinsic self-worth of a human is disregarded.[44] The human being is regarded as a commodity with a specific utility attached to his life. Any action taken to create or destroy human being, mainly based on their

[44] Shih Ching-Pou, *Moral and Legal Issues Concerning Contemporary Human Cloning Technology : Quest for Regulatory Consensus in the International Community to Safeguard Rights and Liberties Essential to the Future of Humanity*, Golden Gate University School of Law, (2010). Theses and Dissertations.Paper 6. Retrieved from: http://digitalcommons.law.ggu.edu/cgi/viewcontent.cgi?article=1006&context=theses (Last accessed: 12/10/2013 at 15.13 pm)

genetic qualities and their intrinsic value, would be deemed lack of respect for life and thus violate their right of life.[45]

RIGHT TO PROCREATE

The right to make decisions about whether to bear children is constitutionally protected under the constitutional rights of life and liberty. The right to procreate goes beyond the constitutional guarantee as it is the natural, universal right every human being is guaranteed. Banning cloning could infringe a person's right to decide when and in what manner he wants to beget a child. If the right of privacy means anything, it is the right of the individual, married or single, to be free from unwarranted governmental intrusion into matters so fundamentally affecting a person as the decision whether to bear or beget a child.[46] Some legal analysts have suggested that the constitutional right to make reproductive decisions free from unnecessary governmental intrusion covers the decision of a couple to undergo cloning.[47] However, other legal analysts have noted that the unprecedented step of creating a child with only one genetic progenitor would be such a fundamental change in the way humans "reproduce" that it would not be constitutionally protected.

RIGHT TO PRIVACY

Human cloning brings with it the unusual question of whether genetic information should be considered in the sphere of personal privacy and therefore be strictly safeguarded by the law. Privacy is a complex concept with no universally accepted definition. Genetic tests give an assessment of an individual's inherent risk for disease and disability. This predictive power makes genetic testing particularly liable for misuse.[48] Accordingly, the law guaranteeing the individual right to privacy should fully applied to the field of genetic information. Allowing human cloning will require establishment of legislation permitting only selective access to this information.

RIGHT TO HEALTH

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[45] Id.

[46] Andrews Lori B., *Is There A Right To Clone? Constitutional Challenges To Bans On Human Cloning*, Harvard Journal of Law & Technology , Vol. 1 No. 3 (1998), Retrieved from: http://jolt.law.harvard.edu/articles/pdf/v11/11HarvJLTech643.pdf (Last accessed 10/10/2013 at 6.30 pm)

[47] Shih Ching-Pou, *Moral and Legal Issues Concerning Contemporary Human Cloning Technology : Quest for Regulatory Consensus in the International Community to Safeguard Rights and Liberties Essential to the Future of Humanity*, Golden Gate University School of Law, (2010). Theses and Dissertations.Paper 6. Retrieved from: http://digitalcommons.law.ggu.edu/cgi/viewcontent.cgi?article=1006&context=theses (Last accessed: 12/10/2013 at 15.13 pm)

[48] Id.

People have the right to the highest attainable standard of physical and mental health, without discrimination of any kind. Enjoyment of the right to health is vital to all aspects of a person's life and well-being, and is crucial to the realization of many other fundamental rights and freedoms. Those who oppose human genetic manipulation involved in cloning procedure believe that it threatens human well-being and therefore violates the right to health.[49] On the other hand, those who support new eugenics accomplished through human cloning consider such technology as potentially enhancing human well-being and therefore contributing to the realization of the right to health. So if it is allowed or disallowed it would potentially infringe on somebody's constitutional right to health depending on what approach is adopted.[50]

PARENTHOOD ISSUES

Parents have the right to custody of their child, to make decisions about education, medical treatment, and religious upbringing. Parents determine the child's identity. They decide where the child will live. They may speak for the child and may assert or waive the child's rights. Parents have the right to determine whose care to place the child in. The process of cloning would give rise to a multitude of parentage issues which in turn would make it difficult to determine the rights and liabilities of the parents as per the law.[51] Various contributors in the cloning arrangements will have legal rights and responsibilitieswith respect to the resulting child. As many as four individuals can contribute to the cloning process. With so many contributors— biologic, genetic, and social— determining who shall assume the parental rights and obligations of the resulting child is very difficult not only from a legal stand point but also from scientific, psychological, and sociological perspectives.[52] In the cloning scenario, it is unclear which of the contributors is responsible for raising and supporting the resulting child. If parenthood is not clarified, there may be situations in which either the state will bear the responsibility or the child will be caught in a legally complicated, protracted custody battle.[53]For example A, B and C have contributed their genetic material to the cloning process. However Z and Y are the guardians of the resulting child. The question

[49] *Id.*
[50] *Id.*
[51] Andrews Lori B, *Cloning Human Beings :The Current and Future Legal Status of Cloning*, Chicago-Kent College of Law, Retrieved from: http://bioethics.georgetown.edu/nbac/pubs/cloning2/cc6.pdf (Last accessed: 9/10/2013 at 13.55 pm)
[52] *Id.*
[53]

would be as to who should be accorded the status of "legal" parents. Determining parentage of cloned children would thus be a Herculean task.

