Chapter Two : New Reproductive Technologies

1. Introduction

In this chapter I shall discuss the new reproductive technologies (NRTs) and review the debates that have emerged around the implications of the use of such technologies. Infertility technology (technology used to assist reproduction, also known as assisted reproductive technologies-ARTs), is one such NRT which will be discussed in detail in a subsequent chapter.

The objective of this thesis is to understand the sociological implications of the infertility technologies but it is important to understand the debates and perspectives surrounding NRTs in general, as many of them are relevant even in the context of ARTs. The thesis is located at the intersection of sociology, technology and gender. An attempt shall be made to understand the connection between these i.e. how technologies which intervene in the process of reproduction, affect women.

In this chapter, besides defining what NRTs are, I will discuss perspectives by some theorists on control over reproduction, various general stances on the NRTs, feminist views on NRTs, commercialization of NRTs, implications of NRTs for motherhood and infertility, socio-ethical and socio-legal issues, some implications of the NRTs in India and the developing world, the `problem' of infertility and implications of infertility technology in the Indian context. I will also discuss campaigns against some NRTs in India and briefly discuss what reproductive rights and choice mean in the context of the NRTs.

The implications of NRTs are diverse and at times disconnected. They throw up a lot of issues which can be debated separately. Some issues have a direct connection with the others, some are indirectly connected. What I am attempting here is to tie up these issues to the extent possible.

Most importantly, I will explore the various feminist positions on these NRTs and understand their relevance in the Indian context. The attempt here is not to finally resolve the feminist debate on NRTs, but to subsequently present voices from the field which provide some insights.

2. Definition

Reproductive Technologies are designed to intervene in the process of human reproduction. They fall into four groups:

a) The first and the most familiar group includes those concerned with fertility control: with preventing conception, frustrating implantation of an embryo or terminating pregnancy i.e. contraceptive technologies.

b) A second group of RTs is concerned with the `management of labour and childbirth'.

c) The third group includes those concerned with improving the health and genetic characteristics of foetuses and of new-born babies.

d) The fourth group includes conceptive technologies, directed to the promotion of pregnancy through techniques for overcoming or bypassing fertility (Stanworth:1987:10-11).

The older reproductive technologies include for example, the oral pill, the intra-uterine devices, diaphragms, medical termination of pregnancy and female/male sterilization. New reproductive technologies comprise technologies associated with artificial insemination, *in vitro* fertilization and associated technologies, hormonal contraceptives i.e.injectables and implants, anti-fertility vaccines, amniocentesis and ultrasound, sex-preselection, and cloning etc.

The debate on reproductive technologies is taking place across the globe, though differently in the west and in the third world. Feminists in the west are concerned mainly about technologies for infertility treatment and harmful effects of contraceptives. Third world feminists are however concerned mainly about the latter and what they do to the health of women. They are also concerned about women from the third world being used as guinea pigs for new drugs and methods developed in the west.

By the late 1970's, the market for the pill in many western countries was saturated and pharmaceutical companies devoted much of their research efforts to finding markets in the third world. Women in the third world are now increasingly offered hormone suppressing contraceptives.

The nature of the management of childbirth and labour has changed in the last hundred years or so. Earlier it was a home based activity, undertaken primarily with the assistance of female healers and friends. Though modern medicine made

pregnancy and childbirth safer, its management became an activity defined as the province of medical professionals. A range of technologies for monitoring and controlling the progress of labour and delivery, instruments to assist delivery, caesarian sections, ways of inducing labour, epistomies, techniques for measuring foetal heart rate and movement began to be used on a routine basis. Some technologies which are used for monitoring foetal development in the early stages of pregnancy like ultrasound, began to be misused for sex-determination.

The focus of research now is also upon perfecting new techniques for neo-natal care and upon research that might eventually enable the modification of inborn 'defects' through human genetic engineering. There are sophisticated technologies which involve genetic manipulation of human germ cells and fertilized eggs, which may have irreversible effects on future generations. The procedures are expensive, there are unknown risks and the consequences are far reaching.

The treatment of infertility in this century started with artificial insemination (AI) in the 1930's followed by fertility drugs and in the recent past, the use of ***in vitro*** fertilization (IVF). Such conceptive technologies are highly varied from ones which require simple medical intervention like AI, to IVF which requires very sophisticated medical, surgical and laboratory procedures (ibid:10-11).

Before I explore the various stances on the NRTs I would like to briefly look at some explanations of control over reproduction and the reproductive process.

3. Some perspectives on control over reproduction

According to Foucault, sexuality is a transfer point for relations of power. The control of female fertility is linked to control over people's sexual behavior. The ideal of chastity helps in controlling the birth of children. Socialization of procreative behaviour led to concern about the population and debates about birth control. The realisation of the power element in sexual relations, led to feminist struggles for autonomy in the area of sexuality and reproduction with campaigns being waged in such areas as contraception, abortion, child-care, genetic engineering and the NRTs in recent years.

In the contemporary west, sex is divorced from fertility and it is free and open, there is no virginity cult, whereas in Asia, fertility is valued, but only within marriage, and sexuality is limited by virginity cults, sanctions against adultery, purdah and other institutions (Caplan:1987:1-30). In India, fertility is valued only within marriage but maximum value is attached to a woman bearing a son.

To understand the control of women's fertility by men, Mary O'Brien explores the historical nature of birth, which she says is a unity of natural and cultural processes. Men and women have a different reproductive consciousness. Male consciousness is alienated from the process of reproduction. A man is related to his child by thought and knowledge in general, rather than experience. Whereas, motherhood is a unity of consciousness on the one hand, and action, that is reproductive labour, on the other. Men have come to define the parameters of the forms of reproductive

relations. It is the old male control of production combined with the newer control of reproduction that makes the development of reproductive technology a political question, where there is a struggle for reproductive power (O'Brien:1989:24). The control of production and reproduction are the political and economic tools of patriarchal survival (ibid:25). The essence of patriarchal ideology is the view of women as breeders of healthy children.

In the Indian context the view is that of women as breeders but preferably as breeders of male children. But, motherhood also means caring and conserving life, a capacity for "reproducing the world" (ibid:30).

Ashis Nandy believes that the insecurity of males leads to the domination of women by them. Oppression has psychological manifestations. It results from anxieties which lead to the desire to control. Men, he says are jealous of the biological power of women.

> ....the evolutionary and biological primacy of women has given way to an institutionally entrenched jealousy of man on her part (Nandy:1988:71).

Therefore could one say that since men are jealous of women's procreative powers and are in control of medical techniques, they have devised these NRTs through which they can control the reproductive process and reproduction? This argument seems to be quite far-fetched but it is important to understand how power operates in a patriarchal society. Decisions are taken not in a mechanical sense but could be

intentional either directly or indirectly.

4. Various stances on the new reproductive technologies

There are various positions which have been taken vis-a-vis NRTs. They are as follows:

a) NRTs are valuable and should be applied as extensively as possible.

b) It is not appropriate to interfere with the natural and divine order by using these advanced technological procedures.

c) These technologies have to do with power relations and can be misused if they fall into the wrong hands.

d) NRTs are a new form of male control where the `masculinist' nature of science becomes obvious.

I shall broadly cover here some feminists' views on the NRTs.

5. Feminist views on the new reproductive technologies

Bio-medicine developed as an exclusively male profession after the end of the 19th century. Female midwives were replaced by the modern obstetrician transferring the control of reproduction from women to men. This is considered the beginning of the medical takeover of childbirth. It is believed by some feminists, that men developed knowledge of the female reproductive system with the help of science and soon knew more than women knew about their own bodies. Both science and its application to reproduction were developed by men. This had far reaching implications for the manner the process of reproduction was medically examined.

Feminists have diverse views on NRTs, though they agree broadly on reasons for the subordination of women to men. They believe that women's subordination to men is rooted in women's roles as child-bearers and rearers. This is what gives their role, social meaning in society. Subordination is also based on caste, class, race and gender.

Feminists are also concerned about the medicalisation of pregnancy and childbirth. They offer made a critique of medicine which is as follows:

a) The female body has been `medicalised' i.e. normal bodily functions like menstruation, pregnancy, childbirth and menopause are defined by modern medicine, as medical problems requiring medical solutions, for which some medical intervention is required.

The transformation of pregnancy into a disease and taking over of childbirth from women by men has been well recorded by Oakley, 1986; Rich, 1976, Ehrenreich and English, 1973 and 1979 and Correa, 1985a and 1985b. According to them, after this medical takeover, women were reduced to passive objects of medical surveillance and management. The NRTs, particularly IVF techniques, are described by them as the most deadly development in the history of the medical takeover of women's bodies.

