

# Artificial Womb Technology and Its Implications

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**Abstract:** *Artificial womb technology happens to be one of the most path breaking scientific development in the history of mankind. This technology happens to be in its very initial stage and finds itself surrounded by many controversies with regards to its ethical and legal aspect. Feminist thinkers believe that this technology is going to change the course of human birth and is a great step towards a women's empowerment. There are other radical thinkers who believe that this technology will bring in a storm with the commodification of babies. This papers dwells into the implication of artificial womb technology and its effect on human birth. The researcher has provided with some suggestions towards the end and believes that maybe it will help in the regulation of the technology and bring a watershed movement of change.*

**Keywords:** Artificial womb technology, commodification, controversy

## 1. Introduction

The world has witnessed a great development with the advancement of science and technology. There have been scientific developments that has changed the frontiers of human civilization and artificial womb technology seems to be one of those advancements that is going to change the way we look at procreation and human reproduction completely. Artificial womb technology is something that is not very new, it can be traced back to the times of Mahabharat. Gandhari the queen of Hastinapur was given a boon by sage vyasa, who happened to be pleased by her care and comfort. Gandhari wished that she is given a blessing of 100 sons who were as powerful as her husband. Gandhari after two years of pregnancy gave birth to a lifeless flesh which was cut into 100 pieces and kept in jars filled with ghee. That was how kauravs were born in a jar filled with ghee. A detailed discussion around artificial womb technology started in the 20<sup>th</sup> century and recently there has been quite a stir with Hashem Al - Ghaili's "Ectolife", a biotechnologist from berlin who claims that a baby can be grown outside a human body [1]. The facility claims to provide couples a chance to grow a foetus outside human body in pods. The facility is definitely going to change the course of childbirth and open gates for women who had their uterus removed, gay couples, couples who can't conceive due to complications but also has that one side where childbirth will become a commercial process.

## 2. A Brief History of the Artificial Womb Technology

It was Aldous Huxley in the year 1932, who for the very first time wrote about ectogenesis in his book titled "Brave New World". Huxley's book speaks about the process of fertilizing embryos in a test tube and having them arranged in order and desired characteristics [2]. A patent for a design was granted to Dr. Emanuel M. Greenberg in the year 1955. The design comprised of a tank filled with amniotic fluid which could gestate a foetus, along with this it had a machine connected to the umbilical cord, blood pumps, water heater and an artificial kidney [3]. It was Juntendo University in the year 1966, who turned the dream of

artificial womb into reality by gestating four goat fetuses by placing them in amniotic fluid and building an environment similar to the mother goat [4]. The goat was successfully kept in the environment for three weeks. In the year 2002, Weill Cornell Bioengineers started working on full ectogenesis. They collected tissue from a human doner and created an artificial uterus, the experiment was put on hold due to laws of the place that didn't allow an embryo to be kept outside human body for more than 14 days [5]. In the year 2016, Cambridge University after being aware of the rule gestated an embryo outside human body for 13 days but this research was also terminated on ethical grounds [6]. A path breaking development was done by researchers at the Children's Hospital of Philadelphia, they gestated a lamb in a plastic bag comprising of amniotic fluid, it comprised of an arteriovenous circuit which was pumpless along with a sterile fluid environment and an umbilical vascular access [7]. The result of this this experiment was that the lamb was seen growing from a tissue to a fully developed breathing animal. The most recent development was done by "Ectolife" which claims that they can grow a baby in a human pod and the baby will have all the features and requirements that the parents put forward [8].

## 3. What is an Artificial Womb Technology

An artificial womb is a device made for the process of gestating the foetus outside the human body. Two of the most important requirements is the presence of a fetal heart and an umbilical cord, which is going to help the foetus in the process of circulation. So, basically it is a process where the foetus is removed from the natural uterus and transferred to an artificial uterus. With Ectolife coming into the picture, they claim that the traditional method is done away and now babies' can be grown in pods. Ectolife claims that the baby can be customised with respect to features like eye colour, skin tone, intelligence, height and other factors. It claims that the facility will be running on renewable energy and the parents can track real time data about the baby's growth or abnormalities if any. It also claims that that company is coming up with an alternative solution to a painful birth process by delivering the baby from the pod just by pressing a button. This technology has divided people into two halves, the first one claims that it is going to facilitate the

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feminist moment by letting women choose what they want and the second one claims that this technology is definitely going to commodify child birth.

