

Growth via Intellectual Property Rights Versus Gendered Inequity in Emerging Economies: An Ethical Dilemma for International Business

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ABSTRACT. In this paper, we critique the emergent international normative framework of growth – the knowledge economy. We point out that the standardized character of knowledge economy’s flagship – intellectual property rights (IPRs) – has an adverse impact on women in emerging economies, such as India. Conversely, this impact on women, a significant consumer segment, has a feedback effect in terms of market growth. Conceptually, we analyze the consequences of knowledge economy and standardized IPR through a feminist lens. We extend the analyses by pointing to various contradictions surrounding growth norms; for example, there are inherent contradictions between established “formal” legalistic interpretation of IPR, “soft law” norms of corporate social responsibility, a fluid situation of moral claims of human rights, and different institutional capabilities at the international and domestic level. Consequently, we are able to demonstrate how standard IPR laws fail to deliver equity for all. We argue our case through exploring the growth aspects of the agricultural sector in India and the adverse impact of standard biopatenting on women farmers’ rights (as producers and consumers) and preservation of environment. We suggest that desired gendered equity is better achieved when there is a constellation of actors – private-sector business, the state, and civil-society leaders – working together to ensure a balanced development through tailoring of IPR to local needs.

KEY WORDS: agricultural sector, equity, gender, growth, intellectual property rights, multilayered governance

Introduction

With globalization of trade in products and services, sovereign nations, particularly Southern developing

nations, are becoming increasingly integrated into a global economy. The “normative” model of growth that the emerging states have been following to catch up with the leaders of the North is one based on “knowledge economy.” In this model, the sustainable, renewable, and nondiminishing returns characteristics of knowledge are emphasized. The model gives the impression that knowledge is the key to achieving efficiency and sustainability simultaneously. It presumes a uniform distribution of knowledge, and hence, a predesignated state of “formal” equity.

However, this model is not uniformly egalitarian. It is actually the basis of distinctive comparative advantage of nations that are already developed. As Morgan and Fai (2007) point out, the model has shifted the basis of competitive advantage. From tangible assets and resources, in which the primary-producing South has an advantage, the advantage has shifted to less tangible ones such as skills and knowledge. Unfortunately, this advantage is one in which the technologically value-added, finished-goods-producing North is far ahead in the game. Hence, the normative shift has led to significant change in the structures and growth strategies of international businesses that seek to grow through innovation and protectionist stance towards such innovation. In light of this change in the structural framework of growth in the international political economy, we seek to enquire about growth’s impact on equity.

The centrepiece of knowledge economy model is legal patents based on IPR,¹ which help to commodify and privatize scientific knowledge production (Baskaran and Boden, 2004, 2007). This helps

to garner increasing rates of return or provide accumulation of wealth. Hence, IPR provides incentives for innovation for both business and individuals. Specifically, for individuals, IPR is expected to generate a wave of proactive productive activity. This is projected to enhance people's capabilities by building human capital.

Capability is a "language" of rights, specifically human rights. This language encompasses not just socio-economic rights, but also political and civil liberties. At a quick glance such language seems to be enormously empowering as it promises to deliver bountiful economic growth, progress, and prosperity to all emerging nations.

However, we will demonstrate that, on careful consideration of empirical realities, one finds that there has been a severe shortfall on substantive growth among emerging countries. While this is evident in almost all the dimensions of capability-building of the general population, the shortfall is most acutely reflected in the comprehensive negative growth of human rights among women. Economic growth has had a severe differential impact on gendered equity.

Gender refers to socially constructed identities, roles, and status. This social construction influences the allocation of power, entitlements, opportunities, and prestige to males and females. Gender issues are inevitably tied to discrimination, oppression, and marginalization. This obstructs women from benefiting equitably from the resources available within the family, the community, the state, and society. The ideology of patriarchy undergirding gender issues rationalizes the injustice against women by portraying them as dependent and incapable. Hence, social life prioritizes male experience, needs, and aspirations (Alvarez-Castillo and Feinholz, 2006). From this basic understanding, Rosser (2005) provides a comprehensive literature review on different feminist perspectives. A key focus of all such perspectives is capability development.

As a whole, women's equity depends on achieving independent capabilities in both production (such as agriculture and traditional medicines) and consumption (such as medicines and food). The inability to provide for such equity represents a break in the social contract of egalitarian market economy and democracy. This has implications for business. As Prasad et al. (2008), point out, "International

Management entails managing the market factors – land, labor, capital, and organization, or their contemporary equivalents, in tandem with non-market elements – culture, conflict, or cooperation" (p. 625) that are attributable to democratic framework of social interaction.

We attribute the negative impact on equity to several things. First, there has been lack of proper coordination among priorities of growth and distributional equity within emerging nations. In the specific context of India, Elizabeth (2008) paints a positive picture of India moving steadily towards reaching the goals of Millennium Development, set by the United Nations (UN), by 2015. However, Addison (2008–2009) paints a grimmer picture of reality in emerging nations. Second, this mismatch is attributable to changing rational and ethical priorities of the private sector and the government in terms of preserving the ecology of socialized landscapes, while achieving economies of scale (Rangan and Kull, 2009). Third, this mismatch is reflected in the lack of proper integration of the private and public aspects of IPR within a nuanced context of specific requirements of development. This is evident in the declining control of Indian women over traditional knowledge of seed preservation and cultivation.

Despite the above-factored mismatches, the reality is not one of absolute gloom. In the presence of significant civil-society countermovements, the priorities of both the private sector and the government can be nudged towards the direction of substantive capability-building. This can be done through development of proper democratization of liberal political and economic institutional infrastructure. This can be done at the international as well as domestic level. In this paper, our focus is more on the latter, but it cannot be divorced from developments in the former.

General outline

We, first, clarify certain conceptual issues that are central to our analysis: knowledge economy and related standardized IPR; feminist critique of liberal social contract theories of human rights; the debate on law/rules and moral claims of rights; and corporate social responsibility (CSR). We seek to demonstrate our thesis through an analysis of

standardized IPR's impact on gendered equity (in terms of capability-building), specifically in India. We hope that it will help shed light on some of the problems that both developing and emerging nations face today.

