

2 The political economy of intellectual property rights: a gender perspective

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Introduction

THIS CHAPTER EXAMINES the trade-related intellectual property rights (TRIPS) to assess their gender implications as well as their impact on the present and future inequality amongst states. The arguments presented in this chapter reflect our concern to see TRIPS as socially embedded instruments of governance that regulate markets and are in turn interpreted by the functioning of markets. Women and men are differently placed on these patterned market grids and are affected differently by them. The embeddedness of TRIPS is reflected in the ways in which they define property rights. It is also reflected in what they do not address – the wider issues of social access to resources such as education, capital and law that are critically important to the processes of production of knowledges. Finally, we also examine the differential access that women of the South have to these processes as compared to those in the North. Thus this chapter unpacks the gender ‘unevenness’ of globalization even as the global barriers towards interconnectedness are being demolished. The closing section includes a few recommendations for meeting the challenges of the new global marketplace.

A gendered analysis of TRIPS needs to focus on access to and control over matters relating to intellectual property rights especially in the fields of science and technology. One of the least explored and least understood areas of gender and development is the issue of distribution relating to intellectual property and women’s rights – why is it that women are always at the ‘dying’ end? It has been estimated that women own only 1 per cent of the world’s property. Is it possible that TRIPS would be more accessible to women than the traditional property rights have been? In examining the new regimes of intellectual property that are becoming critically important under globalization, we find continued and wide discrepancies of ownership rights. Just as women experienced gendered regimes of advantage and disadvantage during the agricultural and industrial revolutions, and were less able to take advantage of the economic opportunities arising out of them, they seem to be equally disadvantaged in the context of the information–communication–technological revolution. This leads us to ask whether socially embedded markets, and more critically, regimes of ownership that are institutionalized

through legal instruments and maintained through a 'web of surveillance' (Sells, 2001) as well as punitive sanctions can ever benefit women.

Women, of course, are not in themselves a unified category. In the context of TRIPS, divisions along a North–South axis are important, as are divisions along lines of ethnicity and class. The issue of location also poses questions for feminist politics. Is it our location that defines our politics, or is it our situated politics that allows different articulations of our located subjectivities?

World Trade Organization and intellectual property rights

The World Trade Organization (WTO) was established on 1 January 1995 as part of the results of the Uruguay Round of the General Agreement on Trade and Tariffs (GATT). TRIPS were also agreed upon in this round of agreements. It sets out the obligations of member states to protect intellectual property rights within their borders.

What is the significance of TRIPS? First, TRIPS has for the first time, brought the domain of ideas, knowledge and innovation into the arena of global trade. TRIPS are a set of agreements that regulate the granting of limited monopoly rights by the state to an innovator or inventor. 'They specify a time period during which others may not copy the innovator's idea, allowing him or her to commercialize it, and recoup any investment on research and development ... They trade off the welfare of the innovator, who deserves compensation for his or her efforts, against the welfare of society at large, which would benefit by unlimited access to the innovation' (Cosbey, 2000: 3). The emphasis here is clearly on trade-related and monetary 'compensation' on investment; it does not take into account the value of moral, ethical and non-monetary recognition of the innovator for an idea, an invention or an innovation. The problem of definition is thus twofold. On the one hand, it is about what counts as 'innovation' and on the other, it is about the recognized form of compensation. As we will see below, this particular reading of 'innovation' is particularly problematic for women as they bear far greater personal costs in terms of overcoming social prejudice to access the world of knowledge production.

Second, TRIPS define the nature of knowledge through identifying the boundaries of particular products and processes. There are three main types of intellectual property rights: patents, copyrights and trademarks. Copyrights cover literary and artistic works, as well as computer software, and trademarks are granted to names or labels denoting a particular quality, which distinguishes it from other products. 'All patents involve invention, but not all inventions are patented. An idea need be neither patented nor patentable to be an invention.' Patents cover 'any inventions, whether *products or processes* (our italics), in all fields of technology, provided that they are new, involve an inventive step and are *capable of industrial application*' (our italics) (Stanley,

2000: 1156–7). Two things stand out here. First, that both product and processes have now been brought within the remit of exclusive marketing rights. As a result, for example, farmers will not be able to keep seeds from their crops. As women form an increasing number of small and poor farmers, this provision is affecting them particularly. Second, patents privilege particular forms of knowledge – ‘stabilizing’ historically developed processes of production would entitle modern industrial companies to patent products and processes and deny nature’s and people’s creativity.