Metaphors of menstruation as `impure' and menopause as a `crisis' also emphasized women as ill. Even today medical science treats these functions as such. Childbirth is

mechanized and reproduction is mostly under the `control' of male medical professionals. With basic processes of reproduction being mechanized, medical science advanced to more complicated procedures in the field of reproduction which would `help' women in doing what they are naturally considered to do best, i.e., reproduce (Martin:1987b:27-67).

The medicalisation of the human body complicates the problems that people suffer from. Medicalisation is a cultural process with political implications. More and more of everyday life has come under medical influence and supervision. The medical profession has taken charge of the health concerns of the people, irrespective of its ability to deal with them. Non-medical states are increasingly defined in medical terms. For example, technological devices are promoted for use even in uncomplicated births. Medical interventions are used to treat these conditions. Unnecessary and invasive interventions such as high-tech diagnostic procedures, drug and hormone therapies and surgeries are thus justified.

b) The medical hierarchy is male dominated, where physicians who are mostly men, are in the decision making positions and women are in the lower ranks with less decision making power.

c) The medical professions' authority is one of the most important ideological forces in society and defines what is normal.

d) Women are not given credit for traditionally providing unpaid health care (Koch and Morgall:1987:173-191).

A feminist assessment of NRTs is needed because they deal directly with the female body via the female body i.e. the female body is the direct object of intervention. These technologies change the social relations between the sexes which is a disadvantage to women's position in society. They change the concepts of maternity and paternity as well as social and cultural structures surrounding women's lives. That is why women's social and cultural experiences need to be considered seriously.

There are mainly three feminist positions regarding the NRTs. Some feminists believe that it is the use to which these technologies are put that makes them good or bad (Stanworth:1987a,1987b). Another group of feminists are wary of them and the third group rejects them altogether.

The latter group is the *Feminist International Network on Resistance to Reproductive and Genetic Engineering* (FINNRAGE). They have critiqued these NRTs and have provided crucial information about their development and implementation.[6] They focus on the politics of power and control, and view these technologies as a form of violence against women, rejecting them. The NRTs, they feel, are based on the old ideology of exploiting women as objects. They have focused on the physical, psychological and political risks of NRTs. They view these

[6] The FINNRAGE group includes Farida Akhter, Gena Corea, Renate Klien, Maria Mies, Janice Raymond, Robyn Rowland and others.

technologies as violating the integrity of the female body, as commercializing reproduction and as control by reproductive engineers. These technologies, they say, thus enhance patriarchal control over women, and are sexist, racist and eugenic (Spallone and Stienberg:1987).

NRTs alter the boundaries between the biological and the social and demand human decision where there is biological destiny. Therefore they politicize issues concerning sexuality, parenthood, reproduction and the family. They demand re-definitions of concepts of biology, reproduction, birth, motherhood, kin and reproductive choice. These are the reasons why some of these feminists want these new developments to be assessed and limited (ibid). They believe that women should be able to make reproductive decisions freely. The NRTs offer possibilities for personal choices but at the same time offer possibilities for reinforcing the importance of biological parenthood. These technologies, it is believed, restrict bodily autonomy, subordinate the ties of pregnancy and childbirth to genetic or property claims and are available only to people of a certain class. For instance, in India, lineage and handing property inheritance in the male line are important concerns. Therefore, most couples who can afford NRTs would use them.

Feminists suggest non-technological solutions like preventive measures for infertility, adoption of children of all races and sexes, and raising consciousness to reduce the social pressures for biological parenthood. But in India, where basic health care is a problem, these suggestions are yet to be noticed and implemented.

The problems which are being debated regarding reproductive technology are regarding the ethical/legal questions, social implications, social roles and commercialization. Ethical problems arise from the manipulation of body parts like sperms, eggs and embryos outside the body and the resulting complicated structure of parenthood. These problems are not being discussed in the context of these technologies in India, but these effects might become obvious in the near future.

What effect will these NRTs have on women who in most societies are defined in terms of their reproductive capacities as in India is one of the questions that this study is dealing with.

It is women who are being used to try these NRTs, by technologists (Gena Corea calls them "pharmacrats") According to feminists who are against these technologies, scientific gynaecological practice is `masculine' in nature and is against women. Men, they say, want to appropriate the reproductive capacity of women. Though in Asian countries there might be more women gynaecologists, most of them are socialised and incorporated into patriarchal medicine.

Besides sexist implications, there are and racist implications of the new reproductive technologies according to Maria Mies. The female body, according to her....

> ....has been discovered as a new area of investment and project making for scientists, medical engineers and entrepreneurs (Mies:1987:324).

These technologies, she states have been developed to overcome the difficulties faced by the present world system in continuing its model of sustained growth and of a lifestyle based on material goods and the accumulation of capital. The myth of over-population in the third world, according to her, serves as a justification of anti-fertility technology. Many harmful hormonal contraceptives are being experimented with and used on women in India. She suggests that fertility and sterility are being looked at as a disease, as biological categories to be handled by medical experts. Mies concludes that these technologies work on the principle of selection and elimination, and are "sexist, racist and fascist" (ibid:324).

Robyn Rowland claims that the NRTs and their uses exploit and deepen culture's existing values. She argues that these technological innovations have been used to exploit and disempower women. Public opinion and democracy are weak in front of powerful financial and medical interests and that women's physical, psychological, and political safety is also threatened by them. She argues that through the NRTs, women have become alienated from their own reproductive capacities. With individualism and the myth of choice, women are losing out to the male experts in the fight for control over their own fertility and procreative potential. Technologists deny the social basis of inequality and injustice, and ascribe social ills to "defective" women. Women, she says, are denied proper social status if they are not mothers. Those women who cannot be natural mothers go in for the torturous and degrading process of technologically assisted conception. In the end, she says that most of these women are still childless, depressed and physically damaged. The infertile

woman is at a great disadvantage compared with those who control the technology, own it, and those who gain financially from it. But it is women she says, who get hurt by it (Rowland:1992). Rowland's argument holds true in this study as most of the childless women I interviewed said that society considered them "defective", were denied social status, were childless after many attempts of assisting birth with complicated procedures like IVF and most considered the process torturous. Some also found the process exhausting which made them feel worse than they were already feeling, because of the social stigma attached to being a childless woman in Indian society.

An important declaration specifically on reproductive technology and genetic engineering was adopted by a group of feminists. This was the *Declaration of Comilla* which is a collective document on reproductive technologies and genetic engineering and was the outcome of the FINRRAGE International Conference in 1989. FINNRAGE, as mentioned earlier, is a global network of women that seeks to understand the common origin of different technologies aimed at women. The conference highlighted the concerns and opposition to the increasing development and application of reproductive technologies and genetic engineering. Genetic and reproductive engineering, according to the declaration, are part of the ideology of eugenics which the group opposed. They concluded that this ideology aggravates the position of women in society and intensifies the existing differences among people in terms of race, class, caste, sex and religion. The declaration appeals to all women and men to unite against dehumanising technologies (Akhter, van Becket

and Ahmad:1991).

But why do many women still want these technologies and submit to them? The issues surrounding pregnancy, childbirth and motherhood are so complicated that women might not and do not identify with the demand for a ban on conceptive technologies that is advocated by some feminists. A key objective of this study is to explore the issue from the perspective of the women interviewed in this study.

Some feminists, unlike Rowland, do not see inherent dangers in these technologies but are concerned about their unregulated use. They propose a set of rational and consistent policies to manage these NRTs (Blank:1990). Also, there are differences between feminists regarding their position on motherhood. Technology alone does not shape reproduction, and hence they believe that there should not be this preoccupation with it. There are other important issues which need attention like health care, women's rights over their bodies, issues regarding the nature of sexuality, parenthood and the family. According to Stanworth, medical and scientific advances have offered women more choices but at the same time they have created a situation of control over women's lives. These technologies, she says are controversial because they...

> ....crystallize issues at the heart of contemporary social and political struggles over sexuality, reproduction, gender relations and the family and that a struggle for self-determination must engage above all with these struggles (Stanworth:1987:4).

But, she does not agree with the uncritical position, or the position which predicts

the downfall of the civilisation nor with the 'NRTs as anti-woman' position. She feels all NRTs are different and that many women could use them according to their circumstances and priorities.

Ann Oakley focused on relations of power between medical practitioners and their female patients which reduce them to reproductive objects (Oakley:1987). She feels that supporting or opposing technologies like conceptive technologies has not helped in rationally understanding options or priorities of couples and has further stigmatised infertile women and men. The causes and consequences of infertility are left unexplored (Pfeffer:1987). For instance, in the Indian context, the childless woman, would try anything to have a child as she wants to get rid of the stigma of being childless. Having a child then becomes her priority. But, on the other hand, if she is encouraged to and uses such technology, it amounts to reinforcing the social meaning of a woman's role of mothering.

