CHAPTER 6

NEW REPRODUCTIVE TECHNOLOGIES AND SEX SELECTION

Technological progress is always hailed. Technological developments worldover happen at a pace which was quite unthinkable a few years ago. Unfortunately, control over technology in a free market economy is minimal and is not adequate to bring about sufficient protection in terms of rights.

The term 'misuse of technology' has new dimensions when the potential for misuse of 'innocent' technology is high.. This is true with technology which is used for sex pre selection and sex determination.

The effect is definitely negative, but what should be the remedy? Should it be an outright ban on the technology? Or its regulation with its own attendant problems?

This debate is complicated by various arguments raised primarily by manufacturers, sellers, patients and doctors who stand to gain by such technology. Many of these arguments claim to be based on feminism and medical ethics.

In the context of sex determination and sex preselection, what is the stand taken by feminists and can the solutions they propose be used? Again, how effective is medical ethics in a scenario of this nature? So far self regulation as an option seems to have failed miserably. What must be explored is a way to make medical ethics in this context more meaningful by not just legislation, but a law which is implemented.

The research questions partially dealt with in this Chapter are-

5. *How do the various laws and policies dealing with reproductive rights, technology and crime impact –*
    1. *Sex selection trends*
    2. *The implementation of law relating to sex selection?*

4 Assuming law to be one way of tackling this social problem, what can be done in order to ameliorate the current situation?

This Chapter looks at technology as well as the policy behind regulating technology. Although the Preconception and Prenatal Diagnostic Techniques Act is the law regulating technology in the instant case, that is dealt with separately in a Chapter of its own. In this Chapter, the focus is on the jurisprudence of regulation, the models available in law and what appropriate regulation would be.

New Reproductive Technologies[352] are those new technologies, particularly in the medical field, which have impacted reproduction or reproductive rights. However, this chapter looks specifically at the theoretical and practical dimensions of the impact New Reproductive Technologies have on sex selection. The main areas that are dealt with are—

1. Choice Rhetoric and Sex Selective Abortions
2. Eugenics and new reproductive technologies
3. Sex Selection-Sex Determination Tests and Sex Selective Technologies
4. New reproductive technologies in India
5. Law and new reproductive technologies
6. The Way Forward

Choice Rhetoric and Sex Selective Abortions

The "right to choose" means very little when women are powerless . . . . Women make their own reproductive choices, but they do not make them just as they please; they do not make them under conditions which they themselves create, but under

[352] Hereinafter NRTs

social conditions and constraints which they, as mere individuals, are powerless to change[353].

Under choice rhetoric, the choice of everything connected with her reproductive rights is considered to depend upon the woman. In the opinion of radical feminists, women as humans must have the right to bodily integrity without which women's equality is a myth. Because of their status as humans, they must have authentic rights to bodily integrity if women are ever going to obtain meaningful equality in society. Most feminists, therefore, supported abortion in the terms of choice and bodily integrity, leaving the choice of determining whether to use her body to reproduce to women. Although this has been the basis of feminist discourse on reproductive rights, unfortunately, as patriarchy predominates, historically women seldom have had this right. Men's control over women's bodies has been used to justify desertion of barren women and even crimes like marital rape.

It is in this context that choice with regard to what we do with our bodies, has become central to the feminist discussion of reproductive rights[354].

Choice as an idea was developed by American feminists. A number of cases like *Griswold v. Connecticut* [355] have emphasized the individual's right to control one's reproduction. With new reproductive technologies, reproductive liberty can become not only the right to have or not to have a child, but the right to have a child by any technologically available means[356]. As Janet Dolgin noted, "reproductive technology, simply by unfolding, invites human beings to become increasingly autonomous and to enter into a range of contracts that may prove unlimited. It thus invites and values choice."[357] So even though the political and rhetorical utility of

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[353] April L. Cherry, "Choosing Substantive Justice: A Discussion of "Choice," "Rights" and the New Reproductive Technologies," 11 Wis. Women's L.J. 431 at 4.
[354] *Ibid.* at 1.
[355] 381 US 479 (1965)
[356] See, e.g., John Robertson, "Procreative Liberty and the Control of Conception, Pregnancy, and Childbirth," 69 *Va. L. Rev.* 405 (1983) at 410
[357] Janet L. Dolgin, "The "Intent" of Reproduction: Reproductive Technologies and the Parent-child Bond," 26 *Conn. L. Rev.* 1261 (1994) at 1272

choice is problematic, choice has nevertheless been an important part of our feminist fight for the control of our bodies[358].