One of the most important issues that has emerged in the context of patentability is about the terms ‘nature’ and ‘natural’. As Shiva points out, a patriarchal understanding of knowledge of nature has emphasized ‘worked on’ nature as natural: ‘nature has been clearly stripped of her creative power; she has turned into a container for raw materials waiting to be transformed into inputs for commodity production’ (Shiva, 2000: 4). Further, according to this view, ‘to regenerate is not to create, it is merely to ‘repeat’ which is the same as passivity’ (Shiva, 2000). The regenerating role of women and nature is then defined out of the sphere of innovation excluding them from the regimes of patents and monopoly privilege. This is particularly evident in the case of the International Convention of the Union for the Protection of New Varieties of Plants, where ‘microorganisms’ have been excluded from the categories of plants and animals and therefore brought under the patents regime. This has allowed for changes in the genetic makeup of existing varieties of seeds, for example, to result in a patent being granted for products of the neem tree and basmati rice among many other ‘natural’ products. This reading of innovation also goes against the recognition of the original reasoning for introducing patents, which was that innovation has high costs of development and low costs of reproduction. By discounting time and historically evolving nature of innovation, patenting institutionalizes privilege – those who are left out of the loop (very often poor women are the majority of those excluded) fall progressively behind in the race for ring-fencing products for monopoly exploitation. As Cosbey points out ‘there has been a steady and substantial transfer of resources from South to North as the valuable products of informal innovation have been appropriated cost-free’ (Cosbey 2000: 8).

Third, TRIPS signify a major innovation in the global regulatory regime. Unlike other agreements which define what members states may not do, TRIPS is proscriptive, in that it sets out what member states *must do*, thus encroaching upon the domain of national policy making in an unambiguous way. Further, by making TRIPS part of the ‘cross-retaliatory’ regime under WTO Agreements, the WTO has strengthened its regulatory power enormously. It now means that non-conformity in one area of regulation can lead to retaliation in terms of trade in areas covered by a different Agreement. TRIPS are therefore part of an extremely powerful group of regulatory

mechanisms that all members of the WTO must put in place by 2005 at the latest. As we will see below, countries of the South suffer disproportionately from such a proscriptive and encompassing regulatory regime.

Women and inventions

Almost two centuries ago, Voltaire declared, '[t]here have been very learned women as there have been women lawyers, but there have never been women inventors' (quoted in Stanley, 1998), and just three decades ago, Edmund Fuller wrote, 'For whatever reason, there are few women inventors, even in the realm of household arts ...' (Fuller, 1955).

To invent is to find, but it differs from discovery in terms of applications of discovery to practical use. Why are there so few women inventors? Some of the answers are obvious – invention usually requires money, materials and the opportunity to share ideas. A related subject is that of women's indigenous technical knowledge and innovation. Outside the world of formal science and technology, and far from the world of patents, is the everyday process of experimentation and adaptation, which has gone on for centuries in every part of the world (UNIFEM, 1999). Through the language, problem diagnosis, and innovation and experimentation methodologies used by women who are custodians of such indigenous knowledge, it is also commonplace to hear that these developments are not non-scientific. They may be outside the scientific mainstream, but they are just as much the result of logical and internally consistent frameworks of understanding as other inventions. Until these 'alternative' forms of inventions are recognized as part of the real science and technology that they are, there is a fear that women's extensive knowledge and contributions will not be given their appropriate value and worth. As a result, society will lose both ways – real gains to be accrued by society as a whole when modern science is combined with this indigenous knowledge and loss of social equity which cannot not be achieved unless women's intellectual property rights are properly protected.

Historically, few women have been financially independent, and most have been excluded from sources of education and intellectual stimulation (*New Scientist*, 1984). All these facts point to the usual feeling that women are 'trespassers' in the field of inventions – even though several path-breaking technological inventions have been made by women. Whitney's cotton gin (invented by Whitney's landlady), the Jacquard loom, the fire escape (Ann Connelly), filter paper (Melita Bentz), the sewing machine and several other such discoveries which made a profound impact on the quality of life prevailing at the time of each invention were all invented by women. The case studies cited earlier highlight some of the difficulties, discriminations and prejudices women face while attempting to enter the domain of inventions.