In analyzing the empirical context, we begin by analyzing India's changing institutional context. We look at growth in the agricultural sector and its general impact on women within agriculture. To hone in our point of erosion of women's capabilities, we analyze the impact of patenting in biotechnology on traditional knowledge and how lack of control over production of specific knowledge goods impacts consumptive capabilities. We show how global and domestic standardized patenting of plant seeds has contributed to recent food insecurity, despite the immense development in the agricultural sector. We investigate the growth priorities in this sector and how, in the race for growth, women have been short-circuited in capability development. We point out that the government's attempts to modulate IPR to local needs has created contradictory policies. This has been due to the constant tension between its global commitments and local needs in terms of both growth and equity. The policy imbalance has been exacerbated by negative incentives of creating unsustainable development of hybrid seeds by multinational corporations (MNCs), due to IPR's promise of profits. However, we end on a note of hope that sufficient countermovements from civil society have already emerged to provide for a balancing ingredient in the mix of growth and equity. There is hope precisely because there are economic incentives for businesses to promote women farmers' rights; there are power incentives for state to preserve local knowledge; and there are countermovements with ethical incentives to bring about change.

The uniqueness of our contribution is to bring together issues of production and consumption of knowledge in the domain of modern and traditional agriculture, for purposes of growth in emerging economies such as India, that result in (unintended) unethical consequences for women. We seek to also showcase these issues in the context of impact of change in the international institutional regulations (Andersen and Konzelmann, 2008) in India as it steps forward in the development path as an emerging economy (Burgess and Steenkamp, 2006).

Conceptual analysis

*Structural change in international economy:
the emergence of knowledge economy as a normative
framework of growth*

Concurrent with increasing integration of economies into a global chain of production and exchange, over the past decades a new international normative framework of growth has emerged: the knowledge economy. A knowledge economy is one that creates, disseminates, and uses knowledge to enhance its growth and development. This is an economy that harnesses and uses new and existing knowledge to improve the productivity of agriculture, industry, and services, and increase overall welfare. The thrust then is on increasing labor productivity by shifting labor from low-productivity and subsistence activities in agriculture, informal industry, and service activities to more productive modern/formal sectors of scientific knowledge-based activities. In short, it means redeployment of resource from less efficient to more efficient uses (Dahlman and Utz, 2005). However, this deployment has to be ensured in the context of genuine hard work by the newly developing human capital. The emerging human capital cannot distort progress by free riding on knowledge, as evident in violations of IPR (Coriat et al., 2006).

Based on such economic understanding of knowledge and growth, a general consensus has emerged in the international forums of trade, such as the World Trade Organization (WTO). According to this consensus, in order to promote growth across the world through knowledge economy, the critical incentive has to be standardized IPR. The consensus has been embedded in the international Trade-Related Aspects of Intellectual Property Rights (TRIPS) treaty. Though party to this treaty, developing and emerging countries have had limited leverage in its construction. Consequently, there has been an ongoing battle, right from the inception of TRIPS, to prioritize development and human rights in the constitution of TRIPS laws and their implementation. In this paper, we are not going to trace the history of this battle between "knowledge cartels" of developed countries, and developing countries and human-rights activists over "information feudalism" (May, 2006; Sell, 2003, 2007;

The Corner House, 2004). We are going to focus on IPR's impact on human rights, particularly that of women.

According to Love (2007), patents have always been a matter of huge debate for the past half a millennium due to the monopoly nature of IPR. In the mid-19th century, the premier economic journal *The Economist* approved of the disappearance of patent laws as it was seen as a deterrent to competition and free trade. Why then has standardized IPR become such a powerful institutional force?

IPR is an institution of force because it is a state-sponsored monopoly power of corporations in excess of what is necessary for incentivizing innovation. IPR helps to derive above-normal profits from advantages that are sheltered from imitation and consequent market competition (Levy, 2008). With patents acting as barriers to trade, there has been selective implementation of free trade. In global production chains, innovation instead of being simply economic value creation has become deeply political value capture. According to Dine (2008), the international trading system is both corrupt and a force for de-democratization because of international treaties that benefit the powerful and exclude the weak. The solution to such problem is law that enshrines fair-trade policies espoused by ethical trading movements.

From such perspectives, the imposition of uniformly stringent standards of IPR at a time when majority of the world is underdeveloped has had serious consequences on growth and equity. This is ironic, because empirical reality of the necessity and impact of IPR is not straightforward. IPR can be useful, if it is applied in a nuanced manner with consideration of local needs.

According to Baskaran and Boden (2004, 2007), national innovation systems that are tailored around national needs focus on institutions, histories, territories, technologies, and organizations. This system is not just a tool to achieve the narrow goal of industrial/economic competitiveness, but is about achieving broader development and wider social benefits. National innovation systems are based on a social contract between scientists and the public. Based on such a social contract, science produces open, codifiable, and trusted knowledge in return for status and position.

However, mainstream neoclassical economics and associated neoliberal policies often neglect and treat

such issues as residual, because the primary focus is not on distributional equity but on wealth accumulation. With commodification of knowledge, due to neoliberal knowledge-economy policies of "private" growth adopted by the government, the policy environment has changed. This has impacted scientific growth. This is due to the fact that science is a social practice and its knowledge products cannot exist independently from the processes that make and shape them. Scientists' rewards are, hence, now financial and commensurate with the economic usefulness of their knowledge. With a standardized process of science of innovation emerging, there has been a serious negative impact on development.

We argue that, if IPR is tailored to local needs, such as local knowledge conservation, IPR may be useful, provided it is serving a useful social purpose of ensuring developmental equity. However, as we will see, this is not the necessary outcome that has been achieved in reality. Without a benevolent outcome, the institution of IPR has created negative externalities that are skewed towards the vulnerable sections of society, particularly women.

In predominantly patriarchal societies, women are structurally disadvantaged due to sociocultural norms that devalue their contribution to the economy and deprioritize development of their capabilities. Hence, the ravages of increasing inequality due to poverty have been most visible among women. This impact has been strongly felt by women in their inability to control traditional knowledge in agriculture.