Feminists have been greatly divided on the issue of choice and sex selective abortion. Some are of the opinion that although sex selective abortion erodes the value of the girl child, the choice must be left to the mother to decide. They prefer freedom from legal restrictions even though it would mean misuse of the technology against women as a class[359]. Can a mother exercise agency to keep her daughters? What happens to those mothers who make such a decision? What happens to girls who survive?[360] These are uncomfortable questions raised by those who subscribe to this view and also those who do not.

The other view, which is predominant especially in India, is that since choice is not free anyway, should technology be regulated to prevent sex selective abortion?

Choice seems to be completely absent as far as service providers and education go. In the medical education system, textbooks, including obstetric and gynaecological textbooks, dismiss 'informed consent' as a formal necessity. In choice relating to contraception, students are not exposed to reproductive rights likely to be violated, including overt or covert coercion, especially for sterilization. Adolescents' needs and confidentiality issues are also not dealt with. Potential for misuse of new reproductive technologies is not dealt with and despite the fact that sex selective abortion is a burning issue, the Prenatal Diagnostic Techniques Act or the Preconception and Prenatal Diagnostic Techniques Act are not discussed[361].

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[358] April L. Cherry, "Choosing Substantive Justice: A Discussion of "Choice," "Rights" and the New Reproductive Technologies," 11 *Wis. Women's L.J.* 431

[359] Refer to opinion of Tabitha Powledge. C.f. Cherry *op.cit.* Powledge says that although she recognizes the irony, she views this position as part of the price of furthering the goal of equal treatment.

[360] Tulsi Patel, "Missing Girls in India," 39 *Economic and Political Weekly* February 28, 2004 p887 at 889

[361] Keerti Iyengar, "How Sensitive Are Obstetrics and Gynaecology Textbooks?" 40 *Economic and Political Weekly* 1839 at 1846

Eugenics and New Reproductive Technologies

It is one thing to legislate that an individual should not be forced to procreate against her will, and thereby protect legal access to contraception or abortion. It is quite another to derive from this legal protection the belief that individuals have the right to procreate by any means possible. And, any kind of child. Hidden in this discourse of 'means' is the female person who is used[362].

With discussions on the Human Genome Project, many worry about a revival of eugenics which has become synonymous with abhorrent projects and practices. What comes to mind are early 20th century sterilization programs in the United States and Scandinavia or, more dramatically, with the Nazi version program of "Racial Hygiene"[363].

Not everyone nowadays, however, thinks that eugenics is necessarily a bad thing altogether. Many morally permissible eugenic practices have received acceptance among ethicists and society. For the purposes of this dissertation, selective abortion of foetuses prenatally diagnosed with the severest kinds of genetic disorders is a relevant example. Of course, choice is still in the hands of private individuals and the State may not impose.

The moral lessons to be learned from the "old eugenics," one might claim, are (1) that reproductive decisions should be made by individuals rather than the government, and (2) that reproductive liberties should be strictly maintained without societal coercion[364].

China has seen eugenics of sorts incorporated into seemingly harmless legislation and as part of the family-planning campaign, one of the stated goals of which is the

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[362] Rupsa Mallik, " Negative Choice," *Seminar* 253, December 2003 at 3

[363] Michael J. Selgelid, " Ethics and eugenic enhancement," *International Journal of Ethics of Science and Technology Assessment,'* 08 May 2003 (online edition), Springer-Verlag 2003 at 2.

[364] *Id.*

improvement of the "quality" of the Chinese population. These laws are not voluntary, but carry an element of coercion. Certain categories of people, mainly those with hereditary diseases or certain disabilities, are prohibited from having children. The guidelines prohibit people with hereditary diseases or family histories of mental illness or retardation from having children[365]. They also require the abortion of foetuses in some cases where parents fail genetic screening tests. These eugenic measures add to the legitimization of forced abortion and sterilization measures against certain categories of people[366].