It will not do for women to accept or reject NRTs or science, their agenda should be to work towards defending their bodies (Rose:1987). The broader struggle should be to provide quality health care for both women and men and on reshaping the organisation and politics of institutions through which these health services are offered. The issue here should be whether feminists can create the political and cultural conditions in which these technologies can be employed by women to shape the experience of reproduction according to their own definitions. The issue of NRTs is very complex and a number of questions maybe left unanswered. But an

attempt will be made later to understand the issues, specifically the issue of assisted conception in India.

The issues regarding assisted reproduction cannot be expressed in dichotomies of `medical versus lay', `women versus men' or the `informed versus the ignorant'. They are more complicated than that and relate to the totally different context of medical scientists, doctors and the patient. Each feels that the other does not understand (Stacy:1992:28). The changes brought about by technology will not happen by themselves but by the way these technologies are administered and controlled. People with power and authority have direct responsibility for the changes. Their acceptance or rejection depends on ordinary people (ibid:40).

There are social and cultural consequences of interventions in the biological. A new culture and structure is being created along with changes in human reproduction. According to Stacy, there might be variations in what is seen as natural and what is tolerable in different cultures (ibid:175). Human reproduction is a social act, therefore women should be able to choose the path they tread instead of feeling like victims of control and monitor the social and cultural consequences of these NRTs. When a technology is introduced, the existing power structures are affected. As no technology is neutral but is a means of control of processes and in this case human biological processes, control of technology gives control over lives. Thus, investigating changes in power relations is important. An ethical debate is also a necessary supplement to technology assessment in the area of reproductive

technology. The ethical model should reflect the experience of both sexes. The NRTs have a multiple impact, they endorse certain values and stereo-types and alter taken for granted reproductive processes like conception and pregnancy, reproductive identities such as motherhood and parenthood and reproductive ties and obligations. They have consequences for relations which may extend beyond their immediate application (ibid:170-177).

5.1 Experimentation on women's bodies

Reproductive research and the use of the NRTs are considered biased because they are aimed at the reproductive system and use third world and poor women for experiments. They focus on systemic and surgical forms of treatment and they are not so concerned with safety (Hartmann:1987). Even though some feminists believe that women have the right to make the choice to demand and use NRTs based on their need and desire, the State responds selectively to women's demands, according to its own interests. What is offered is usually developed mostly for profit. What women want is safe male and female contraceptive methods, adequate knowledge and awareness about them, other reproductive health services including those for infertile couples, reduction of maternal and infant mortality and improved standards of living. What the State offers is limited reproductive health services. Moreover, the funds used for the development of NRTs in the west could be used to address these primary health care needs of women which include reproductive health care. According to Hartmann, ethnocentrism, parochialism and sexism is inherent in the exercise of population control programmes worldwide (ibid.).

Rosalind Petchesky proposes that the power of using reproductive technologies should be separated from the technologies themselves so that women control their development, distribution and use and that they pursue a feminist ethic of reproductive freedom (Petchesky:1987:78-79).

The issue of `freedom of choice' offers no easy position in this context, because there is tension between the feminist ideal of `free choice' and the `choices' offered by the reproductive industry.

Women should seek to know their alternatives, exercise their rights, and achieve social and political barriers to achieve a better quality of life. There is an urgent need to develop alternative policies and programmes that will correct the disparities that prevail and reverse human and environmental degradation (Karkal, Gupte and Sadgopal:1995).

5.2 Resistance

Foucault intended to locate the processes through which bodies are controlled through a set of discourses and practices governing both the individual's body and health, education and welfare of the population, the discourses and practices of what he called "bio-power" (Foucault:1980). This evolved in two forms, one, as "disciplinary power" which is knowledge of and power over the individual's body. These practices represent the body as a machine. They aim to render the individual as powerful, useful and docile at the same time. These practices are located in

hospitals, schools, prisons and also at the micro level of society, in the everyday activities of individuals. They maintain their hold by creating desires and establishing norms against which individuals measure themselves. The other form it evolved as is "regulatory power", in policies and interventions, called "bio-politics" of the population. Foucault said that "bio-power" was indispensable to patriarchal power in so far as it helped women's bodies' insertion into the machinery of reproduction (Sawicki:1991:68).

Sawicki provides a Foucauldian feminist analysis of the NRTs to highlight its advantages over prevailing radical feminist critiques (ibid:69). According to her, Gena Corea's analysis is pessimistic when she says that women's bodies are reduced to medically manipulable objects, to the "living laboratories" of male "technodocs" so that they appropriate the powers of women. She critiques radical feminists like Corea who said that NRTs fragment women's bodies into various parts and commodify them and who predicted that biological motherhood will be replaced by mother machines and cloning and someday, artificial wombs. These radical feminists, she says, represent the NRTs as violent, objectifying, controlling, dehumanising and anti-woman and a part of a process to appropriate the procreative power of women. The radical feminists fear that the severing of reproduction from women's biological bodies which is a source of identity for them, may lead to increased alienation, a loss of self and recommend resisting the hegemony of the western medical model of pregnancy and childbirth and encourage self-help and home births (ibid:117).

But, Sawicki feels that technology perse is not dominating, liberating or repressive but it is neutral (ibid:119). Technology becomes dominating and controlling because of patriarchal ways of thinking and behaving. Any feminist analysis of patriarchy must consider the patriarchal contexts they come up in.

She feels that Corea and other radical feminists "demonise" these technologies and focus exclusively on the practices governing reproduction and do not pay enough attention to resistance and struggle that is already taking place in the context of reproductive politics. It is important to understand how women who have to make decisions regarding childbirth feel about these and why some women regard them as beneficial and also to understand multiple sites of potential resistance (ibid:70).

This Foucauldian feminist analysis also assumes that the NRTs are a form of social control but at the same time provides opportunities for effective resistance.

According to Sawicki, the history of women's reproducing bodies has originated from various centres of power, resistance and struggle. The male desire to control to control reproduction does not direct the whole historical process. Even though the policies regarding the NRTs are controlled by non-feminist forces, their control is not total. Women and feminists have played a role in defining past and current practices. According to this account, the present situation is thus the outcome of multitude of micro practices and struggles. Thus, there should be a focus on the dominant discourses and practices, those of the technologists and doctors and on resistance towards transforming these practices. There are many agencies that influence reproductive politics and the social construction of motherhood. For

example, the western medical model of childbirth has been consistently challenged by individuals and groups. Control did exist, but it was not one-dimensional and had to continuously face resistance (ibid:80-82).

These so called "disciplinary" technologies do not operate essentially through violence but by various ways of controlling the body. The aim of the NRTs is to make the bodies of women useful rather then eliminate them. According to Linda Singer, the aim of this type of body management is to use the body for...

> ...wage, labour, sex, reproduction, mothering, spectacle, exercise, or even invisibility, as the situation demands (quoted in ibid:83).

She also goes on to say that they can be used for the advantage of a particular race or class.

The NRTs make women's bodies open to medical, legal and State intervention. Because of these technologies, we get to be aware of mothers who are infertile and all the details about them, exactly what physical or psychological problem is not letting them get pregnant. With the availability of these details, another category of what constitutes normal and healthy motherhood is created. This encourages both consumerism and the agencies which are interested in population issues, to make use of women's bodies. Along with this, the possibility of resistance also occurs whereby women can define their own needs by challenging norms and models of these treatments.

By producing new norms of motherhood and by making women feel that their identity is that of a mother, and by offering only particular types of solutions, these technologies `control'. It is important to realise that there are other solutions than medical ones. Thus, this definition of what is `normal' is what patriarchal power operates through. According to the Foucauldian model, the stance of radical feminists of reducing western medical science and technology to a form of violence against women is incorrect. The radical feminists do not look for the grey areas, for contradictions and into the liberatory aspects of the technological transformation of these technologies. They position women as passive and not active. They do not take into account women's needs. It is important to look for the diverse relationships women occupy in relation to these technologies.

Although these NRTs reproduce existing power relations they also introduce possibilities for resistance. For instance, as these technologies change current conceptions of motherhood they could also give opportunity to identify alternate forms of motherhood. The dangerous trends of these technologies could be resisted instead of rejecting them completely. Similarly the tendencies towards depoliticisation, privatisation, decreased autonomy and the disregard of women's experiences and interests in the process of developing and implementing NRTs and the laws and policies regulating them could be resisted (Piercy quoted in ibid:90). There is general cultural anxiety about the pace of technological change like that of nuclear war. This uncertainty about technology can be used to the advantage of people who want to democratise the process of technological innovation, design and

implementation (ibid:90).