Patents, property and the global market

Patents, as we have seen above, are forms of property. An old edition of *Encyclopaedia Americana* volunteers the information that ‘Minors and women and even convicts may apply for patents under our law’, hardly encouraging company. However, in 1910, women held only 0.8 per cent of the total patents at the US Patents Office. In 1954, a survey in the US found that although women received only 1.5 per cent of the total number of patents granted, the profits they received from them were, on average, higher than those of men. The range of women’s inventions is now impressive: according to the United States Patent and Trade Mark Office (USPTO) Report, the most prolific woman inventor of US-origin patents from 1992 to 1996 was Jane Arcona, who was the named inventor in 82 patents. According to this Report, from 1977 to 1996, the corporate organizations named most frequently as owners of US-origin women-inventor patents were IBM (1272 patents), GEC (810 patents) and Eastman Kodak (738 patents). The US Navy topped the list of Federal Government organizations owning 264 US-origin woman-inventor patents. Patsy Sherman, commercial products development manager for the 3M company, contributed to 15 important patents including ‘Scotchguard’, the widely used stain repellent for fabrics. Yet this list comprises only the few women who have been able to brave and overcome the veiled unequal power relations operative in the marketplace, whether it is the global marketplace or the village market. Even these figures are skewed further when we consider that ‘95% of the world’s patents are held in the North, and in information technology it is estimated that 90–95% of the world’s research goes on in highly industrialised countries’ (Cosbey, 2000: 11).

The inequalities persisting at different levels of the various marketplaces for women include access to, participation in, and having an equal stake and appropriate bargaining power in relation to the acquisition/invention of knowledge. Markets, it has been argued (Polanyi, 1944) are embedded in the dominant social relations. In discussing four dimensions of market power, White comments: ‘the substance of market politics is characteristically about a number of issues: about the position of an agent or agents in relation to others within a market and their differential ability to extract resources through exchanges with other market participants; about the rules of the game and the nature of market institutions; and about the boundaries of the market’ (White, 1993: 5). The participants in the market include the state, market organizations and formal associations such as trade unions, consumer groups, business associations, market networks, firms and individuals. The functioning of the market depends on the politics of state involvement, the politics of market structures and the politics of social embeddedness – of the state and the market (White, 1993: 6–10). In such a patterned market system, participants come to specific markets with unequal capabilities,

bargaining capacities and resources, which results in widely different market structures, regulated by different state formations and characterized by more or less unequal power – class and gender are two bases for unequal power relations operating in the market. The neo-classical model does not query that individuals can pursue their economic self-interests in ways that have nothing to do with the ‘best price’. Neither do they question the ‘degree to which self-interest places economic goals ahead of friendship, family ties, spiritual considerations, or morality’ (Block, 1990: 54). Finally, there is an assumption that instrumentality in decision making goes hand in hand with obeying rules and with maximizing interests, rather than a set of signals that can lead to conflictual economic and social behaviour in different groups of populations. The social embeddedness of markets is therefore not considered by neo-classical economists other than as a distortion. This embeddedness provides an explanation for the ways in which gendered regimes of patent-based property function. One can hardly be surprised that there are so few women inventors. What is more surprising is that inventions made by women exist at all and that they are not only patented but also commercially developed. As Cosby points out, for example, large multinational plant breeders do not regard the South as a significant enough market to gear research toward varieties appropriate to the various regions ... It is to be expected that innovation done by Northern [funded] scientists will be in the interests of Northern producers’ (Cosbey, 2000: 11). The result is that not only are women left out of the patents regimes almost entirely, but also the nature of research is typically skewed towards the needs of the North, trade and commerce, rather than towards the needs of the South and sustainability of life.

The Fourth World Conference on Women in Beijing in 1995 recognized that access to information prepares women to participate more fully in all stages of political and economic life. The Beijing Declaration and Platform for Action (1995) called on states and organizations to increase women’s participation in and access to new technologies as a tool for strengthening women’s economic capacity and democratic processes (www.undp.org/unifem/ec_tech.htm). The environment for debates on women’s contribution to the technological advances of society and their protection in this regard has been building up for quite some time. This is evidenced by estimates which suggest that natural and physical capital account for less than half of the observed rate of growth, while more than half the growth arises from human sources (UNDP, 1990). This emphasis on human capital has been used to address the issue of gender-sensitive social and economic policies. The concern that human capital should not be allowed to decay during the adjustment period (Vivian, 1995) affirms that development should be equitable, gender-balanced, participatory and sustainable, and that it should also respect human diversity. This is the only paradigm that

explicitly identifies gender equity as one of the main conceptual pillars for transforming the way the current world system operates.