Sex Selection-Sex Determination Tests and Sex Selective Technologies

Sex-selection abortion, however, is different from most new reproductive technologies because its consequences do not result in the dismantling of patriarchal domination. Thus, while abortion gives women control over whether and when to have children, sex-selective abortion gives families control over the sexual composition of future generations and perpetuates gender discrimination. Instead of reducing the subordination of women and girls, sex-selective abortion increases women's social, economic, political, and reproductive exploitation[367].

New Reproductive Technologies in India

The biggest controversy preceding sex selective abortion involving new reproductive technologies in India was perhaps that of the injectable contraceptives Net En and Depo Provera. Developed in the 1950s, all over the world questions were raised about their safety. When news about clinical trials became public, there was a sustained campaign by the women's movement as well as the health

[365] These include hereditary disorders where couples are deaf mute, where either spouse has hereditary schizophrenia, manic depression, or heart disease. Xiaorong Li, "License to Coerce: Violence Against Women, State Responsibility, and Legal Failures in China's Family-Planning Program," 8 *Yale J.L. & Feminism* 145.
[366] Xiaorong Li, "License to Coerce: Violence Against Women, State Responsibility, and Legal Failures in China's Family-Planning Program," 8 *Yale J.L. & Feminism* 145 at 161.
[367] April L. Cherry, "Choosing Substantive Justice: A Discussion of "Choice," "Rights" and the New Reproductive Technologies," 11 Wis. Women's L.J. 431 at 4.

movement. The matter went to the apex court and the court upheld the demand for a ban, placing reproductive rights centrestage[368].

The increasing privatization of healthcare and the entry of NGOs into the field of health and family planning have thrown up a gamut of issues— from lack of accountability to inadequate monitoring of their activities[369]. This is evidenced not just in the Net En matter, but also in sex selective abortion. Just as one cannot rely on the clinical trials and post-marketing surveillance conducted by pharmaceutical companies for contraceptives, [370] so too, expecting the manufacturers of equipment and machines used in sex determination or sex preselection to be 'objective' and ethical would be a pipe dream.

Law and New Reproductive Technologies

Does the meaning of reproductive rights include with it the right to access new reproductive technologies?

The new reproductive technology industry has often built its profits through reinforcing gender-based stereotypes and inequalities. New reproductive technologies dealing with infertility and the way they look at an infertile woman as an incomplete woman without the all-saving boon of motherhood and the incompleteness of a family without a son have harmed women. New reproductive

[368] Vineeta Bal *et. al., "Injectable Contraceptives: Recognising Potential Risk,"* 35 *Economic and Political Weekly* 4385 at 4386
[369] *Ibid.* at 4387
[370] Development of the hCg vaccine or the antifertility vaccine have also been controversial. In the 1960s, when advances in biochemistry made it possible to isolate the hormone hCg, studies were carried out which met with criticism from feminists. Not so much on the possible cross-reactions, but on unethical trials and abuse potential of the vaccine. Though there were not guidelines or rules about the necessary safety tests for immunological contraceptives at that time, the WHO was suspicious of the tests. Only in 1978 did WHO lay down safety guidelines for conducting research on anti-fertility vaccines. C.f. Kalpana Viswanath, Preeti Kirbat, "Genealogy of a Controversy-Development of an Anti-Fertility Vaccine," 35 *Economic and Political Weekly* 719 at 719-721

technologies have gained legitimacy as a result of their potential to alter the balance of power between individual men and women[371].

Access to certain types of RTs (reproductive technologies) have indeed saved women's lives and often provided them with expanded choice with regard to reproductive decision-making. However, there is a continued need to evaluate the role of RTs in gendered terms and examine their role in providing women with real choice. This need becomes particularly acute in the face of the growth of the non-medical use of RTs to satisfy individual and socio-cultural needs. Women's bodies, in particular her reproductive functions, are increasingly being subjected to technomedical interventions to satisfy non-medical aspirations with regard to conception and procreation[372].

Legal rights have been a mixed bag for feminists. Rights discourse has been a political tool used in the fight for reproductive rights, and against harmful effects of new reproductive technologies it has been fierce. On the other hand, there have been attempts to posit the right of the foetus against that of the woman. The maternal-foetal conflict has been created. This conflict is visible in law as well as medicine and is one in which physicians and judges favor foetal interests over the pregnant woman's non-consent or the pregnant woman's freedom[373].