To resist the medical takeover of women's bodies, de-medicalisation is not a strategy enough. Pregnancy, childbirth and infertility are partly medical issues and instead of removing them from medical control, women's need should be given importance with equal access to reproductive health services and the uses and modes of implementation be questioned. Feminists could also affiliate with other political struggles to make general demands for equal access to health care, for better information and for more democratic processes of technological development (ibid:91). Instead of rejecting the NRTs, analyses of individual and social risks and benefits should be made. Sawicki goes on to say that ultimately women may want to preserve some technologies and eliminate others but she does find NRTs like IVF "suspect" because of its low success rates, unknown health risks, physical and psychological stress, because they are expensive and require expertise. Moreover, they are available only to a few who are selected by the ones who offer them. This is also applicable to the Indian context as will be obvious from the women's interviews in chapter four. The criterion for eligibility, Sawicki says, reinforces a classist, racist, and heterosexist ideology of motherhood. All women do not have access to this technology. Scientists are interested in this technology inspite of the failure because it provides them with surplus embryos to conduct their research and profit.

Feminists, therefore have varied views on NRTs. They broadly agree on the subordination of women to men because of the reproductive capacity of women.

They also agree that the female body has been medicalised, the medical hierarchy is male dominated and the medical profession is powerful and defines what is `normal'. They also agree that the NRTs will change social relations between the sexes, concepts of maternity and paternity and social and cultural structures surrounding women's lives. They believe that NRTs alter boundaries between the social and the biological and politicise issues concerning sexuality, parenthood, reproduction and the family. The problems debated are ethical and legal questions, social implications, social roles and commercialisation. But they differ on whether to accept or reject these technologies. Some believe that it is the use of these technologies which is problematic, some are wary of them and some reject them.

The first group of feminists want NRTs to be assessed and limited and believe that women could use NRTs according to circumstances and priorities and shape their experience of reproduction according to their own definitions. They believe that power relations and ethical consequences need to be investigated and that women should control the development, distribution and use of NRTs. But some others believe that the feminists who reject NRTs do not look into the liberatory aspects of the transformations of these technologies.

The feminists who reject NRTs do so because they believe that they objectify women, are a way of exercising power and control over women, are violent, have physical, political and psychological risks, commercialise reproduction and are sexist, racist and eugenic. They believe that these technologies deepen culture's

existing values, exploit and disempower women and alienate them from their reproductive capacities and are researched and developed because they are profit-making.

In the next section I shall discuss the commercialization of NRTs.

6. Commercialization of new reproductive technologies

Though these technologies offer the pleasure of parenthood to some people, a chance to know genetic and chromosomal abnormalities of the foetus, they also extend the possibility of a medical and scientific practice that outreaches human understanding and public control. They turn the precious gift of a baby, an extremely rewarding emotional experience, into something which money can buy. The booming of "reproductive supermarkets" in the United States is one model example of misuse of the NRTs for pure financial gain. Scientists have vested interests or they work for organizations that are dictated by a profit motive. Such a situation is a great obstacle to public scrutiny of something as widely used as NRTs. Commercial interests also control public access to information.

The child is viewed as a `product' which must be perfect and consumer designed. Issues of race and class are implicated in this process. Access to these technologies is severely limited to a class which can afford it. This is also true in the Indian context where IVF is used only by a particular class of people. Surrogate agencies in the west are exploiting poor women and are believed to be involved in the importing

of women from the third world for the purpose of producing white babies for the American market. There have also been a few reported cases of commercial surrogacy in India (refer to Appendix I).

The result of allowing this technological process which has a commercial purpose, to go unchecked could mean the elimination of women's reproductive roles and the development of artificial wombs according to Corea. Techniques like Cloning and Ectogenesis could create social and psychological problems[7]. Corea's predictions seem a bit far-fetched as she paints a rather bleak picture for women in the future by proposing a farming and brothel model to control women's reproduction. Men, she says, would plant the women with their seed and then harvest the crop of babies. Women shall sell parts of their bodies the same way as sex-workers do but they will sell wombs, ovaries and eggs. But, the equivalent of this "brothel model" at present only exists in animal farms. Many animal farms are "reproductive brothels". It is thus not difficult for Corea to imagine some women in such a farm in the future, breeding babies (Corea:1985:299-305).

The unease created by such uncontrolled advances in science is prompted by memories of the eugenics movement and of the experiments carried out by Nazi

[7] For example, technologies like Ultrasound besides being unsafe, present a powerful visual image, that of the foetus as free-floating, self-sufficient and independent of the woman who carries it. Ultrasound images mesh with the attempts of anti-abortion campaigners to make the foetus a public presence. Ultrasound tends to discredit women's felt experience of pregnancy in favour of objective data. But, some women do want to see their baby by this method, and ask for it (Petchesky:1987:57-80). Then they also have to pay for it.

scientists and by futuristic novels like Frankenstein (Shore:1992:297).

New kinds of technologies like Cloning, which were earlier being researched, have become a reality with sheep and pigs being cloned. Such cloning brings fears about human cloning and its effects on society and kinship structures.

I shall discuss the implications of NRTs in the context of motherhood and infertility in the next section.

7. Implications of the new reproductive technologies for motherhood and infertility

What NRTs mean for women cannot be generalised. There are important differences in implications of different NRTs for them. Many of the routine technologies i.e. contraception and abortion offer indispensable resources upon which women seek to draw according to their practices and circumstances. Thus, one cannot entirely reject or accept NRTs in general.

When discussing their implications, the fact that there are differences among women in their relation to reproduction, must be noted. The experience of motherhood has a different impact on women in different circumstances and they respond to them in varying ways, depending on their social circumstances, their health and their fertility and according to opportunities and meanings derived from ethnic and social class cultures. Thus, the differential impact of these technologies on men and women needs to be researched and a position on motherhood has to be located which can

clearly indicate what women want or need (Stanworth:1987b:4). This is what has been attempted in this study.

For feminists, the NRTs mean rethinking their attitudes towards motherhood, pregnancy and their right to exercise choice with respect to motherhood. In the 1960's, many women considered motherhood an entrapment, but for many it represented a power base from which to negotiate the terms of their existence and survival. In recent years, motherhood has been re-evaluated. Recreation of the experience of motherhood and family in a non-exploitative way, is being attempted (Rowland:1987:512-528)

According to Mary O'Brien, the "institution" of motherhood is distorted and controlled at the expense of women, for the benefit of men. It is this institutionalization of motherhood that is the problem, not the experience itself. Men, she says, have divorced women from this experience because of the fears of the procreative power of women. Motherhood should be used as a starting point to redefine an understanding of gender relations beginning with reproduction. To celebrate "being female", women have the birth experience which they share with other women. This tradition has been broken by the intervention of medical technologies in the birthing process. The emphasis now is on the new-born and towards the relationship between the father and child. Men, by law, or by force eventually get to control women and children (O'Brien mentioned in ibid).

In the Indian context, the focus usually is not so much on the relationship between the father and child but on continuation of the lineage and economic security by having a male child.

The move to value women's role in reproduction positively has given "techno-patriarchs" within medical research a justification for the continuing control of and experimentation with women's bodies in the name of the power of mothering. Women's "mothering" role has been "naturally" assigned to them without taking into account that some women are not naturally inclined towards the mothering role and might not have the "mothering instinct". Motherhood means power for some and powerlessness for others. Some feminists/mothers might look at the technologies as liberatory, that they can do away with coercive motherhood and some see it as intensification of patriarchy.

The object and effect of the emergent technologies is to "deconstruct" motherhood as a unified biological process (Stanworth:1987b:16). Contraceptive technology separated sexual intercourse from conception and conceptive technologies also did the same. Women, according to Stanworth, are now free to choose whether to have children or not. But that might not be entirely true as it depends on the socio-cultural context as some women feel the social pressure to mother more than others.

In the Indian context, for instance, childbirth or mothering is not always considered gratifying or romantic. Women's options regarding child-bearing are linked to their

location in the social structure.[8] (Jeffery, Jeffery and Lyon:1989:9-12).

In the western world, according to Germaine Greer, childbirth has been transformed from a personal and social event into a medical phenomenon, the woman feels alienated and this removes all the pride and dignity out of the birth process (Greer:1984:19). This is also true for the urban middle-class Indian woman as recounted from their narratives in this study. Motherhood, Greer feels, is a conflict-ridden situation for some women, but they still endure it. Men and women do not want to be sterile. Since fertility is very important, its "management", she says, leads to "degradation of the species". The fertility of people she asserts, should not be destroyed by force. Contraception should be safe and voluntary.