Chon (2006) points out that IPR became instituted in non-IPR issues such as trade in agriculture through linkage bargaining (a method of forcing developing countries to sign up to the higher standards of IPR protection than they would otherwise have desired). Thus, previously unrelated areas are now linked via negotiations over universal trade rules. This creates deep integration – harmonization across borders of production of goods and services as well as standards and other domestic policies. This is a "formalistic-universal" approach that ignores a country's economic status and, hence, overlooks the need for preferential treatment of disadvantaged countries. This vulnerability of states added to a lack of political will to prioritize women's concerns has exacerbated women's handicaps in society.

The execution of TRIPS at the national level has had economy-wide consequences in terms of public policies that governments undertake to ensure distributional equity. With increasing normative thrust towards privatization and free-market-led auto-growth, developing country governments have taken a back seat. Lack of proactive protection against market distortions endangers the poor's survival. This is because government inaction has created incentives for misconduct by the powerful corporations, as evidenced in biopiracy.

Overall, changing institutional frameworks of law and industries has created food insecurity by undermining agrobiodiversity. This creates severe handicaps for women. Let us seek to understand this dearth in women's capability through the lens of feminist understanding of human rights.

Feminist critique of human rights

IPR stands squarely in the liberal tradition of contractual rights by emphasizing individual liberty and autonomy ("property in the person") within contract-based democracy and economics. It implies a "genuine consent" of the actors within a liberal-market framework, and hence a real flourishing of freedom and equality. From this standpoint, participation itself is proof of political efficacy of the framework of action. It guarantees progress and redistributive justice through "trickle-down" of the benefits of growth. This vision has been the dominant trend of thought in development.

According to Chon (2006), development thinking tends to reside predominantly in economic theory. From a Keynesian standpoint that unashamedly pushed for state intervention, the transition has been to neoclassical economics driven neoliberal development. The "neo" is simply a recent gloss over basically liberal concept. Classically, the reliance is on markets and price mechanism. Contemporarily there is a concern for victims. And, neostylistically, there is "neutral" acceptance of suffering as an inevitable consequence of reform and efficiency. Due to this variance in liberal thought, the tendency is to consider development inequalities as basically minor mistakes that can be rectified with a little bit of addition of equality. This is expected to maintain the supposedly general positive trend.

However, for Chon (2006), for development to really work, all concerned entities of power such as states, businesses, and activists need to come up with a different strategy. The current strategy rests on accepting the dominant discourse and trying to win by "gaming the system." Instead, one needs to recapture terms of development from a discourse that prioritizes efficiency norms and incentive rationale and reorient them towards development of local capabilities. This essentially involves public action to raise people out of poverty. This would enable individuals to take responsibility for their own actions. This would lead to a change in attitudes and behavior – just as the neoliberals want.

However, feminist theorists, such as Ackerly (2008a), point out that mere public action is ineffective if it is divorced from a diagnosis of the contextual structural constraints that creates visible and invisible hierarchies of marginalization; for example, domestic violence and human trafficking are rights violations, but due to gendered social realities, such violations are invisible. Participation and self-development are blocked when there are social structures that subordinate a whole section of human population, i.e., women. Their subordination in both public and private domains renders them second-class citizens, unable to make informed choices due to lack of means or access to conditions necessary to make choices effective.

In the public domain, women are constrained by lack of egalitarian rights in domains of property ownership, discrimination in terms of employment and pay, etc. In the private domain, they do not have control over their sexuality. This is also evident in the lack of recognition of marital rape in law in many countries. These private and public barriers make it almost impossible for women to access positive freedoms that enable self-transforming activities.

In a liberal world, equality is understood as synonymous with similarity (O'Neill et al., 2008). However, women's experiences in a patriarchal society are significantly different from those of men. In civil society, women are denied any deliberative voice or agency in construction of the original contract. Hence, mere adherence to formal equality does not adequately address the question of redistributive justice through capability-building. Lack of political power is inevitably intertwined with

economic inequality. This prevents substantive consent to participation within liberal polity and economy. Egalitarian views that consider democracy to be individual choices made with an understanding that one's own good is connected to the good of the community is unrealizable in a context of severe power differentials. Thus, there is a disjuncture between idealistic social contract theories' aspirations and reality.

Ackerly (2008b) points out that the asymmetry in authoritative knowledge for women implies that their understandings of what human rights should be are never even heard. This renders their experiences of suffering as apolitical. Social contract discourses, by projecting a noncontested universal consensus of rights as a knowledge system, thus imposes an epistemological subordination. Since women's knowledge is not considered, social contract theory recasts inequality as legitimate freedom and equality. This knowledge process, through ossification of established traditions, muzzles a constant reexamination and modification of social practices and institutions.

Hence, there needs to be a reevaluation of traditions within the full range of interrelated human contexts: political, economic, social, familial, interpersonal, cultural, and geographic. Since this analysis does not normally happen, the established order fails to recognize the political legitimacy of women making human-rights claims. It also refuses to acknowledge that the women's moral claim challenging, local, national or international norms is a human-rights claim.

Due to such structural constraints, in tune with John Rawls (1999), one of the most prominent proponents of social contract theories, Ackerly (2008b) calls for a nonideal theory of rights. This means recognizing the fact that the conditions necessary for bringing about all outcomes that a fully articulated theory requires are severely lacking empirically. Hence, questions of contract cannot be considered to be morally settled prior to a genuine political engagement that depends on the justice of the context of such action.

Such justice depends on the system not abusing its authority. It depends on the system recognizing that women are not "property in person." Rather, their rights depend on their social experiences. This depends on recognizing that their rights are universally violated by a common thread of injustice.

The roots of such injustice lie in not having an enabling environment that gives them the power to make an effective argument.

This lack of voice does not mean that women's differences should render them as subjects of inequality. Rather, their inequality should be undermined through reforms of exploitative hierarchical institutions and practices. To achieve this reform, one needs to acknowledge that multipronged action is needed. This is because women's rights do not always have identifiable duty-bearers. States can help by creating enabling conditions.