Is the ultimate goal total liberty? If this were true, it would mean a system of no law. Total liberty in the context of new reproductive technologies and law would mean that sex determination and sex selective abortion would be allowed. It would be utilitarian in its motivation, reducing the number of children while providing the parents with the children they desire[374].

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[371] Rupsa Mallik, "Reproductive Technologies in India: Confronting Differences," Sarai Reader 2003: Shaping Technologies, 2003 pp 120-123 at 122
[372] Rupsa Mallik, "Negative Choice," *Seminar* 253, December 2003 at 3
[373] April L. Cherry, "Choosing Substantive Justice: A Discussion of "Choice," "Rights" and the New Reproductive Technologies," 11 Wis. Women's L.J. 431 at 3.
[374] Lynne Marie Kohn, "Sex Selection Abortion and the Boomerang Effect of a Woman's Right to Choose: A Paradox of the Skeptics," 4 *Wm. & Mary J. Women & L. 91* at 3.

If liberty is to be curtailed and new reproductive technologies and law looked at from a feminist perspective, how do we resolve the issue? Catharine MacKinnon proclaims that feminist jurisprudence is the analysis of law from the perspective of all women. This would mean women in the past, present, and future. From the point of view of ethics, most view such abortions undesirable, if not immoral. However, the reason for the abortion no more justifies restrictions designed to protect foetuses in sex selection case than it does in the case of designated donations of foetal tissue[375].

The Way Forward

Hence, rights and rights rhetoric can only be useful if they are not separated from issues of social justice and other ethical concerns. In the reproductive arena, our focus on individual rights has sometimes allowed us to neglect larger issues of social need and justice[376].

The Universal Declaration of Human rights (UDHR), [377] sets minimum conditions for membership. The Charter seeks to promote and encourage respect for human rights and for fundamental freedoms for all and is billed as a common standard of achievement for all peoples and all nations. At the Cairo International Conference on Population and Development in 1994, participating countries affirmed that all people are entitled to all the rights and freedoms set forth in the UDHR, stressing that human beings are at the center of concerns for sustainable development. People are the most important and valuable resource of any nation, and the lack of development may not be invoked to justify the abridgement of internationally recognized human rights."[378]

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[375] Lynne Marie Kohn, "Sex Selection Abortion and the Boomerang Effect of a Woman's Right to Choose: A Paradox of the Skeptics," 4 *Wm. & Mary J. Women & L. 91* at 7.
[376] April L. Cherry, "Choosing Substantive Justice: A Discussion of "Choice," "Rights" and the New Reproductive Technologies," 11 *Wis. Women's L.J.* 431 at 3.
[377] Universal Declaration of Human Rights, G.A. res. 217, U.N. GAOR, 3d. Sess., U.N. Doc. A/810 (1948) [hereinafter UDHR] at 32 & 33.
[378] Report of the International Conference on Population and Development

Suppose we accept prenatal diagnosis and the selective abortion of foetuses that test positive for severe genetic disorders to be both morally and socially acceptable. Should we consider genetic interventions for nontherapeutic purposes to be acceptable as well? Interventions aimed at enhancement would in many cases be available to those who are financially fortunate. A worry is that unequal access to enhancements that provide competitive advantages to offspring will further and more permanently increase existing unjust disparities between the haves and have-nots. The aim to promote liberty might thus conflict with the social aim of equality[379].

There is also the general worry that a significant portion of limited medical resources will be directed—in the promotion of profits and higher incomes—towards uses that are less fruitful than others which might be pursued instead[380].

What then is the solution? Should the determination of whether a medical technology is 'good' or 'bad' be left for a group of beaurocrats to decide? In that case, technologies beneficial to women as compared to men may not find favour in their eyes? But then, how is technology to be regulated? What are the alternatives?

Quite a different level of moral complexity is opened up when we examine the validity of using amniocentesis to determine foetal abnormality. The FASDSP is clear that it does not want a blanket ban on pre-natal testing and, thus, implicitly endorses such testing for the detection of 'abnormal' foetuses and their subsequent abortion[381]. However, once we accept that there can be a hierarchy of human beings based on physical characteristics, and that it is legitimate to withhold the right to be born from those at lower levels of this hierarchy, then this reasoning can be extended to other categories, whether female, 'inferior' races, or any other. One feminist response to this dilemma is to argue that since women would have to look

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[379] Michael J. Selgelid, " Ethics and eugenic enhancement," *International Journal of Ethics of Science and Technology Assessment,'* 08 May 2003 (online edition), Springer-Verlag 2003 at 1.
[380] *Ibid.* at 5.