#### 4. Implications of Artificial Womb Technology

Artificial womb technology is going to be one of the biggest inventions when it comes to scientific advancements. It is definitely going to change the course of how we look at childbirth, but it has to be monitored and controlled properly because everything has its positive and negative implications. Like discussed in the previous chapter, the technology will for sure facilitate the idea of a feminist thinkers who believes that why is it only women who has to go through all the atrocities when it comes to childbirth with regards to bodily change, jobs and many more. Companies are hesitant to hire female employees because of the maternity benefits they have to provide them in case the female is pregnant [9]. This particular technology is going to open floodgates of opportunities for women who wants to make it in their carriers. Infertility is one of the biggest issues that can be seen worldwide. In India 20% of infertility cases are due to less sperm count in males and 40% - 50% are due to problems in female reproductive system, in India 27.5 million people are infertile [10]. This technology is a ray of hope for those infertile couples who have been wanting to start a family of their own. The people belonging from LGBTQIA+ community, especially gay couples can now have a chance to have a family of their own.

As we have always heard the phrase that a coin has two sides, similarly there is a negative side to artificial womb technology as well. AWT with all sort of technological advancements would definitely come with high economic cost. Ectolife hasn't release any specific data on my much it will cost a parent wanting to use this technology for the process of birth. If we look at the data of an IVF in India the cost comes somewhere between INR 1, 00, 000 - 3, 50, 000 for one cycle and therefore, we can imagine how much of a financial burden it will be for people who wants to use this technology [11]. Another important aspect to this is that people from financially well to do family will only be able to have access to this facility and the it will be inaccessible for the once belonging from low socio - economic background. The AWT will also promote commodification of babies, since Ectolife has expressly provided that the parents can choose the eye colour of the baby, the height, intelligence and skin colour.

#### 5. Legal and Ethical Implication of Artificial Womb Technology

There are many legal and ethical issues that will be violated with this technology coming into the picture both in national and international arena. If we specifically talk about India, the sex ratio between the sexes happens to be 107 males to 100 females in 2021 [12]. India is also known as a country to have high female infanticides. The parliament of India enacted "**The Pre - Conception and Pre - Natal Diagnostics Techniques (PCPNDT) Act**" in the year 1994, with the coming of artificial womb technology there will be

an open violation of the Act because parents can choose the gender of the child. The fact that there has been a significant development in the improvement of the sex ratios over the years, but this technology gives the parents an autonomy over the sex of the child and it can lead to a mishap that will go out of our hands if not controlled or monitored.

The debate over abortion has been under much limelight due to various changes in laws. "**The Convention on the Elimination of all forms of Discrimination against women (CEDAW), 1981**" under Article - 12 provides reproductive freedom to women and the right to bodily autonomy [13]. Bodily autonomy means one's body is of their own and they can take any decision pertaining to their body in order to maintain their dignity. This right has been provided by various legislations, specifically taking about India the parliament enacted "**Medical Termination of Pregnancy Act, 1971**", that allows abortion of unwanted pregnancy by a registered medical practitioner in a government run hospital. With AWT coming into the picture the right over body autonomy will largely be affected, if the foetus post abortion is transferred to an artificial womb, then she stills becomes the mother unwantedly.

Another major legal issue that follows the artificial womb technology is the question of legitimacy. The company which in future will provide access to the technology will definitely have contracts that will be needed for both parents to sign. If the parents at a stage change their mind and want to withdraw from the contract, what will be the legitimacy of the child is the question that needs to be addressed. If we refer to the cases pertaining to frozen embryo, the court raised their hands and provided that the contract cannot be enforced stating public policy as the reason [14]. If same is the case with artificial womb technology there will be a big question mark on legitimacy of a child.

#### 6. Conclusion and Suggestions

Artificial womb technology is one of the most innovative scientific developments in the recent times. This technology will definitely prove to be beneficial for a lot of people such as the ones who are not able to bear a child and wants to start a family, to LGBTQIA+ couples who have been battling a lot with child birth especially gay couples. Like it has always been told that a coin has two sides, similarly artificial womb technology also comes with its own set of negative implications as well. It has been provided that the technology lets the parent decide as to how to child looks like, IQ of the child and also the sex of the child therefore there should be proper rules and regulation into place that only fulfils a family's desire to have a child. The autonomy to choose everything else should be taken away. There should be a committee in place that keeps a check over the compliance of these rules and regulations. The question of legitimacy can also play a major role in creating a disturbance between people, therefore there should be compliance letter which will be needed by the court to be provided that the parents won't abandon the child after they are born and criminal charges should be lived against those parents who don't comply with the rules of the court. The technology will come with its own sort of burden with regards to the cost, therefore there should be a cap on the

cost a company cannot go beyond. That way it will ensure that the technology will be accessible to everyone belonging from any socio - economic background. This technology has to be looked at through the lens of a welfare scheme rather than a business idea. The United Nations should draft a treaty and make it an obligation for parties to come up with their own national legislation that regulates the artificial womb technology.

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