However, state help is not enough. What is also critically needed is the informal operandi of individual and group practices or relationships that seek to correct injustices. Hence, social capitals of networks are critical. Typically, in such networks, people are willing to incur small costs to promote fairness because they can garner trust in return. This prevents the emergence of a system where people are complicit with established ways of doing things. Such networks are critical for gendered justice (Ackerly, 2008b). This multilayered governance structure would open up more domains for contesting claims.

In such domains, the norm of contract and rights and obligations would constantly be put under scrutiny to reveal the inequities of the real, nonideal polity. This can come about through an immanent form of universal human rights. The theory that emerges from such consciousness of rights seeks a constant dialogue and negotiation between social theorists and human-rights activists across and within cultures. By interacting with activists who have the authority to claim the truth and enforce it, theorists would be able to constantly question "universal" epistemological consensus or "definitive" moral justification of rights in their theories.

Hence, theorists would be able to question the political commitments that are embedded in such theory construction. This would help them to recognize emerging human-rights violations. Such self-critique would also help theorists to dynamically identify the methodological processes needed to correct the specific requirements of every situation.

Overall, such a feminist critique creates a critical tool that brings together an analysis of exploitative hierarchies at the level of macropolitical (such as state and global politics) and micropolitical forces (such as ethical decisions, habits of consumption, and

aspirations) (Ackerly, 2008a). This helps to bring about shifts, even if incremental, of traditionally unchallenged power in the empirical domain of multiple authorities. This includes the global as well as the local, where international agreements on principles and institutions emerge through constant contestation among multiple actors trying to find a contingent balance between growth and equity.

In light of the above critique, we raise the following questions. What should the guiding hand of public policies be in order to ensure a harmonious outcome of requirements of human rights, democracy, freedom, and justice? Should it be systems of knowledge such as established standard rules/laws or evolving, local, moral claims as knowledge systems? What roles can various duty-bearers play in such a context to ensure that dissent is voiced and there is an ongoing process that ensures political legitimacy of claimants and claims?

The debate over rules versus rights

IPR of TRIPS takes a Western legalistic view of rights. It focuses on absolutist rights and concentrates on procedural fairness based on formal equality of individuals. This myopic viewpoint tends to overlook a couple of facts. First, the dichotomy of formal/scientific/Western and informal/traditional/Oriental is a false one. Communities across the world often encompass both distinctions of individual and community/customary rights even when the individual is strongly embedded within the community (Paul et al., 2006). Hence, community/social rights and independent individual rights need to be adjudicated according to specific contextual constellation of rights.

Second, careful studies show that modern scientific practices have been ingrained for millennia in the informal/traditional sectors by strictly indigenous efforts and through interactions with colonists, settlers, and traders (Gupta, 2005). This means that the local and universal understandings of informal and formal framework, due to conceptual fluidity, need to be constantly negotiated to ensure a congruent fit. We cannot prioritize one over the other in terms of superiority. Instead one needs to understand that, at any point in time, each is constitutive in the construction of meaning of the other. This means that,

no matter as what avatar the formal or informal appears across time and space, each can be seen as having stimulating effect on the other in terms of growth through information and opportunities as well as a balancing effect in terms of sustainability. Consequently, both will demand its own specific set of institutional configuration that can coordinate with the other to achieve that balance.

Finally, in the same spirit of rejecting a false dichotomy, one needs to be careful about not romanticizing the benefits of the informal over the formal. Even within community rights, if specific group rights, such as those of women, are not addressed, there is likely to be marginalization of voices. Such silencing of voices can be based on issues such as patriarchy, feudalism, and religious fundamentalism. The point is that, irrespective of the focus on group or individual rights, the problem lies in taking an absolutist position that is not sensitive to contingent situations.

Hence, we enquire about the problematic aspects of adherence to absolutist rights of laws. Laws have the capacity to define identity, and establish rights and duties of various statuses. Such actions become sedimented and fixed into legal forms over time (Merry, 2006). This means that marginal voices have an uphill battle to fight to claim their rights. As Sen (2005–2006) points out, “it is hard to justify the defense of freedom of human beings that separate out some people, whose liberties matter, from others not included in that select category” (p. 2913).

With this caution in mind, we need to realize that laws are double-edged swords. First, they can define a situation clearly, which makes predictability of judgment and sanctions easier. According to Ackerly (2008b), The Convention for the Elimination of all forms of Discrimination against Women (CEDAW) is an international legal instrument that legislates that human rights and their violations cannot be discussed without reference to women’s socio-economic subordination. However, laws also leave fewer choices or flexibility that can be quickly implemented as the sociopolitical environment changes and new demands arise.

Second, if there are ambiguities in the law, then they can be used by human-rights activists as delaying tactics by proffering alternative explanations of the evolving situation and demanding changes (Picciotto, 2007). Human rights are comparatively

recent normative developments in comparison with legal rights, which are much older. It is therefore easier to try to map out human rights within rules/laws. Also, the term “right” itself has strong legal antecedence, and human-rights activists tend to finesse the outcome of their struggle through institution of fresh legislation (Sen, 2005–2006).

However, as Sen (2005–2006) argues, it would be better to see laws as only one aspect of human rights. As Merry (2006) points out, law is plural and intersects with other legal orders, whether of nation states or other forms of private governance (such as village laws). The intersectional nodes of varied laws and ambiguous and complex processes of execution of such laws mean that beyond specified laws are semi-autonomous social fields of interactions. Such fields depend on reciprocity and ostracism through gossip and scandal. These fields are also potential domains of ethical human rights.

Laws imply coercion whereas ethical rights are a matter of social recognition – an evolving social praxis. A key impediment to praxis on developmental issues is that the “language referencing development in TRIPS is not mandatory, but rather hortatory, and is placed within parts of the treaty that are not in the main treaty body” (Chon, 2006, p. 2843). While activists fought over such sidelining of developmental issues and got concessions, they are still embattled in negotiations over implementation of these concessions.

One of the strategies that have evolved to counter such deliberate delays is to go around “forum-shopping” or searching for correct venues for regime-shifting and developing alternative norms. For example, instead of focusing on the legalistic-oriented WTO, developing-country governments and nongovernmental organization (NGOs) have focused on the UN and its Millennium Development Goals (MDG) mandate, regional forums such as Asia-Pacific Economic Cooperation (APEC), etc. In such forums, activists can institute informal understandings through public debates and garner social recognition of their causes.