[381] Ravindra R.P., 'Campaign,' p. 30.

after handicapped children, they should be able to decide whether to bear them or not. It hardly bears repeating that the identical argument can be made about female children—that because the social pressure to bear male children falls entirely on the woman, she should have the right to abort a female foetus[382].

The work of Rayna Rapp on genetic counselling in New York City radically problematises the language of individualism and pro-choice[383] feminism that validates the abortion of 'abnormal' foetuses[384].

Similarly, Veena Das points out that it is not inscribed in the nature of things that a physically or mentally retarded individual should[385] have a poor quality of life. It is the great value placed on individual autonomy and on competition that makes this seem like a self-evident fact[386] [387].

The prospect of consumer eugenics is particularly threatening for groups that have been historically targeted or disempowered[388]. The underlying technologies are of special concern to women because they are so closely tied to reproduction and women's health, and their use would dangerously transform the lives of women and

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[382] Nivedita Menon, *Recovering Subversion – Feminist Politics Beyond the Law*, Permanent Black, New Delhi (2004) at 96.
[383] *Id.*
[384] Rayna Rapp, 'The Power of "Positive": Diagnosis: Medical and Maternal Discourse on Amniocentesis', in Karen Michaelson, ed., Childbirth in America: Anthropological Perspectives, South Hadley, Massachusetts, Bergin and Harvey, 1987, p. 30. 'Accounting for Amniocentesis,' In: Shirley Linderban and Margaret Locke, eds; Knowledge, Power and Practice: Medical Anthropology, Berkeley, University of California Press, 1993; 'Risky business: Genetic Counseling in a Shifting World,' In: Jane Schneider and Rayna Rapp, eds; Articulating Hidden Histories: History, Anthropology, and the Influence of Eric. B. Wolf, Berkely, University of California Press, 1994. *c.f. Id.*
[385] Nivedita Menon, *Recovering Subversion – Feminist Politics Beyond the Law*, Permanent Black, New Delhi (2004) at 97.
[386] *Id.*
[387] Veena Das, 'Deciding on Moral Issues: the Case of Abortion,' In: Diana L. Eck and Devaki Jain, eds; *Speaking of Faith,* New Delhi, Kali for Women, 1986.
[388] "Social Justice & The New Human Genetic Technologies," Centre for Genetics and Society, Reference Materials-II, Roundtable on Sex Selection in India, HIVOS, Bangalore 17-18 February 2005 at 1.

children and exacerbate existing trends toward corporate-dominated "reproduction for profit."[389]

Disability rights advocates in particular have been critical of the uncontrolled use of preimplantation genetic diagnosis. They point out that the definition of "disease" is to some extent subjective, and that people with disabilities can live full and happy lives[390].

The hearing of the Parliamentary Committee on the Empowerment of Women on the issue of Pre-Natal Diagnostic Techniques (Regulation and Prevention of Misuse) Amendment Bill 2002, considered representations from the public to proposed modifications in the Prenatal Diagnostic Techniques Act. The modifications, in essence, sought to include a range of pre-implantation diagnostic techniques in the purview of the Act, making their use for sex-selection actionable. Monitoring and punitive measures were tightened. Representatives of the medical industry objected to the proposals on the grounds that such technologies were essential to prevent maternal mortality and congenital abnormalities. Representatives of health groups and women's groups pointed out that the medical profession's commitment to bringing down congenital abnormalities is highly selective and, thus, deeply suspicious[391].