As a result of the factors analysed above, the three riders of the apocalypse which could underpin the present position of women in the arena of intellectual property rights are as follows.

- Intellectual property may be used contrary to the objectives and conditions of its protection – misuse determined by the rightful owner's status in society.
- Market power resulting from intellectual property may be used to extend the protection beyond its purpose or the exclusive right may be used to enhance or extend or abuse monopoly power – depending on the bargaining capacity of the owner, based on economic, social and cultural factors.
- Agreements on the use or the exploitation of intellectual property may be concluded in restraint of trade or limiting the transfer or dissemination of technology or other knowledge – a situation called restrictive contracts or concerted practice – again dependent on the intellectual and economic power of the owner (Acharya, 1996).

The underlying common thread in all three factors is the stake/bargaining capacity of the owner of the property in the property (in this case intellectual property). This is in turn embedded in several other factors that invest the owner with the power to negotiate adequately or results in its opposite.

The inter-relationship between these different issues extends to cover the protection of intellectual property rights at two distinct levels. First, as a multilateral development, affecting and being affected by multilateral trade liberalization and government trade policies, and second, as a microeconomic phenomenon driven by the strategies and behaviour of corporations where the changing dynamics of global competition and international competitiveness are the main concerns (Oman, 1994). Added to these factors are two issues identified by the United Nations Commission on the Status of Women, which further highlight the constraints faced by women with respect to intellectual property rights. These include inequality in women's access to and participation in the definition of economic structures and policies and the productive process itself, and insufficient institutional mechanisms to promote the advancement of women in this regard.

TRIPS – national and gender perspectives

Patent is property. The argument for patents is that inventors engage in the process of production of knowledge, which needs protection from piracy by others. The 'find' of an inventor is thus regarded as personal (or corporate, if the legal person is the group engaged in inventing) – something that is

uniquely the property of the one who invents it. To qualify for patent right, the invention has to be novel, non-obvious and of practical use (Dasgupta, 1999). Thereafter, the right confers on the holder a time-bound monopoly of the given product to enable the inventor to recoup the cost of development of the product and also compensate for the risk undertaken. In addition, it is also expected that such rewarding of invention will encourage others to bring new inventions and thus help in the extension of scientific and technical knowledge that will benefit society as a whole. International protection of intellectual property rights has, therefore, been placed on the agenda of trade negotiations to safeguard the competitive position of some countries against intellectual piracy and the overly rapid diffusion of their comparative advantage.

Social knowledges, private patents: gendered and Southern challenges

As pointed out above, feminist understandings of knowledge and its creation have challenged the view that would allow intellectual production to be given the status of property. There are several reasons for this. First, such a view does not take into account the social history of production of knowledge. The stories we started this chapter with clearly indicate that the women's labour in the production of knowledge has been disregarded because the process of production has been linked with the public sphere, where women were not traditionally operative. Second, the definition of knowledge itself has historically excluded the knowledges accumulated and produced by marginalized groups; hegemonic ideas about knowledge have defined out 'other' knowledges as unscientific, superstition and even witchcraft. Such defining out means that historical knowledges are treated as the raw material for scientists to work on without due recognition. Finally, feminists have pointed out that knowledges are evolving, not static – that fixing a moment that is then frozen in the form of a patent does not allow us to recognize the building blocks of previous work in the area. The rules regime that is now setting the boundaries of this fixity is itself highly problematic, given that it seeks to stabilize the unequal relations of power – within society and between states.

Debates about the nature and processes of creation of knowledge have also made TRIPS an increasingly important issue between and among states. While global in its formulation, TRIPS and its enforcement through the WTO is resulting in sharpening differences among states of the North and the South. Most developing countries feel that the attempt by the TRIPS Agreement (Article 65) at a global standardization of patent laws is in conflict with the thrust on 'diversity' by the Convention on Biodiversity (CBD) signed at the Rio Earth Summit in 1992. They feel that intellectual property rights must not be in conflict with conservation and sustainable uses of biodiversity, an issue that been neglected by those who composed the TRIPS Agreement (Swanson,

1997). Questions are also being asked as to how far this patent regime would facilitate effective competition or dissemination of information. Some have even argued that it departs from the competitive ideals and further restricts the access of the poorer countries to technology (Stewart, 1993).