Given this overall convoluted legal wrangle, human rights should also be seen as an articulation of social ethics whose functionality lies in practical reason. Like Rawls (2007), Sen (2005–2006) advocates for a public framework of thought on human rights that provides an account of agreement in

judgment among reasonable agents. This agreement could be about autonomy, choice, and bodily integrity, and not just about functional exchange and obligations. Most critically, moral claims of general human rights by reasonable people will always survive open and informed scrutiny through opportunities for unobstructed discussion. This would result in perceived and actual equity in the formulation, substance, and outcome of international and domestic agreements.

Hence, in tracking the impact of IPR on women’s welfare, in this paper, we will add to the growing literature seeking to recognize the moral claims of women as human beings whose dignity should be a critical concern in development perspective of growth and equity. The purpose is to generate the social pressure of moral outrage against inhumane policies that prioritize values of utilitarian ethics of efficiency over values of ethics of substantive equity. The latter demands a “free life” brimming with requisite capabilities needed to flourish in a knowledge economy.

The rationale behind generating this concern is that free life is a public good (Chon, 2006) that has the characteristics of nonrivalry and nonexclusivity. Nonrivalry means that one’s use of it does not prevent others from using it too. Nonexcludable means that, if it were not for institutional provisions, such as, patent-based monopoly rights of exploitation, the general public would have fair access to critical resources of life, such as, knowledge and resources needed to lead a free life.

If commercial instrumentalist concerns of increasing rates of innovation and economic growth through IPR overtake other ethical concerns of development, we are likely to have a situation of severe crises generated by enormous negative externalities. According to de Wildt and Khoon (2008), in instituting IPR, a golden convention has been broken. This convention dictated that *discoveries* should not be patented. This rule applies to plants, other lifeforms, and substances that are essential for life, such as parts of genes. Obviously, such discoveries have public-good characteristics that demand free and fair use.

Political orientations that push for quick returns to propel growth tend to overlook the fact that growth will be stunted in the long run if equity concerns are not balanced and given equal priority.

Knowledge goods, such as communicable disease control, access to food and medicines, access to educational materials, awareness of rights within cultural norms, etc., are critical public goods as they facilitate the meeting of basic human needs. Public goods also help develop beneficial policies through voluntary activism.

Knowledge goods are by nature “impure” public goods in that they combine both private and public aspects (Chon, 2006). Hence, they are deeply political, in that whether their public or private aspect should be enhanced is a matter of steep political contest between technical elites and civil-society actors. If IPR blocks access to such knowledge goods (which are not simply technical but also “organic” and local), general welfare is dynamically threatened.

Women are both producers and consumers of knowledge goods. Knowledge products are essential for life. Hence, allocative efficiency or provision for these goods is critical for capability-building and empowerment. Without them, there would be no concurrent facilitation of job procurement or enterprise-building needed for the production of technological innovation and progress that TRIPS seeks. As consumers, if women do not have sufficient income to pay for these goods, they can neither have the ability to develop themselves nor innovate and create profitable growth. Patents and innovation are long-term processes whereas life is a short-term consideration. Hence, paying attention to women’s concerns on both production and consumption sides are critical.

To promote women’s issues one has to be able to find a balance between rights and obligations. To understand this balance, it is critical to bring in not just the emic, parochial perspective of locals, but to confront and/or coordinate it with the etic, distant perspective of Western intellectuals who have also contributed to this thought process for centuries. This should help get over the postmodern objections about how the West has privileged its cultures and institutions and marginalized the “Oriental other” as incompetent, inferior, and in need of transformation.

Our study will hopefully establish that all cultures can learn from each other. This study should also open up all claims of power-neutral Western laws and romantic notions of indigenous cultures’ non-gendered human rights to debates. It would reveal the different intrafaces and interfaces of conflict and power negotiation within and among different

communities (Padmanabhan, 2005), irrespective of geographical borders. This would bring about a more nuanced understanding of agent motivations everywhere and requisite structures of public policies that are needed to solve/mitigate problems.

In the Kantian sense this would hopefully generate “imperfect obligations”, i.e., “general duties of anyone in a position to help to consider what s/he can reasonably do in the matter involved” (Sen, 2005–2006, p. 2922). Instead of giving into the general dysphoria/despondency that ensues whenever private responsibility is evoked, we will be looking at the Indian and foreign private sector’s moral obligations to the cause of growth and equity from this normative philosophical standpoint.

In that sense, our academic analyses (insulated from both state and market to enable fair use of knowledge production) is a form of activism that has two purposes. One is to highlight atrocities by diagnosing empirical situations. The other purpose is to “shame” requisite authorities into recognizing moral claims. In order to do this, we seek to develop a nuanced, context-sensitive analysis in the context of development in India. However, to better understand the obligations of the private sector as duty-bearers of human rights, we need to have some understanding of CSR.

Corporate Social Responsibility (CSR)

Social responsibility begins where the domain of formal law ends. Graham and Woods (2006) point out that corporations are informally expected to implement global public policies efficiently and effectively because of their expertise derived from their privileged access to knowledge and their own adaptable governance structures. For Levy (2008), however, CSR is just a manifestation of legitimizing the market and political power of dominant firms. This is done through an accommodative discourse about global production chains being an alternative mode of multilayered global governance. Here, contesting groups simply use it as a strategic acquiescence to find space for realizing their own goals.

We do not subscribe to the absolute skepticism of Levy’s viewpoint. Instead, we point out that, once laws are in the public domain, they are available for strategic use by multiple actors, such as human-rights activists, based on contingent needs. However, this is

not about mere acquiescence but also about bringing about distinctive change. Hence, it is critical to understand what soft law norms of CSR entail and how they are implemented.

According to Flanagan and Whiteman (2007) four basic responsibilities – economic, legal, ethical, and philanthropic – can be linked to key corporate social performance processes such as environmental assessment, stakeholder, and issue management. These in turn relate to corporate performance outcomes such as social impacts, programs, and policies.