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[8] Women have to divide their time between their work and child-rearing, especially in rural India. They have little spare time, freedom of mobility, reward from their labour or access to cash. These factors also impinge on maternal and child health. Within a general context of poverty, gender and class inequalities, inaccess to resources, good health is additionally undermined by the shift of young women's residence to their in-laws' on marriage, which further restricts their access to health care.

There are distinctive patterns of fertility and child mortality (especially of girls) and women in the childbearing ages have higher death rates than young men. Males here outnumber females (The 1991 census shows the sex-ratio at 929 females per 1000 males for the whole of India). The sex-ratio is low especially in the States of Haryana, Punjab, Rajasthan and Uttar Pradesh. Efforts to improve women's situation have been only in the areas of the domestic sphere concentrating on the age of marriage, dowry and inheritance, maternal and child health services and female education. Maternal and child health services exist, but on low priority. Most women do not use these government services especially during childbirth. The services of the *dai* (mid-wife) are used, whose main work is to help in the delivery. She has little involvement in ante and post-natal care. The status of these *dais* unlike the western mid-wife, is inferior and her duties are considered polluting.

Women fear childbirth as their pregnancies are risky and much of female mortality is related to childbearing. For women in rural India, childbearing is difficult with other work like making or collecting fuel, caring for animals, cooking meals etc. They are controlled and valued for their childbearing capacity but their needs associated with that role are given little weight.

Class and other interests tend to dominate State interests. Dramatic changes are required in patterns of landholding and employment, in women's work and access to property, in evaluations of their worth and in the systems of kinship, residence and marriage (Jeffery, Jeffery and Lyon:1989:9-12).

Though in India, contraception is no longer coerced, but the choices available are few and sometimes access is difficult. So, women have children when they do not want to. On the other hand, our society considers childlessness as "barrenness" which is considered a sin. Therefore, the childless woman even in a society of millions of children, is made to feel miserable. Infertility, Greer then rightly suggests, is an important problem even in our over-populated country, as it can lead to mental problems for the couple and may even influence their economic and social status.

Women have children because it brings them power in real terms, and also because for many it is the only power-base they have from which they negotiate the terms of their existence. If they cannot have children, for many, it is like grief after death. Society has accepted medical advances in the field of assisted reproduction, without critical comment because it is believed that the technologies used for infertile couples have `helped' them. Few people question how this technology actually helps them (Rowland:1985:539-546). It causes enormous burdens and stresses on couples. Women bear most of the burden as it is their bodies on which the procedures are carried out. The IVF programme has a very high failure rate. But the people who use these technologies are ill informed. This misinformation has led to an aura around doctors who are considered beyond criticism and not accountable to the public, which they are. Society thus accepts these NRTs as a solution to infertility through a manipulation of society's stress on the value of parenting. This process has led to the child becoming a `product' for the consumer.

This may be true, but it is the purpose of this study to understand these issues in the Indian context and to understand them from the point of view of women who use these technologies. Do NRTs increase choices for women even though women do not control them?

By altering the boundaries between the biological and the social, by demanding human decision where there was biological destiny, the new technologies politicize issues concerning sexuality, reproduction, parenthood and the family. There are legal questions raised by IVF and surrogate motherhood, for example. Do these threaten bonds between mothers and children and weaken the institution of motherhood? There are many socio-ethical and socio-legal issues involved in the use of NRTs. I shall discuss them briefly in the next section, as it is not the scope of this study to focus on them.

8. Socio-ethical and socio-legal issues

The moral, ethical and social issues raised by the NRTs are manifold. These technologies have various social and legal implications. They result in conflicting and contested constructs of kinship, family and personhood. They challenge ideas about motherhood, paternity, biological inheritance and integrity of the family. There are many questions raised by them:

Ethical and practical questions arising out of experimentation on human embryos; those that emphasize the problems posed for parenthood, for example, who is the legal parent of a child born to a woman who is neither its genetic nor social mother?

(Stanworth: 1987a); the affect that these technologies will have on women's lives in a society where women are defined mainly in terms of their reproductive capacity; the health and gender implications of the use of female patients' bodies by a male-dominated medical profession; what current debates about fertility control and embryology reveal about attitudes towards social institutions such as marriage, parenthood and childbirth and what controversies surrounding infertility treatments and embryo research tell us about the structure of beliefs underlying current notions of descent, personhood and procreation (Shore:1992:296).

One of the many questions raised by NRTs is who is ultimately responsible for conception: some divine intervention, the church, the State, the medical profession or women?

These technologies challenge conventional beliefs about the link between procreation, parenthood and blood-ties, especially the idea that the nuclear family represents a natural, biological unit (ibid:296). Scientific research on human embryos is seen as containing eugenicist ideas about improving the human race. It is also seen as harmful to women, as exploitation of women's procreativity and women's loss of control over reproduction.

The NRTs have separated sexuality and reproduction, a child can now be created without participating in the sexual act. Techniques like artificial insemination brought a third party into the marital relationship, threatening the stability of the

nuclear family. The stable social order is shaken when, for example, the biological father does not correspond to the social father. Surrogate motherhood too threatens traditional ideas about family integrity and the social order. Surrogate mothers become victims of patriarchy and commercialization. Surrogacy also results in many legal complications.

Ideas concerning fertility and reproduction are embedded in a wider social and economic context, particularly in systems of property and gender relations. Society still gives importance to blood-ties, the nuclear family (in the west because in India the joint family is still important) and paternity (ibid:301). The NRTs are emerging at a time when there is a re-emphasis on fatherhood, and men's demand for control over children. This is also more relevant to the west than South Asian societies.

NRTs also raise the question of reproductive rights and choice. I shall present the views of some feminists on the same in the next section.

9. Reproductive rights, reproductive choice and the new reproductive technologies

According to Farida Akhter, the reproductive rights slogan is a population control slogan and reflects capitalist-patriarchal ideology (Akhter:1992). Akhter looks at several different aspects of the idea of `rights' in the context of women, and control over their body and freedom of choice. She states that for women living at the margin of life, in poverty and in a political economic system imposed on them by

force, the immediate task is to achieve a democratic society where both men and women can be free.

According to Lakshmi Lingam, the demand for reproductive rights needs to address the ethics involved in the increasing medicalisation of reproduction through technological interventions in pregnancy, conception, child-birth, contraception and menopause. The value-neutrality of the NRTs such as *in vitro* fertilisation, foetal surgeries, sex-detection, sex pre-selection, caesarian sections, hormonal implants, injectables, vaccines and hysterectomies, should be questioned. The demand for reproductive rights has to counter the appropriation of language and the increasing medicalisation of women's bodies by placing the issues of safety, informed choice and ethics in context (Lingam:1995:136-144).

The first global women's health and reproductive rights meeting in Amsterdam marked the birth of the international reproductive rights movement which promoted the belief that women should be subjects not objects of population policies. Terms like `reproductive rights', `reproductive health' and `reproductive self-determination' gained currency during the 1980's. The definition of reproductive rights as given by the *Women's Global Network for Reproductive Rights*, is as follows:

> Women's right to decide whether, when and how to have children regardless of nationality, class, age, religion, disability, sexuality or marital status: in the social, economic and political conditions that make such decisions possible. These rights include access to safe, effective contraception and sterilisation and safe legal abortion, safe woman-controlled pregnancy and childbirth; safe effective treatment for the causes of infertility; full information about sexuality and reproduction, about reproductive health and reproductive

> problems and about benefits and risks about drugs, devices, medical treatment and interventions; and good quality comprehensive reproductive health services that meet women's need and are accessible to women (quoted in ibid:139)

The exercise of `choices' or `reproductive rights' cannot be seen in isolation from socio-economic, political, cultural and ideological structures. Women not only want to make an informed choice about contraceptives, child-care facilities, a better future for their children and an appropriate constellation of health service, but also want control over their life situation, sustenance, safe work place, clean drinking water, sanitation, secure living place, harmonious gender relations, no violence and no abuse. Women not only need control over their fertility but also over their sexuality and life situation. All these are inseparable preconditions for the exercise for any choice and in that case the claim for reproductive rights is a limited demand. It has the danger of reinforcing the view of all reproductive activity as the specially biologically destined province of women. Supporting this view, Akhter states that the production of the human species is a social function, never an individual affair (Akhter:1990:9).

According to Sonia Correa, some basic notions do exist in the slogan of `reproductive rights' through it needs revision.