The two main objectives of an effective patent law are:

- promotion of technological innovation by enabling the inventor to enjoy the fruits of his/her creative activities
- transfer and dissemination of technology in order to curb piracy.

These views have been challenged on the grounds that they are Eurocentric views of culture and that determination of piracy, until such time as the universal patent regime is ushered in, would be judged by the principal of territoriality. Patent rights are not absolute and are to be judged in terms of their social utility, and, as such, costs and benefits may vary over space and time (Deardoff, 1993). Patent rights, while providing incentive to invent, simultaneously give rise to monopoly prices, which affect the consumer adversely. It has been found that about two-thirds of patented products are never produced but used to ward off rivals. While TRIPS is not very particular on the issue of compulsory licensing, several national patent laws (China, Argentina, Brazil) use it effectively to prevent the patent-holder from denying others access to the patented product, and make it possible for others to apply for permission of such use against a fee (Keyala, 1998).

The differential impact of the uniform patent legislation on less-developed countries is a major contentious issue between the two blocs of countries. Vaistos estimated that in 1972, 80-85 per cent of the patents were held by Northern interests (Vaistos, 1972). According to a recent document of the World Intellectual Property Organisation (WIPO), the citizens of developed countries hold 95 per cent of African patents, 85 per cent of Latin American patents and 70 per cent of Asian patents (GAIA and GRAIn, 1998). According to another source, the majority of biotechnology patents are in the name of companies originating in the West. In 1990, 36 per cent were in the name of US companies, 32 per cent in the name of European companies and another 23 per cent in the name of their Japanese counterparts – an aggregate of 91 per cent (Swanson, 1997). Given that an overwhelming proportion of patents originate in the developed world, patent protection is likely to lead to a transfer of income from the less-developed countries to the more-developed countries and thereby widen the income disparities between the two (Deardoff, 1993).

Biopiracy or value added? Patent dilemmas

The issue of biopiracy concerning patent rights on seed varieties has become the most controversial issue in the TRIPS Agreement. It stipulates that plant

varieties are expected to be protected by patents, by a sui generis system or by a combination of the two (Dasgupta, 1998). As such, since the conclusion of the Marrakesh Agreement, there has been an explosion in the activities of large multinational firms to collect germplasms of different plant varieties located in the developing countries. After some cross-breeding with other varieties, they are producing new breeds of such plants and plant produce, which are being claimed to be unique and distinct and are being patented by the multinational firms in their own countries. Once patented, these plants become the private property of the patent-holder until the expiry of the patent right. Under exclusive marketing rights (EMR), the patent-holder of a product patented anywhere in the world would drive out indigenous competitors from the domestic market in any other country, as the patent is universally applicable. This places countries rich in biological wealth but economically poor in a very disadvantageous position. There are numerous instances of such patenting, which began with the commercialization of products made from the neem tree in India. It has since included other products such as the vegetable bitter melon (Karela), the spice turmeric (haldi) and the fruit jamun (a kind of black berry), as well as the African soapberry and the patent covering all genetically engineered cotton varieties. In all such cases, the crux of the issue is whether the knowledge relating to the development of such items is a social product subject to local common rights. Or should they be treated as commodities in which the profits generated from the development of the products involved in commercializing the products are treated as property rights exclusively belonging to the patenting party initially (Shiva and Holla-Bhar, 1996). There is an increasing feeling that the national laws that protect domestic innovations will have to be altered to conform to the patent laws of developed countries.

An important consequence of the concentration of patents with multinational companies in developed countries is the shift in focus for research and development from the public domain, universities and research institutions to private companies involved in maximization of profit. On the one hand, with public subsidy, 'once discovered, an invention can be disseminated virtually without cost', and it can be shown that such 'common knowledge' products are efficient to finance publicly (Lesser, 1991). On the other hand, private companies take the fruits of such basic research and make further investment in adaptive research for their commercial use. Although they cover only a small part of the total cost of research, they still claim patent (monopoly) rights to exclude others from accessing the knowledge. Other challenges to people's access and control of knowledge, technology and production processes include TRIPS preference for product patents as opposed to process patents, especially in the field of pharmaceuticals and drugs, which make it difficult and expensive for developing countries to gain access to new technologies. The 'classical pipeline protection' of Article 70.8 and 'exclusive marketing rights'