For Aaronson (2007), global CSR practices are based on ethical values and respect for employees, communities, and the environment. These often have to go beyond traditional objectives of producing goods and services and expanding shareholder value. CSR being voluntary, they are key elements of soft law that are manifested in corporations' written codes of conduct, certification strategies, and disclosure or reporting. However, as Flanagan and Whiteman (2007) point out, a key weakness of CSR is the lack of meaningful participation by external stakeholders in policy development and lack of embedded procedures of monitoring and concrete sanctioning within its codes of conduct. This view of handicaps of business ethics is reinforced by Fassin (2005).

The WTO monitors the behavior of governments and not business in the international trade arena. Hence, linking trade with CSR becomes critical to ensure that there is monitoring of both businesses and states. The deepening levels of interlinkage of actions would ensure that states treat their own citizens well and not just noncitizen businesses who seek to trade with it. The WTO regulation of CSR as soft law is a critical wedge between internal state action and international state coordination.

The WTO has started to realize that corporate activities make the WTO's rules successful or failures, accepted or controversial. Hence, to safeguard its credibility, it should make an investment in ensuring that its rules do not undermine CSR (Aaronson, 2007). This would prevent its authority from being eroded through forum-shopping activities of developing-country governments and civil-society actors. Such activities have developed out of frustration from the bureaucratic quagmire of the WTO that fails to deliver justice. Such actions by critical legal entities then undermine the institutional

legitimacy of the WTO and its mandates (Chon, 2006). Hence, paying attention to effective implementation of CSR becomes critical.

In fact, by linking CSR to trade agreements, the WTO can help accelerate CSR. It can do so by "green-lighting" strategies that do not distort trade. This move on the part of the WTO can help accelerate demands for and supply of higher CSR standards among developing countries. MNCs may be motivated to take action for reputational and efficiency issues. By requiring and assisting their suppliers in implementing better business practices, MNCs can ensure that suppliers learn how to operate efficiently in a more sustainable and humane manner.

Assisting is critical. This is because standards can become barriers to enterprise and to increasing employment, by increasing technical difficulties and costs. This then can have the perverse effect of creating market-distorting oligopolies. Oligopolies can create market barriers based on their finance and manpower. However, assistance should prevent such an outcome. By not wanting to be undercut by competition from less responsible corporations, suppliers too would become advocates for stronger regulations. They can also meet local populace's demands to provide public goods that the government cannot or will not provide.

According to Graham and Woods (2006), self-regulation of corporations is usually advocated as a solution to regulatory capacity problems faced by developing states. However, government action – in the North and the South – remains vital to effective regulation by setting goals and upholding the freedom of civil-society actors to organize and mobilize. International organizations and legal instruments can help assist developing states to fulfill these roles. Thus, governments can work with business and civil society to develop credible strategies for voluntary social and ecolabels to ensure fair trade. Thus, a critical inroad can be made into the human-rights goal of ensuring that growth acts as a means to the end of sustainability (Aaronson, 2007). Given this capability of CSR, let us look at the impact of corporate IPR on human rights.

Impact of IPR as growth strategy on human rights

As legal knowledge of IPR is a domain restricted to media conglomerates and integrated life-science

corporations with resources and knowledge, there have been crucial outcomes of private monopolistic power. The major outcome that we focus on is critical to a primarily agricultural economy such as India. By allowing universal patenting of plant varieties and/or seeds, national governments have opened the door to the loss of agrobiodiversity and the decimation of local ecosystems. As large corporations and large plantation-style farms drive out small farmers from the market, food security crisis emerges. This occurrence has not bypassed India, despite the government's attempts to tailor IPR to local needs.

Given the negative outcome engendered by large private corporations' activities, one can say that CSR has nose-dived in the context of changing priorities of growth in India. Given that CSR is mostly market driven, such a drop represents market failure. Typically, when market fails, governments tend to step in to rectify gaps in rule of law. However, such actions are not guaranteed, since political horse-trading often prevents pragmatic and ethical policy-making.

However, attempts to establish rule of law are more likely to happen in the presence of counter-movements of human-rights groups that seek higher standards of compliance (Flanagan and Whiteman, 2007). For Cimoli et al. (2008), countermovements can also be seen as nonmarket forms of institutions whose governance extends to activities where market exchanges are socially inappropriate or simply ineffective. Such activists can help guide private corporations into productive engagement with small and marginal farmers. This can result in sustainable cultivation processes, development of products geared towards fair trade, and benefit-sharing of the profit generated from such actions.

As Aaronson (2007) points out, citizens around the world are increasingly losing trust in MNCs and demanding that they behave responsibly. This is what provides hope. Critics have increasingly alleged that IPR protection drains scarce money and manpower from other important endeavors, such as education. Such counterdiscourses can prevent a race to the bottom through lax regulations that do not pay sufficient concern to the issue of social welfare.

Overall, there has been an elitist imposition of one-size-fits-all formula of "individual" rights on collective human rights. Thus, agricultural biopatenting

creates a low growth and poverty equilibrium for the poor. In the following sections we explore how this pans out within the context of India's developmental path.

India: a case study

India is an intriguing case study in the development literature as it is full of paradoxes (Nayyar, 2006). India is still a relatively closed economy compared with other emerging Asian economies, such as China. It is a mixed economy that has followed, more by accident than by design, a "gradualist approach" to liberalization since the 1990s (Chittoor et al., 2008). India is now home to the largest number of millionaires in the developing world, surpassed only by Turkey, Germany, Russia, and the USA. These numbers are expected to rise with the growth rate over 8% (Grabowski, 2008). At the same time, at least 77% of Indians earn less than US \$0.50 a day; these are the poor and vulnerable segment of the population that can barely afford the daily minimum calorie intake and other daily needs. Overall, rural poverty is on the rise, hitting women and children most (Satyanarayana and Srivastava, 2007). Given these paradoxes, let us look at growth advantages of India.