PROPERTY RIGHTS

If human cloning were permitted, there would clearly be major problems to be solved in many legal fields, not least inheritance of property. For example, X makes a will leaving all of his property to 'the children' and then a child Y is cloned from X. Is Y X's child? Probably yes, but then Y will also be the child of X's own parents, who may well have made a similar will, and whose estate may by now have been distributed. What if, X and his wife, Z, enter into mutual wills and agree to leave everything to 'our children'. But Y is not Z's child. Nor would it be right for legislation to provide that in such a case Y should be deemed to be Z's child because this may not be what X would intend. So distribution of property by ways of will or by applying intestacy rules would be nearly impossible if cloning were to be legalized.

ENFORCEMENT OF CONTRACTS

Another legal complication is of the extent to which contracts to clone should be legally enforceable. A precedent to this could be commercial surrogacy or organ donation laws.The question to be resolved is whether a contract to clone would bea valid contract similar to a contract for organ donation or one fraught with such ethical complications that the State would be morally unable to enforce it as it was opposed to public policy. It is clear thatif one were to decide to permit human cloning, it would be like opening Pandora's box with unimaginable complications and implications.

POTENTIAL TORT CLAIMS

If reproductive cloning is allowed, then it is possible that an action for negligence could be brought by a child who had been born as a result of having been cloned. This action could be based on alleged negligence in the actual process of cloning such as selection of the wrong embryo, alleged negligence in either the giving or the failure to give advice, such as advice to parents about the possible risks inherent in a particular process or alleged negligence in allowing a child to be born with a particular genetic inheritance.[54]In addition, existing legislation which provides that a child who is born alive but is disabled as a result of an occurrence before its birth may have an action in negligence against the person responsible for that occurrencewould need amending as the question of whether an Act would apply

[54]Damyanthi V, Menon A, *Ethical and Legal Implications of Human Cloning*, Human Cloning: Legal and Ethical Dimensions, ed. AnilaMenon (2007),ICFAI University Press, ISBN: 81-314-0652-0, p.177

wherethere was an act of negligence in the course of cloning which led to the cloned child being born disabled.[55]

PROBLEMS RELATED TO FORENSIC EVIDENCE

In the greater part of the 20th century, fingerprint evidence offered a near infallible means of personal identification. Since the turn of the 21st century,DNA evidence has played a bigger and bigger role in many nations' criminal justice systems. In rape cases especially,[56] DNA evidence has been the clinching proof. Human cloning would mean that there is more than one person with the exact DNA, which would in turn require major upheaval in the existing evidence laws and propel the advancements made by forensic sciences to aid administration of justice several years backwards.

5 LEGISLATIVE RESPONSES TO THE POSSIBILITY OF HUMAN CLONING

In November 1997 UNESCO brought out the Universal Declaration on the Human Genome and Human Rights which provides, in Clause 11, that 'practices which are contrary to human dignity, such as reproductive cloning of human beings, shall not be permitted'. The weakness is in the reference to only reproductive and not therapeutic cloning.

In 2005, the United Nations in 2005 made an attempt to introduce a worldwide legal ban on some or all types of human cloning. Due to intense debates in the general assembly, a decision to adopt a watered-down "declaration" that condemns all forms of human cloning was adopted. However this declaration is not legally binding. [57]

"Is Human Reproductive Cloning Inevitable: Future Options for UN Governance," released November 12 by UNU's Institute of Advanced Studies observed that a legally-binding global

[55]Id.

[56]Andréasson Hanna, Gyllensten Ulf, Allen Marie, *Real-Time DNA Quantification of Nuclear and Mitochondrial DNA in Forensic Analysis,* Uppsala University, Rudbeck Laboratory, Uppsala, Sweden(2012), Retrieved from: http://www.biotechniques.com/multimedia/archive/00011/02332rr07_11629a.pdf (Last accessed: 13/10/2013 at 13.18 pm)

[57]United Nations General Assembly, Resolution 280, Fifty-ninth session (March 23, 2005), UN Doc A/RES/59/280, United Nations Declaration on Human Cloning, Retrieved from: http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N04/493/06/PDF/N0449306.pdf?OpenElement (Last accessed: 11/10/2013 at 12.00 pm)

ban on work to create a human clone , coupled with freedom for nations to permit strictly controlled therapeutic research, has the greatest political viability among options available to the international community.[58]

"The Additional Protocol to the Convention for the Protection of Human Rights and Dignity of the Human Being with Regard to the Application of Biology and Medicine", on the Prohibition of Cloning Human Beings from the Council of Europe entered into force on 3 March 2001. It is provided in Article 1 (a) that 'Any intervention seeking to create a human being genetically identical to another human being, whether living or dead, is prohibited'. The term 'genetically identical' is defined in Article 1(2) as where a human being shares 'with another the same nuclear gene sets. This prohibition appears to cover therapeutic as well as reproductive cloning, because it provides in Article 7 that the prohibition on cloning human beings covers 'all nuclear transfer methods seeking to create identical human beings'. Two countries did not sign the Protocol to the Convention. One was Germany, which said that it did not need to do so because its own legislation (Federal Embryo Protection Act 1990) and the other was the United Kingdom.