(EMR) of Article 70.9 for countries in the transitional phase of switching from process to product patent miss the desired impact in view of the 'long' transitional period. In addition, the fact that once a product is patented in any one country it becomes automatically and universally applicable to all WTO member countries, denies the national governments the right to impose conditions that safeguard the interests of domestic industry. The patent-holder is thus endowed with two types of monopoly arising from patents and EMR. Given that patents are, in the majority, owned by developed countries, the benefit would accrue primarily to the multinational companies of the developed countries. Developing countries argue that the TRIPS Agreement further forecloses the avenue for them to acquire technology through the process of liberally using foreign technology or resorting to reverse engineering for their own technological and engineering progress (Hoggard, 1994).

Engendering the privatization debate

Privatizing knowledge production is gendered in different ways. First, this has historically been a process of exclusion of women (as well as some racial and ethnic groups). In Europe, research centres and hospitals became the domain of male scientists and researchers who denied the relevance of social knowledges to their work (Shiva, 1988). In India, lowest-caste people and women were excluded from education, and from even listening to the classical religious texts. Formalized education then has been a domain of denied opportunities for women. Further, in the global market systems dominated by hypermasculinized values that recognize only certain forms of knowledges, work and competition, even the male populations of Third World countries get 'feminized' through economic emasculation in the market place (Ling, 1997). This is evident in the case of the Warangal farmers of India, 500 of whom took their own lives in 1998–9, under pressure from a combination of local and global structural pressures (Vidal, 1999: 10). Second, more recently, the post-colonial nation states have emphasized the need to develop indigenous strategies of modernizing their economies. This has led to two different strategies. Developing states have modelled their technological development on that of the West, at times by adapting existing technologies to their development needs. Patenting laws will result in the closing of this avenue of development. Without safeguarding the interests of the domestic industries, the product price of goods has the tendency to rise. This has different impacts on women and men, most startlingly in the sphere of health. As pharmaceuticals and drugs become more expensive, women's health is adversely affected. A recent study by doctors in the All-India Medical Institute in New Delhi suggests that far fewer operations are being performed on women and girls than on boys and men (*Times of India*, 25 April 2000). Second, there has been an emphasis on higher education rather than primary and secondary

education. This has meant that girls have not been able to avail themselves of education – due to lack of resources at the lower rungs of the educational ladder and lack of expectation at the higher. Third, economic conditionalities imposed by structural adjustment policies on developing countries are leading to cuts in the public expenditure budgets of these states. These cuts are resulting in declining access to education and more health-related absences from school for girls and women. Average expenditure on education and health was about 3.4 per cent of GDP on education and 3.7 per cent on health for all developing countries, between 1988 and 1990, and only 2.8 per cent and 2.4 per cent for the poorest countries (UN, 1999: 52). Indeed, even in countries that had very high levels of female education, such as Russia and China, liberalization and structural adjustment has led to a dramatic fall in female education. In China, for example, 70 per cent of illiterates are female. Finally, it has also been noticed that among multilateral aid organizations ‘less and less importance is being attached to training poor women – indeed some agencies have abandoned it altogether in favour of micro-credit and savings schemes’ (<http://www.id21.org/static/4af11.htm>). Without training and with cuts in education, the levels of women’s participation in creating formally recognized intellectual products will remain minimal.

Another important issue for the TRIPS regime is the unauthorized exploitation and appropriation of the full market value of the protected subject matter. Here, the inequality in market participation is important as both the protection of the inventor and subsequent commercial incentives are determined by the owner’s position relating to market access and equal participation. As we have argued above, market access is socially determined, as is equal participation in the processes of production of intellectual property. However, we have also argued that a feminist and gendered perspective makes us sensitive to the social history of knowledge production and challenges the boundaries of privatised intellectual production. The market system, we would argue after Braudel (1985), can only be understood when it is replaced within the context of an economic life and social life.

Can well-designed intellectual property regimes try to balance a recognition of the social history of knowledge creation and of individual or corporate inputs which enhance the products resulting from existing knowledge? Can regulatory boundaries be drawn within an intellectual property regime around incentives for the creation of knowledge and the social benefits derived from it? The evidence from our survey of the issues above does not lead to a sanguine conclusion. The terms on which intellectual property is being defined, and therefore regulated, does not seem to be sensitive to historically situated, informal networks of social knowledge. The need to privatize knowledge remains crucial to the regime of patents.