As far as economic advantages go, India has many. According to Dahlman and Utz (2005), the notion of knowledge economy is not new or foreign to India. India's past achievements in science, philosophy, mathematics, and astronomy reinforce the notion that the country has been a leading knowledge society for millennia. From being the world's largest economy in the first millennium, by 1500 its share had declined to 25%, as China overtook it and Western Europe began to expand rapidly. The cost of adjusting to British colonial governance made it a latecomer to industrial revolution (DeCecco, 1974). However, it has the potential to recover its position in the knowledge revolution if it follows an effective path of governance that protects and enhances its traditional strengths. Some of this strength is evident in its broad and diversified science and technology infrastructure and India's mass of skilled English-speaking workers (Dahlman and Utz, 2005).

Politically, India has a well-functioning pluralist and highly federalist democracy. Its democracy is

sprawling and messy. However, its problems are sorted out at a pace that gives it more room for maneuver in terms of improving efficiency in the pre-existing institutional structure. This prevents creation of structural stress that causes novice but potential organizations of growth to fail (Chittoor et al., 2008). Given that India's democratic traditions are deeply rooted in its millennial history, its democratic institutions do not have to be built from scratch (Mukhopadhyay and Paul, 2003). Rather, it can work towards expanding the feasibility and actual realization of the variety of human rights. Hence, governance indicators based on politics, economics, and institutions, released by the International Monetary Fund-World Bank (IMF-WB) in 2006, ranks India in the 56th percentile on voice and accountability and rule of law. Let us now look at how this institutional framework works for India in terms of growth and equity.

The impact of biotechnical patenting as a mode of growth on agro-biodiversity and gendered equity

Agricultural growth in India

Ever since India liberalized, it has been growing steadily. According to Konde (2008), in the bio-agricultural (transgenics, biofertilizers, and biopesticides) sector, India, in 2008, grew at the rate of 154% in comparison with other "bio" industries and services. In the general agricultural sector, India's crop exports have been growing steadily in staple crops such as rice and cash crops such as edible oil (Gulati, 2002).

According to Sen et al. (2002), there is however, a mismatch between staple and commercial crop growth, with the former growing more than the latter. This creates an economy-wide mismatch that has impact on prices, demand, and consumption patterns. Hence, there is need for *more* emphasis on crop commercialization and not merely on food sufficiency.

However, according to Gulati (2002), growth is worsened by volatility of world prices, especially in its downswing. This results in gushing imports that undermine the production base of millions of small and marginal farmers. The downturn is worsened by the fact that exporting countries subsidize their exports in times of falling world prices. They do so

by raising tariffs, often much beyond the necessary level. Hence, globalization of agriculture hits subsistence farmers in developing countries even harder.

In the current situation of surging food prices, it is no longer a question of oversupply and lack of demand due to poverty, as painted by Gulati (2002). Food prices have been surging and demand for rice has been rising. The unusual co-movement of demand and supply has come from several factors. First, the growth of emerging economies has increased the demand for oil, leading to a surge in oil prices. Second, in developed countries, in response to the oil price shock, cereal (such as maize) production has shifted to bio-fuels, such as ethanol. Third, there has been a depletion of food stock in China and India, the major exporters of rice. Fourth, the current global financial crisis and the rush of capital inflows into India has put enormous pressure on the currency (Ahluwalia, 2008), and hence, on prices. The crisis has also reduced the leverage room for fiscal policy of the government, since it already has a very high public debt of 80% (Grabowski, 2008).

In light of the above current impediments, the question of food sufficiency sustainability becomes extremely critical (Alexandratos, 2008). The question of sustainability becomes even more critical as increasing global warming creates a severe impact on agricultural growth through climate change, increase in insect pests, severe drought, and scarcity of water for irrigation (Center for Global Development, 2007).

Added to all of these problems is a skewed model of development followed by India. According to Grabowski (2008), unlike China, rapid growth in agriculture is missing in India. This is because India has, overall, achieved rapid economic growth by shifting from an agriculturally based economy to one based on capital and skill-intensive services and manufacturing that produces growth but little employment. Furthermore, given the limitations of India's educational infrastructure in comparison with its massively growing population base, this is non-sustainable.

Overall, India's growth model leads to unbalanced growth where modern and traditional sectors fail to go hand in hand. The bulk of the poor Indian population remains locked in low-productivity activities in farming. Kumar (2008), however, provides a contra viewpoint on manufacturing development

and this sector's ability to cater to larger part of the income pyramid in India.

Grabowski (2008), however, maintains that the process of skipping labor-intensive manufacturing has slowed down the labor-intensive growth process in agricultural sector, since manufacturing sector cannot absorb excess labor from the agricultural sector. This transfer is needed to execute a shift to modern sector. This lack of balanced diversification of sectoral growth has caused a serious decline in agricultural productivity. Ahluwalia (2008) concurs with Grabowski's thesis. He points out that a lagging agricultural sector poses serious medium-term challenges to the sustainability of high growth.

Food security then becomes an issue of not simply ensuring that an adequate amount of food is cultivated and available on the market. It also has implications for whether people can purchase enough food to satisfy nutritional requirements and food preferences, due to rising inequality. Hence, access to food requires stability of supply and affordability (Chekol, 2005). More critically, as the poverty rate in the agricultural sector rises and the tax base decreases, there is less incentive for the government to provide institutional infrastructure and tailored IPR in this sector (Grabowski, 2008). Given these impediments of growth let us look at how women are impacted in their production and consumption activities.

General impact of agricultural growth on women

Women traders and employees tend to be concentrated mostly in the informal economy, due to their low socio-economic status (Carr and Chen, 2001). In agricultural and forestry sectors, most backward linkages such as production, collection, and processing are still carried out informally. Hence, volatility in export-import and price changes hits women hard.

Even when women are traders, compared with men who tend to have large-scale operations and to deal in nonperishable items, women traders tend to have smaller-scale operations and to deal in food items. Being at the lowest end of the global value chain of commodity exchange, women tend to get pittance for their products that command enormous value in the global market. Added to this discrimination, women benefit little from growth because of

a change to monocropping patterns and loss of agro-biodiversity.

Deeper integration into the global knowledge economy instead of empowering women has often led to shift from secure self-employment to more precarious self-employment. This is because women as producers and traders lose their market niche. One reason for this shift is growing loss of control by women over traditional knowledge as income sources. Another reason is a shift to cash crops, which is typically a domain of men. In both cases, women have relatively little market knowledge as compared with buyer cartels and middlemen; low market access in terms of access to credit, training, and technologies; and low bargaining power to secure contracts for better value for their products.