> The first is the principle of bodily inviolability, which corresponds to the first generation of human rights. Second, the reproductive agenda cannot be disconnected from a broader political rights charter. Third, the exercise of reproductive rights requires the accomplishment of the second generation human rights dealing with social, economic and cultural dimensions. Finally, as many issues on the agenda are still subject to controversy, they may be seen as `potential rights' (Correa:1993:36).

According to Lingam, terms like `choice', `control over our bodies', `women's body is women's right', are individualistic and to the detriment of women's collective struggles, strategies and slogans. Technological options, she says, in this area, like the pill, intra-uterine devices, injectables, IVF, etc. are given as `choices' to women. Some argue that sex-determination tests offer a `choice' to have a boy or a girl. This slogan is also used by agencies who hire surrogate mothers (Lingam:1995:141-142).

The manipulation of women's fertility for one or the other purpose needs to be critiqued. For example, pro-natalist technologies like *in vitro* fertilization are developed for the white, middle-class women of the North to achieve motherhood and anti-natalist technologies like injectables, implants and vaccines are developed to control the fertility of poor women from the South. The political ideology behind birth promotion and birth control should be questioned. Therefore, the demand for reproductive rights from the point of view of the majority of women in the South, like in India, is limited. The discussion on the issue of reproductive rights within the population, development and environment debate should be seen in the context of western consumerism, the unequal power relations between the countries, the structural adjustment programmes, international debt bondage etc.(ibid:143). The notion of reproductive rights will have concrete meaning for women only when political, social and economic rights are ensured and examined.

9.1 Cultural construction of reproduction: Redefining `choice'

These technologies were largely introduced in the midst of a powerful feminist movement but feminist perspectives have been a notable absence in the popular and parliamentary discourse because feminists themselves have not made their voices heard. The NRTs pose personally and politically very awkward questions for feminists. One of the main questions posing a difficulty is the question of choice. With the NRTs, it is not the question of asserting `women's right to choose', it is asserting `women's right not to choose' which is at stake in reproductive politics. In a context where definitions of women's reproductive capacity are patriarchal and the birth processes highly technologised, these `choices' become highly problematic. Some women seek to enhance their fertility whereas some want to restrict it. The idea of `enhanced reproductive choice' is central to the legitimation of the NRTs. More choice equals more control. Couples are made to believe that they have control over whether, what and how they reproduce. Couples undergo genetic screening before conception, then pre-implantation diagnosis, pre-natal diagnostic techniques, and then post-natal technologies. A woman's right to choose depends on whether she has real `choices' and whether she has the right to exercise these choices or not.

More choice does not mean greater control for women. Choices maybe new and unfamiliar and making decisions maybe difficult. Pregnancy becomes "tentative" because there might or might not be a baby at the end of it (Rothman:1986).

There are limits to choices constructed in patriarchal definitions of reproduction. Power relations influence choices. This is compounded in the context of the NRTs by the problem of "prescriptive choice". If women do not choose the high technology option then they might blame themselves if something goes wrong (Franklin:1990a:4). Women do resist "prescriptive choice" by resisting high-tech procedures. Some problems are caused by technology and then require technology to deal with them. For instance, exposure to certain toxic substances requires later testing during pregnancy to eliminate possibilities of any abnormalities in the foetus. This is the cycle of "technological dependency" (ibid:5). But women do make active choices especially with technologies like IVF which did not exist earlier. For instance, some women would have gone abroad if IVF was not available in India. They are not so familiar with side-effects and other problems but might have other socially important reasons to do so. Trying out everything available gives them a chance to say that they have tried everything and exhausted all their choices.

The new choices created by the new technologies keep women guessing till the last moment. Choices are also "socially constructed". The social construction of reproductive identities, desires and choices can be located in specific cultural and historical contexts like the popular media narrative, enterprise culture, the professionalisation of motherhood and the establishment of women's reproductive capacities as an international corporate scientific enterprise (ibid:6). The natural function of both marriage and the family is seen as biological reproduction, therefore

when it does not happen, it needs natural science to help. The enterprise culture is based on individual citizens as consumers and the family as a unit of consumption. The desire to have a family is now constructed in terms of the right to have children and in terms of consumer rights. IVF clinics are part of the market which also includes pharmaceutical products, medical technologies etc. The marketing of infertility services thus comprises an increasingly important component in the "social construction of reproductive choice" (ibid:8). Reproduction is being commodified and is being "enterprised-up". Earlier there was a need to assert women's right to choose to achieve basic reproductive rights but this has different implications in the context of consumer rights and "enterprise individualism" (Strathern:1992). Feminists must address the social construction of women's reproductive choice in the context of the NRTs without women been seen as passive recipients of patriarchal manipulation or as consumers.

In the next section I shall discuss some implications of the new reproductive technologies specifically in India and the third world.

10. Implications of the new reproductive technologies in India and the third world

The NRTs also throw up a lot of issues in the Indian context which need to be debated separately. Most of the literature available on NRTs has a western perspective. It is only recently that some social science research has been conducted in India on these issues, that they have been brought to light.

In India, as in many parts of the world, women's self-worth and value is usually dependent upon their reproductive functions. Women go to great lengths to ensure that they have a number of children and if possible, of the desired sex, which is male. This is the result of the socialization process and/or family pressure in a patriarchal context.

Reproductive technology has been used by women of various cultures, classes and regional groups for many years. Since one of the major goals of the government's reproductive health programme is birth control and providing contraception, the search for long lasting and effective contraceptives is still on. In this context, the trials of the implant, Norplant-6 and the introduction of the injectable, Depo-Provera created quite a furore in the recent past. The vulnerable sections of society are targeted for the promotion and use of some new technology, the safety of which has not been established. Infertility technology too has been introduced in the last few years. Individual right and choice are easily turned against women and are distorted or manipulated.

Reproduction is not only natural but is mediated by social and material conditions. Inspite of what the `good' technology has done in terms of helping mothers stay healthy and safe, in India, an estimated 500000 women die of complications of pregnancy and childbirth every year. Undernutrition, inadequate medical facilities, lack of control over fertility, overwork and discriminatory practices are causes of

high material mortality. The Indian woman's options regarding child-bearing are linked to their location in the social structure. Pre-natal care is an important component of safe motherhood. For this, adequate health services are required which are not available for most poor women in India. Even if they exist most poor women do not have access to them.

The problem of female foeticide by infanticide and abortion after Amniocentesis (which is a test for genetic abnormalities but is misused for determining the sex of the foetus), has been persisting. Amniocentesis and Ultrasound are more familiar and popular NRTs which are misused to detect the sex of the foetus followed by abortion if the foetus if not of the desired sex. The law against pre-natal diagnostic techniques is difficult to implement, has loopholes and till now has been ineffective. Other techniques like Sonography, Fetoscopy, Needling and Chorionic Villi Biopsy are also used for sex-determination. Even sex-preselection is now offered by some clinics in Bombay and can be done as part of the IVF procedure. Some technologies which are used to assist in labour and childbirth like caesarian sections are being increasingly used by clinics, usually for a profit motive.

Most contraceptive technology promoted by the reproductive health programme in India is problematic and even if it is not problematic, the health services are not effective enough to deal with the complications arising out of their use. Most methods have side-effects and sterilization programmes are mostly directed at women. The State, until recently, was more concerned about achieving targets.

Though many reproductive health programmes in the country are promoting oral pills, condoms and intra-uterine devices (IUDs) in the community, the trials of some hormonal contraceptives (like Net-en and Norplant-6) were conducted among women of lower socio-economic groups in some parts of the country. Recently, there was furore over the safety of the injectable, Depo-Provera marketed in India by a multinational company and over the use of Quinacrine which was used to sterilise women.

NRTs are used not only as part of government programmes for population control but are also a part of day to day family life. Not just contraception, but fertility/infertility issues are also important. Infertility is a `problem' even in an over-populated country like ours as women pay a huge social cost for childlessness. Infertility treatment (AI and IVF) has made inroads into the private clinics and hospitals of Delhi and other metropolitan cities. But this treatment is expensive, complicated and has a high failure rate resulting in psychological and physiological problems for women. The use of these technologies also creates ethical and socio-legal complications. In the United States for instance, kinship relations have been altered in some cases, legal battles over eggs and sperms and complications due to surrogate motherhood are going on. It will not be long before similar problems are faced by our society.

With the deterioration of the health status of women, a declining sex-ratio in favour of men and the increasing need for contraceptives and infertility treatment, what the

implications of NRTs will be, in the Indian context, remains to be seen.