Put simply, intellectual property rights affect women and men as well as developing and developed countries in different ways. The key issues

determining the differences are market access and competition policy (both at the national and international levels) (Sell, 1998). In the case of gender, in addition to these polarizations, women's property rights extend beyond the market to include structures of property that determine the endowments with which people enter markets and structures of reproduction that govern domestic divisions of property and labour. According to Palmer, social constraints that distort allocation of labour, and the rigid and socially sanctioned sexual division of labour that allocates the care of human beings to women's functions like a tax, further aggravate the gender blindness of allocative efficiency and have a bearing on women's participatory role in the market (Palmer, 1992). This is reflected in the TRIPS Agreement where a new challenge is being posed to people's access, control and even knowledge of their livelihood resources.

Conclusions

Mrs Kaijoki's difficulties in making her patent a viable commercial product is a unique example of existing prejudice against women participating equally with men in the global market. The Winter Aquarium System, which she patented in 1989 in Finland, was launched for commercialization in 1994. But she is still struggling to be successful commercially. When interviewed by Ms Maila Hakala, ex-President of the Women Inventors' Network, she admitted that though there is no explicit discrimination on gender lines inherent in the legislation of TRIPS, there are no simultaneous safeguards against the 'brotherhood' network of men who are controlling her chances of equal participation. She feels bitter frustration at the long wait due to the unfair trade practices of agents and other colleagues, who are all men. To add insult to injury they frequently term her invention as an 'easy', yet they are waiting for her to give up.

This experience proves that technological change and enhancing knowledge – the observable face of globalization – are primarily concentrated among male proponents from industrialized countries, operating on a winner-takes-all market concept, and that there is no in-built mechanism in the TRIPS Agreement to act as a safeguard in favour of the so called 'underclass'. This stereotyping is evident in spite of the fact that in 1990, estimated world sales of medicines derived from plants discovered by indigenous people and women amounted to US \$43 billion; only a small fraction of this went to the people and groups who had preserved the traditional medicinal plants. Developing countries profit from the new technologies of the industrial world as much as they do from preserving and deploying the knowledge developed in the course of their own history – in most instances women have developed them. However, their weak positions cannot catapult them to a position similar to the Northern corporate groups, who are quick to patent the age-old knowledge developed by the community and for the community

and to make the same community pay a price for the products that have always been in their custody. The technical interpretations of TRIPS in isolation would enhance the very inequality among nations and societies that it proposes to erase.

Institutional support mechanisms to encourage women to undertake the risks involved in innovative research and development are negligible. Facilities to run experimental trials and resources to encourage such ventures make the access points still narrower. And while in some countries initiatives have been taken, empathy with the unique role women have to perform in society is yet to be developed to make the conditions to facilitate them. Access to credit facilities or the lack of it has been a major deterrent to women's entry in this field. Formal financial institutions see a woman with an original creation to be tested in the market but without the conventional collateral as a double bad debt even before the loan has been approved. We need not venture further into the details of monetary restrictions facing women at every step thereafter.

Classification of many women's inventions and acknowledgement of women's creation or contribution to many inventions are important aspects of equal participation in the marketplace. Beginning with the inventions of fire and machines, both considered as male preserves, to herbal medicine, which became a significant technology the moment it was taken over by males, women have always been subjected to stereotypes – their inventions are 'domestic', mainly related to child, home and beauty care. Venturing out, they advanced into 'nurturing' kinds of invention for use outside the home and finally women entered into a variety of areas not associated with traditional stereotypes, such as biotechnology, including genetic engineering, etc. These assumptions, an integral part of any society's psyche, are a barrier difficult to surmount and when overcome pose a host of problems before the inventions can be patented and subsequently commercialized.

In a world of unequal partners, it is not, therefore, surprising that rules of the game (globalization) are asymmetrical, if not inequitable (Nayyar, 1997). The gains go to countries that have participated most actively in setting the rules (Page *et al.*, XXXX). Developed countries of the West emphasize the close relationship between economic progress and protection and legislation on intellectual property rights, and feel this would further boost economic development in developing countries through an increase in employment and enhanced exports, and would act as an incentive for innovation and technological advance. On the other hand, developing countries focus on the double provision of patenting, which has led to several abuses, especially among developing countries (Ramachandra, 1977). According to the statistics of the Indian Patent Office, in 1998, the number of patents granted in India to foreign companies was 8229, while the figure for Indian companies stood at 1926. A UNCTAD report identifies the impact of the TRIPS Agreement on

developing countries as 'ambiguous'; while reducing their access to technology developed in other countries it also imposes the cost of enforcement, which is particularly high in low-income countries (UNCTAD, 1996).