Madhu Kishwar, one of the leading feminists in India has argued that women in India exhibited choice, indeed agency, when they undertook sex-selective abortions. It is not for the state to intervene in the family – the deeply personal. On the other hand, Kishwar also argued that a corrupt state merely brought in laws in order to increase levels of corruption. Indeed, she argued that doctors were by and large

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[389] *Ibid.*
[390] *Ibid.* at 6.
[391] Delhi Science Forum (2002), Memorandum to Marga Alva, Chair Parliamentary Committee on the Empowerment of Women, 6th September 2002, New Delhi at 26. Some years back, when health groups and women's groups were involved in a campaign against high-dose oestrogen-progesterone based contraceptives, since banned, the medical profession completely disregarded the existing scientific information and campaigned against the ban. C.f Mohan Rao, Female Sex Selection Abortions: Some Issues", IDPAD Newsletter Vol II, No. 1 January – June 2004 at 23.

helpless, coerced into performing sex selective abortion by influential people. What was forgotten of course is that far from showing their agency, women who took recourse to sex-selective abortions were doing so under pressure from families, and[392] what this also reveals is the miraculous power of the concept of reified rights to turn things on the head, and indeed become part of the arsenal to further oppress and subordinate women.

The three major pre-natal diagnostic tests that are being used as sex determination tests are as follows:

1.Amniocentesis

2. Chorionic villi biopsy

3. Ultrasonograpy

1. Amniocentesis

Amniocentesis is an embryo pre-natal test by which certain genetic defects and the sex of the unborn baby can be determined. It is a procedure in which 15–20 ml of amniotic fluid is taken out. The genetic disease or defect can be ascertained or analysed by chromosomal studies. The process can be performed between 14 to 16 weeks of pregnancy and has nearly 1–2 percent risk of abortion. For accurate determination of the sex, the cells have to be cultured for 3 weeks; else inaccuracy rate is 10–20 percent. It is a useful tool to detect fetal abnormalities, such as mongolism, haemophilia, retarded muscular growth, and other gender-related disorders. This test is normally used for women after 35 years of age when the incidence of Down's syndrome babies and deformed children increases.

2. Chorionic Villus biopsy

[392] Mohan Rao, Female Sex Selection Abortions: Some Issues," IDPAD Newsletter Vol II, No. 1 January – June 2004 at 25.

This test can be performed in the first 7–11 weeks of pregnancy. A plastic canula is passed through cervix upto the amniotic sac, and a few chorionic cells, which occur at the site of future placenta, surrounding the sac are aspirated under ultrasound vision. These cells are cultured in a specific solution. This technique is used to diagnose some inherited diseases such as thalassaemia, cycstic fibrosis, and muscular dystrophy, etc. These diseases affect tissues and organs, which develop after the first few weeks. It is also possible to diagnose the congenital defects in an unborn fetus[393].

3. Ultrasonography

Ultrasonogram is the most commonly used test under ultrasonography. It is an imaging technology. It is a non-invasive technology. This technology uses the 'echo' of sound waves to 'visualise' the form of the fetus in the womb as early as from 11–14 weeks after conception. Through ultrasonography, it is possible to diagnose 50 per cent of the abnormalities related to the central nervous system. This technology has gained immense popularity in Tamil Nadu, to determine the sex of the foetus. If the foetus is female, a second trimester or even third trimester abortion is carried out either by a doctor or by a quack. The chance of correct prediction is 95–96 percent depending upon the expertise of the ultrasonologist. As pregnancy advances, the chance of accuracy also increases.

Sex Selection Techniques[394]

X-Y Separation

The various methods currently in use for X-Y separation are:

1. Ericsson Method
2. Albumen Column

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[393] "Understanding Female Foeticide", CASSA, Reference materials – I, Round Table on Sex Selection, HIVOS, Bangalore, 17-18 February 2005 at 3.
[394] "Understanding Female Foeticide," CASSA, Reference materials – I, Round Table on Sex Selection, HIVOS, Bangalore, 17-18 February 2005 at 4.

3. Percoll Gradient
4. Sephadex Column
5. Modified Swim Up
6. Flow Cytometric Separation

After separating X and Y chromosome carrying sperms, the Y chromosome sperms are injected back into the uterus to ensure that a boy is conceived. The success rate of this method is 65–70 percent.

The Pre-implantation Genetic Diagnosis (PGD)

As early as three days after fertilization, one or two cells are removed from an 8–10 celled embryo and tested. The selected embryo is then re-implanted into the uterus. The success rate is about 90 percent for couples wanting girls and 70 percent for those wanting boys[395].

[395] "Understanding Female Foeticide," CASSA, Reference materials – I, Round Table on Sex Selection, HIVOS, Bangalore, 17-18 February 2005 at 5