Imrana Quadeer questions the developed world's transfer of its reproductive control technologies but not its productive techniques. She answers the question by stating that these issues are political in nature and at different levels, different social configurations are at conflict. The revised strategy for family planning in India in 1986, made women and children the focus of technological intervention since child spacing through the use of hormonal contraceptives and maternal and child health services became its mainstay. The relevant socio-economic interventions and health aspects of family planning got relegated to the background. Since the *Family Planning Programme* experiment with vasectomies was brief, it revived its focus on women, excluded their ill health and dealt with their reproductive capacity by suggesting use of hormonal contraceptives like Depo-Provera, Net-en and Norplant which have a negative impact on women's health.

Hormonal contraceptives are being pushed in the name of a women's right to have more choices, but she has no role in the making of these choices. Research funds are diverted towards surer not safer contraceptive technology which are provider controlled and which make women dependent (Quadeer:1988).

Health providers, besides being influenced by governments of developing countries of the South, are also influenced by commercial interests. Sonia Correa discusses the priorities and conduct of health providers in this context. Coercive practices in some

countries infringe on the most basic rights of individuals, especially women (Correa:1994). Feminists have focused on the abuse of women's and men's human rights in heavy handed, State-led policies in India and Bangladesh. The aggressive government policy includes support for research on contraceptive vaccines and Norplant. Inspite of huge investments, the programme still failed to meet women's need for family planning nor did it reduce fertility in many parts of the country.

Medical science has appropriated traditional knowledge of women healers, whether midwifery, witchcraft or herbal and spiritual techniques. Women's bodies have historically served as objects of medical control, particularly in the development and testing of contraceptive and reproductive technologies.

As far as contraceptive development and delivery are concerned, there are ethical questions surrounding the testing of medically risky products exclusively in the developing South and among marginalised risk groups. Contraceptive development has historically depended on clinical trials conducted among poor and women from the South. There are problems associated with the development of contraceptive vaccines and with the delivery of long acting hormonal implants like Norplant. The medical risks of a new technology versus the risks associated with inappropriate delivery and follow up should be distinguished.

Provider-controlled technologies like the caesarian sections are more profitable than non-interventionist treatment. The increasing use of Amniocentesis to detect foetal

gender is perpetrated by cultural circumstances and in some settings like China, by government policy. The NRTs, like assisted fertility and genetic testing in the context of lack of basic health care in the South represents a contradiction in how health resources are distributed. The problem applies to North-South inequalities as well as to class differences within all countries.

With the expansion of NRTs in the South, sophisticated procedures become even more available to the wealthy, parallel to the absence of basic health services for the majority of women. NRTs cannot be construed as affirmative or violative of women's reproductive rights. But, the profit schemes of their producers results in a commodification of motherhood that complicates and deepens power relationships based on class and gender.

Farida Akhter, in a similar argument as Maria Mies suggests that the premises of the NRTs are racism and eugenics. According to her, the demand for reproductive rights, the proliferation of population control programmes in developing countries and the development of NRTs are all interconnected in politically and economically exploited poorer countries (Akhter:1992).

Genetic testing and assisted fertility techniques are other problems associated with NRTs. They may be employed for engineering purposes, but this area might represent a real future danger. Population control policies are already limiting the growth of some ethnic groups in the Pacific, South Africa, North America, etc., and

Amniocentesis has been used to select foetal gender in Asia. In the future, unwanted genetic or ethnic types could be screened.

Such perverse uses of NRTs must be considered and averted at the design stage of technology development. All medical technology cannot be rejected as it offers women a great deal. Some feminists even argue that assisted fertility should be part of the demand for reproductive rights because the demand to solve infertility problems is borne out of the social reflection concerning maternity/paternity failures. Ethical principles to guide scientific research have been established but inspite of that, scientists, policy makers and feminists continue to be in conflict over NRTs.

The use and trials of the NRTs are considered by some activists as another aspect of violence against women. According to Mira Shiva, the effect of Net-en and Norplant, which have been tested, has not been studied on the health of anaemic women and 70 percent of Indian women are known to be anaemic. The fight is not against technology perse but the exploitative social structure that seeks to control women's minds and bodies (Shiva:1991b).

The analysis of sex-wise data on death rates, life expectancy and morbidity patterns have shown that social factors like male-preference rather than biological factors, are responsible for the poor health of women. Lack of food, economic security and safe medical facilities result in women wanting to produce many children to have at least one surviving male child (Jeffery, Jeffery and Lyon:1989).

Amniocentesis and sex-preselection technologies have made the situation worse for the girl child. Effective implementation of the law against sex-determination without loopholes, would be a step in that direction. Women who undergo these tests and themselves opt for male children and are victims of socialization which make them internalise the present values of a patriarchal society. Even if the health services improve, it is argued that women will not improve their own health because...

> ...the body is seen in their own perception as an instrument of wifehood, motherhood and the care of the family (Gandhi and Shah:1992:153).

Women in India need basic health facilities and access to safe and voluntary contraception. Correlations have to be drawn between below average physical health, repeated pregnancies, harmful contraceptives, faulty and inadequate food intake, poor work conditions and women's low status in the family and society, social practices, beliefs, and values (ibid:106).

The problem of women's reproductive health in India has to be looked at within a general context of poverty, class and gender inequalities and unequal access to resources. Since reproduction forms a central theme for women's health, male control of women's reproductive life limits women. Medical systems are shaped by professional values controlled by a professional elite who controls and directs the work of large and relatively poorly paid care givers who are mostly women. The NRTs which are in the hands of these male professionals, it is argued, are then used to further profit and research motives.

This is not to say that one is against these NRT's and science. Modern science and modern biomedicine have given gifts of comfort, life and health. Without some basic technologies in the area of reproduction, birth control would not be possible. But feminists are against harmful technology which does not necessarily mean being anti-science or anti-development. What is meant by development in science and technology has to be redefined. `What is its use?', `How it is misused?' and `Who controls it?' are questions to be asked (Stanworth:1987a, Shiva:1991b and others). According to these feminists, reproductive technology perse may not be `bad' but if they are `controlled' by male technologists/professionals for pursuing their own interests, then the consequences could be negative and far reaching.

We have seen that within feminist scholarship there is no one agreed view on NRTs. It is not easy to resolve the debate, for often positions flow from apriori assumptions. This makes it all the more important to provide a field-view of the problem as I have attempted to do in this study which will deal with the sociological implications of NRTs, specifically infertility technology (technology used to treat infertility or assisting in conception). Needless to say, it is important to study the implications of infertility technology as no such in-depth study has been conducted in India till date.

11. The `problem' of infertility and implications of infertility technology in the Indian context

"Infertility treatment for a baby boy", reads a classified advertisement in a Gujarati women's magazine (Ramanathan:1993). Artificial insemination, intra-uterine

insemination and *in vitro* fertilization have been used by women who have problems with conception for many years now. There are clinics in all major cities in India which offer these and some other sophisticated technologies. Gynaecologists, andrologists, urologists, endocrinologists, microsurgeons and even some general practitioners consider themselves equipped to test and treat various aspects of the problem.

As far as infertility is concerned, investigations reveal that in 30 percent cases the problem lies with the woman, in 35 percent with the man, in 25 percent cases it is a combination of both factors and in 10 percent of the cases the reasons remain unexplained. While in most developed countries, infertility treatment is carried out within the parameters of strictly laid down procedures and codes, in India, as of now there are no laws. The need for such a law is probably overlooked because the legal, moral, ethical, emotional and demographic issues thrown up by reproductive technology and genetic engineering are seen as problems of the "distant future" (ibid).

In India, infertility is more of a social problem than a biological one because a childless woman is looked at as a `barren' woman and as someone who has been cursed. This reinforces the belief of the woman as a reproducing object and brings

about the commercialization of the body.[9]

IVF is also being used for sex-preselection, mostly for male children. This would add to the already existing problems caused by female infanticide and abortion of female foetuses after sex-determination.

As women's self-worth and value is usually dependent upon whether they reproduce children of the right sex. Women themselves go to great lengths to ensure a number of children as a result of the pressure of family and the dominant patriarchal ideology. `Barren' women are socially stigmatised. The choices women make might not be what they really want to make, but result from their powerlessness and oppression. A `barren' woman is viewed as a cursed woman. Women who are infertile have to live with this stigma throughout their lives and sometimes their fate is worse than of a widow. There is an obvious over-emphasis on motherhood in our culture. Motherhood, is a celebration of life, but according to some, in today's world of hi-tech, motherhood has been institutionalized, owing to the intervention of medical technologies in the birthing process.