Our argument is that in any society, customary property rights are evolved to lessen transaction costs to individuals is valid generally - but this ignores the ideology of gender that places differential values on male versus female ownership and rights (including intellectual property) (Mukkund, 1999). As such, the intellectual property rights legislation makes no provision for insulating the unique contribution made by women innovators, in the first place by acknowledging it as an innovation and thereafter protecting it from future unfair exploitation. Innovation for the universal formal sector signifies a proactive process where opportunities are created or sought and risks taken or supported. In the context of women, however, innovation extends within a broader band of activities, which sometimes may not be linked to the market or to changes in the machinery or equipment. It can bring about any change, however small, in the skills, techniques, processes, equipment types or organization of production that enables people better to cope with or take advantage of particular circumstances (Appleton, 1995). Women are not generally high-profile users of technical hardware but have important technical skills and knowledge and are engaged in complex production processes. They constantly innovate and adapt or contribute to the innovations and adaptations of others, but under the protective legislation of intellectual property rights their expertise goes unrecognized and is less valued. The apparent 'invisibility' of women's technical contribution is not rectified by this new legislation.

Reverting to the first of the three questions: whose rules govern the TRIPS Agreement, even if the rules are universally accepted, it will depend on the willingness of the powerful male-dominated lobby to promote them. Second, their successful promotion can often reinforce the already unequal power relation between men and women as the implementation of TRIPS Agreement is dependent on domestic institutions which are often influenced by a close interplay of social and cultural factors. Finally, the third question pertaining to the mode of implementation - this is dependent on international institutions, which are usually not very effective, except when dealing with states dependent on them for financial assistance. This links back to the confirmation of the conflict between the powerful and the not powerful parties.

The four main issues that are most likely to have an impact on the future equal status of women, vis-à-vis the protection of intellectual property rights, are:

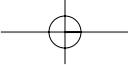
- a capacity of states to bear the costs of adjustment to globalization
- the need for institutional reform to manage globalization
- the values which are to underpin the new global system
- the complexity and ambiguity of the emerging transitional society.

For better and more effective protection of women's intellectual rights the following themes need to be explored and incorporated in any national or international legislation designed to achieve an optimum result:

- Technological worlds of women and men differ according to social, economic, cultural and sexual relationships existing between them.
- Women's knowledge of processes is rational and is based on a logical framework of understanding.
- The space in which women live affects their patterns of production and use of technology, as do circumstances, such as national disaster, conflicts, environmental changes and market demands.
- The innovations that women make are based on their perceptions of the priorities in all aspects of their lives and particularly on their understanding of the risks involved.
- Women's knowledge and skills in food production, processing and marketing play a crucial role in household livelihoods and food security.
- Technical information and skills are communicated to women and between women using different channels.
- The national policy environment affects the ways in which women use, adapt and adopt technology (Appleton, 1995).

Based on these themes, a significant 'break point' in the implementation of the TRIPS Agreement would be an acknowledgement that the various disciplines of intellectual property rights covered in the Agreement will differ among countries (depending on their levels of economic and technological development and mode of implementation), as well as between women and men. 'We still live in a world where,' as Dr Rosalyn Sussman Yalow, winner of the 1977 Nobel Prize for Medicine for the discovery of radioimmunoassay (RIA) said, 'still a significant fraction of people ... believe that a woman belongs and wants to belong exclusively in the home ...'. To advance forward, women require competence, courage and determination to succeed. But this does not diminish the role of an enabling environment.

It is perhaps useful to end with another story of another woman inventor. Marie Curie did not patent her inventions. She insisted that she wanted no profit from them but to publish them to promote the study of radium and its applications. The so-called obvious technology of age-old communities is usually the real leap in knowledge as compared to all subsequent technology that is being patented with great enthusiasm. We do have choices. Instead of cherry-picking the best practices, which necessarily do not reflect the real position of women in the context of protection of their intellectual property rights, it will be useful and practical to use the TRIPS Agreement for the equal protection and participation of women inventors, entrepreneurs and others in their respective fields of technical advancement. Otherwise it may soon degenerate into a 'democratic masquerade'.



The political economy of intellectual property rights