In USA, Officially embryonic stem cell research, therapeutic cloning and reproductive cloning are legal as there is currently no federal regulation or policies overseeing it. However, reproductive and therapeutic cloning are specifically not federally funded.

Norway, Costa Rica, Brazil, Austria, Ireland and Italy have banned embryonic stem cell research as well as therapeutic and reproductive cloning.[59] In Russia, Slovakia, Slovenia, Sweden, and Australia embryonic stem cell research is not specifically prohibited, but therapeutic and reproductive cloning are.[60] In countries such as Canada, Mexico, Columbia, Poland, Belgium, New Zealand, Israel, UK, China, Japan, Singapore, South Korea, Finland, Spain and Hungary embryonic stem cell research and therapeutic cloning is permitted while reproductive cloning is banned.[61] South Africa, Panama, Argentina, France, Germany, Greece

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[58] *Id.*

[59] Wheat Kathryn, Matthew Kirstin, *World Human Cloning Policies*, Retrieved from: http://www.ruf.rice.edu/~neal/stemcell/World.pdf (Last accessed: 12/10/2013 at 14.09 pm)

[60] *Id.*

[61] *A Report of the Witherspoon Council on Ethics and the Integrity of Science; The Stem Cell Debates: Lessons for Science and Politics*, The New Atlantis: A Journal of Technology and Science(2012), Retrieved from: http://www.thenewatlantis.com/publications/appendix-e-overview-of-international-human-embryonic-stem-cell-laws (Last accessed: 9/10/2013 at 12.42 pm)

permit embryonic stem cell research is, but all forms of cloning (reproductive and therapeutic) are banned.[62]

The Indian Department of Biotechnology, together with the Indian Council of Medical Research, drafted the nation's stem cell policy in 2007, the Guidelines for Stem Cell Research and Therapy.[63] The Guidelines call for the establishment of a national body for the review of stem cell research proposals, the National Apex Committee for Stem Cell Research and Therapy (NAC-SCRT). The Indian Government too has officially banned cloning of humans.[64] Specific guidelines have been laid down by the department permitting research Stem Cell biology with adequate safety measures.[65]

6 CONCLUSION

The authors feel that keeping in mind the social, ethical, religious and legal issues surrounding human there is one of several approaches that can be taken:

a) Total Ban on All Cloning Research

b) Ban on Reproductive Cloning

c) Ban on Reproductive Cloning and Permitting Research Cloning

d) Placing a moratorium on all cloning research

Scientific advances bring about changes which society as a whole is slow to accept. As with any scientific or technological advance, the most important question that needs to be asked is whether the gains outweigh the potential losses or not. Cloning for research could open the door to the devolvement of cures of several medical needs like diabetes.

The authors believe that in the current scenario, reproductive cloning must be banned entirely as it is shrouded with far too many ethical, social, religious and legal teething troubles. Therapeutic cloning and stem cell research on the other hand must be permitted and regulated by a specialized governmental watchdog.

An instrument providing for a ban on reproductive cloning but allowing states a measure of freedom with regard to the issue of research cloning is perhaps the most viable compromise

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[6262] Wheat Kathryn, Matthew Kirstin, *World Human Cloning Policies*, Retrieved from: http://www.ruf.rice.edu/~neal/stemcell/World.pdf (Last accessed: 12/10/2013 at 14.09 pm)

[63] Department of Biotechnology and Indian Council of Medical Research, Guidelines for Stem Cell Research and Therapy,(2007) Retrieved from: http://www.icmr.nic.in/stem_cell/stem_cell_guidelines.pdf (Last accessed: 11/10/2013 at 12.45 pm)

[64]Damyanthi V, Menon A, *Ethical and Legal Implications of Human Cloning*, Human Cloning: Legal and Ethical Dimensions, ed. AnilaMenon (2007),ICFAI University Press, ISBN: 81-314-0652-0, p.176

[65]*Id.*

available to the international community. Stringent measures to control the extent of research cloning to prevent the uncontrolled production and destruction of embryos, as well as to prevent the progression towards full reproductive cloning will likely ensure wider support to any instrument.

Cloning technology is a reality, for better or for worse, and it will not go away. If we ban the use of this technology now, we will not be prepared to deal with this eventuality. If we utilize this technology and become familiar with it and set up international laws and guidelines for its utilization, however, we will be better prepared for the misuses that will eventually plague us. Cloning is a tool that can be good or bad according to the way it is put into use. A great caution should be exercised as we proceed into the new frontier.