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[9] It would be interesting to look at the practice of *niyoga* in ancient India. Closely related to the practice of levirate, it allowed childless men to appoint a surrogate father to sire children for them with their wives and also allowed it after the death of the patriarch. This practice was tolerated because of the necessity in ancient Indian society to produce sons who would perform the *sraddha* rites.
The moral and legal uncertainties about *niyoga* which emerged are similar to the ethical and legal discussions about surrogate motherhood in the west. The superior legal status with regard to claims of parenthood of fathers in ancient India and mothers in contemporary society in the west are similar and complex (Sutherland:1990:77-103).

Women's options regarding childbearing are linked to their location in the social structure. Infertility is an important problem even in an over-populated country like ours and this can lead to mental problems for the couple and may influence their economic and social status. For most at the bottom of the socio-economic hierarchy, the high expenses of infertility treatment are the major deterrent.

Most feminists believe that the commercialization of these technologies reinforce the image of a woman as a reproducing object (Rowland:1987). They also argue that these technologies are invasive and compel the woman go through endless procedures without knowing their consequences. They suffer more than men as they are the ones exposing their bodies for tests and procedures and details of their sexual lives. The inability of society to accept infertility and imperfection has led to the quest for the "perfect baby".

According to Gena Corea, infertility clinics offer experimental IVF, have low success rates and present IVF as therapy. They treat infertility as an individual medical problem whereas it could be caused by environmental pollution, work hazards, smoking and by other medical interventions (Corea in Sawicki:1991:72).

About 10 percent of Indian couples of child-bearing age are unable to conceive a child without medical help. The technologies offered mostly by private clinics/hospitals in India are:

Artificial Insemination: The woman's partner's or a donor's sperm is inserted into

the woman's uterus. If the woman conceives, the rest of the process is natural.

***In vitro* Fertilization (IVF):** This involves fertilization outside the female body. The eggs and sperm (which could be the couples' or donor's) are placed in a dish where fertilization occurs. The resulting embryo is then transferred to a woman's uterus.

Gamete Intra-fallopian Transfer (GIFT): Conception is facilitated by adding the man's sperm to a fluid containing his partner's eggs and transferring them together and directly to the fallopian tubes at the most favourable time of the menstrual cycle.

Zygote Intra-fallopian Transfer (ZIFT): The procedure is the same as IVF except that the fertilized egg is transferred a few hours earlier into the fallopian tube rather than in the uterus thereby mimicking a natural pregnancy more closely.

Intra Cytoplasmic Sperm Injection (ICSI): Through micromanipulation of sperm, it is immobilised and a single sperm is injected into the egg in a *petri* dish.

In India, there are no laws regarding the use of IVF and other technologies. A consultative document on ethical guidelines on bio-medical research involving human subjects is being finalised by the *Indian Council of Medical Research* (1997). Moreover, there is no regulatory mechanism for this technology. Import of equipment is not examined or its proper use ensured.

Some doctors and health activists caution that the total absence of monitoring and self-regulation is leading to the misuse of high technology. Since some doctors lack

the required expertise and do not have a systematic approach to infertility treatment, clients have been subjected to expensive and unnecessary treatment.

With population reduction still being the government's major agenda, it would be too much to expect government sponsored IVF centers which offer counseling and infertility treatment. What remains to be understood is whether this technology is important for society inspite of the controversies surrounding them and their socio-ethical, socio-legal and political consequences.

Individual right and choice can easily be turned against women themselves, distorted or manipulated. Women's health and their social relations are not taken into consideration. Inspite of producing a male child naturally or through IVF or sex-preselection, a woman's status in the family could remain the same.

> Patriarchal power has appropriated women's fertility, their labour and sexuality and established unequal relations between men and women. Technology cannot reverse these relations (Gandhi and Shah:1992:139).

The availability of information and medical facilities for middle class and poor women differs. Reproduction is not only natural but is mediated by social and material conditions. An elaboration of the various material conditions which burden and constrain women's choices very firmly remove reproduction from the private and biological sphere into a political and social one.

12. Campaign against some new reproductive technologies in India

There has been an attempt in India, to make a theoretical linkage between

contraception and control of women's fertility by men and the State, the way it has been made in the west between conception techniques and control of women's ability to reproduce. Medical and social issues relating to infertility and the use of technologies such as Artificial Insemination and IVF have not been taken up as part of a national campaign but there have been campaigns against injectables like Net-en, Norplant-6 and Depo-Provera. The campaign against hormonal contraceptives challenged their safety and acceptability, but it is still unclear, inspite of the new `reproductive health approach', as to what a women oriented family planning programme should be and how women can regain control over their fertility.

One of the initial campaigns was against the unsafe High Dose Estrogen-Progesterone (HDEP) which was misused for pregnancy testing. The campaign resulted in a ban on this drug but a decision on the low dose Estrogen-Progesterone (EP), which is used in the oral pill, is yet to be taken.

Similarly, a campaign was launched against sex-determination and sex-preselection tests. The campaign was successful in bringing in a new law regarding sex-determination and establishing a systematic linkage between different groups and between sex-determination and women's oppression. But there are various loopholes inspite of laws and they are still used. Sex-preselection has still to be dealt with as now besides other methods it can be done as part of the IVF procedure.

The most recent campaign has been against a drug, Quinacrine, which is being used to sterilize hundreds of women in various parts of India which resulted in an official ban in India (Rao:1998).

13. Conclusion

The development of reproductive technology is a political question and it has changed the social and cultural structures surrounding women's lives in important ways. Some of these NRTs challenge the already existing definition of women as reproducers. The issues surrounding pregnancy, childbirth and motherhood are complicated. The question to be addressed is that inspite of the problems associated with NRTs, why do some women want to use them. These technologies have not offered women real choices because the options that exist might not be what women really want.

> While these technologies have provided some women with the possibility to exercise their self-determination over their own bodies and are an integral element in their struggle for autonomy in other areas of life, not everywhere are women free to take these decisions on their own.....reproductive technologies while offering some new freedoms to women, also create new dependencies for a large number of women (Gupta:1996:442).

Technology on its own is not dominating or repressive. It becomes so in a context and in this case, the patriarchal context. This patriarchal context, combined with the increasing medicalisation of society, creates the perfect climate for this technology to emerge and sustain itself. Moreover, the stake of multinational pharmaceutical companies and private medical practitioners results in its commercialisation.

Though these NRTs reproduce existing power relations, they also introduce possibilities for resistance. Instead of rejecting them, an analysis of social risks and benefits should be made. It is important not to lose sight of the social context and cultural reasons for their use by women. There are also other moral, ethical and legal issues raise by NRTs.

The NRTs like assisted fertility technologies and genetic testing in the context of lack of basic health care in the developing world represent a contradiction in how health resources are distributed. The problem applies to North-South inequalities as well as to class differences within all countries.

The problem of women's health in India is related to their reproductive health and has to be looked at within a general context of poverty, class and gender inequalities and unequal access to resources. Medical systems are shaped by professional values controlled by a professional elite who controls and directs the work of large and relatively poorly paid care-givers who are mostly women. The NRTs which are in the hands of these male professionals, it is argued, are then used to further profit and research motives.

Feminists are not against science but are against harmful technology. What is meant by development in science and technology has to be redefined. `What is its use?', `How it is misused?' and `Who controls it?' are questions to be asked. An attempt

shall be made to answer some of these questions in this thesis.

In India, there are no laws regarding the use of IVF and for other technologies they are not clear-cut. There is no regulatory mechanism for technology. Some doctors and health activists caution that the total absence of monitoring and self-regulation is leading to the misuse of high technology.

Patriarchal power has appropriated women's fertility, their labour and sexuality and established unequal relations between men and women. Technology cannot reverse these relations. Inspite of producing a male child naturally or through IVF or sex-preselection, a woman's status in the family will still be the same. Using these technologies might be a survival strategy for some women, but they are not challenging it and are not in a position to do so.

But, if men and women have equal access to control over medical science and its use, it could be used as a position from which women and their bodies can be defended. It is not technology as an artificial invasion of the human body that is the issue, but whether we can create political and cultural conditions in which such technologies can be employed by women to shape the experience of reproduction according to their own choices (Stanworth:1987a).

Gena Corea argues that what we need now is the crystallization of health and well being of women as a value. Technologies that do not respect women's integrity and

health should not be accepted. Women should speak out about the injustices done to them and against the abuse of power (Corea:1985c).

On the other hand it must be noted that an overemphasis on the negative impact of these technologies distracts attention from the politics and organization of health care in general, from the legal system, from political struggles over the nature of sexuality, parenthood and the family and from the impact of the varied material and cultural circumstances in which people create their material lives.