So what is the solution to a massive global and domestic imbalance? As Gibb (2007) points out, most biodiversity-rich countries are located in the global South, while technology-rich countries with resources to develop biodiversity are based primarily in the North. This implies a significant handicap for the already marginalized section of women in the South. One of the ways to solve this problem is to ensure that women get integrated into a fair trade process (DeMartino, 2000). Thereby, they would reap the benefits of the knowledge that they hold while getting access to the resources that they need in order to be competent market competitors.

However, this integration process is not a straightforward one. As Padmanabhan (2008) points out, there is a difference between tangible technological information (such as the genetic code in a seed) that is codified and transferable, and intangible knowledge which is tacit and nontransferable since it is based on learning by practices. The latter has the characteristic of being sticky in transmission as it is person-embodied (Cimoli et al., 2008). In the following paragraphs we explore these issues in connection with growing commercialization of agriculture at the expense of sustainability.

Biopatenting enabling for commercialization of seed varieties

To understand the implications of biopatenting, one needs to have a preview of the legal jungle that has emerged around it. This should help us to better navigate the issues of impact. With this intention, we

point out that an international “regime complex” has entered into force around issues of biodiversity (Gerstetter et al., 2007). These include multiple treaties such as TRIPS, the Convention on Biological Diversity (CBD), the Food and Agriculture Organization (FAO), the International Union for the Protection of New Varieties of Plants (Union pour le Protection des Obtentions Vegetales, UPOV), the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA, 2004), etc.

While these multiple treaties may create possibilities of treaty conflicts, the baseline in international law is that no treaty norm supersedes the other in the absence of a specific agreement to the contrary. This enables for both flexibility and constraints in how governments enact domestic laws. These multiple treaties open up the possibility that cognate rights and benefit-sharing for generationally evolving informal innovations are protected along with formal innovations. In fact Gupta (2005) argues that the latter cannot be protected without the former.

The concept of farmer’s rights is cognate rights. It has been developed in CBD and FAO. Farmers’ rights are based on in situ “initial varieties” that they can save, use, and exchange. The concept of formal breeders’ rights are based on ex situ development of other varieties or those that are derived from initial varieties (Gupta, 2005). The concept of plant breeders’ rights come under the UPOV and can be protected under the *sui generis* system.

Sui generis refers to methods of protection other than the use of a patent. It is a system engineered to meet the unique needs of a nation (Gupta, 2005). The developed countries push for UPOV as the minimum standard of *sui generis*. India allows for breeders’ rights. However, India has also attempted to cover farmers through CBD and FAO conventions.

The *sui generis* system in India thus, has an inevitable tension between cognate and formal rights. It has to reconcile the contradictions between different systems of knowledge. UPOV is a system of *sui generis* that is more suited to developed countries, where farming is essentially large-scale and dominated by breeders and seed industries. In contrast, in developing countries, modernization and mechanization are exceptions rather than the rule in the cultivation-centric style of life (Ragavan and Mayer, 2007).

The differences in systems of knowledge and their utility have implications for development in terms of incentives for mobilization of private capital to add value to knowledge and resources. Farmers’ rights as the front end of the industry or as genetic resource providers are underfunded. Meanwhile, the bulk of the funds go to the plant breeding sector that represents the end of the industry spectrum. Hence, preservation of plant varieties inevitably comes into competitive tension with economies of scale.

The government has sought to undertake measures to resolve the tension, but its efficacy is still very doubtful; for example, the Indian government has sought to incorporate farmers’ rights legally by passing the Protection of Plant Varieties and Farmers’ Rights Act (PPVFA) of 2001. Community-level farmer-bred varieties cannot be registered for protection. The law allows for registration and protection of new varieties by private breeders. However, it also requires the disclosure of origin of the plant materials, legally informed consent of the traditional knowledge holder, and benefit-sharing arrangements. There are harsh penalties for infringement of the law. The law also encourages individual farmers to register extant varieties that they have cultivated for years to ensure that they are not appropriated.

This law enables India to promote innovative plant breeding while preserving national objectives such as protecting access to biodiversity and its preservation, traditional farming, and food security. All of these goals are in tune with the mandate of ITPGRFA. India weighed this advantage against increase in foreign investment and consumer choice in agricultural commodities.

However, the government took steps that basically undermine the mission of PPVFA. India introduced a Seeds Bill in 2004. The purpose was to encourage seed trade, to promote the seed industry, boost exports, and protect seed quality. However, the introduction of the Seeds Bill has undermined the objectives of protecting farmers’ rights and created a tangle of legalistic mess by contradicting provisions of the PPVFA. Moreover, the drive towards aggressive privatization, represented by the new bill, is not really attainable at this point. India cannot compete in a market that has trade barriers of high levels of agricultural subsidies in developed countries. This would create potentials for growing food insecurity in India.

At the domestic level, problems arise from ineffective monitoring of the system. The system has embedded problems rooted in past history of developmental paths adopted by India. For example, past efforts at “green revolution” led to the development of new seed varieties by public research and development (R&D) laboratories. A large number of private seed companies and traders have already used such advanced lines without any reciprocity of compensation or payment of royalty. This was because the government did not have any appropriate law in place. This has been a missed opportunity for revenue collection that could have been diverted to providing subsistence farmer breeders with better safety nets as incentives for further innovation (Gupta, 2005).

In light of the above-mentioned institutional problems and priorities of growth, let us now look at its specific impact on women’s welfare.

Impact of commercialization of seeds on women

The legal jungle of IPR that enables commercialization of seeds has impacted gendered equity. According to Pionetti (2006), seeds are central to farming and production. Saving, selecting, reproducing, storing, and sowing those seeds is often dependent on women’s knowledge and expertise. This function of self-reliance in maintaining seed and crop diversity helps rural families to cope with environmental demands and ensure nutritional security. This is apparent from the fact that agricultural biodiversity is extremely high for staple crops such as rice and wheat, which has typically been the domain of women’s cultivation.

However, increasingly seeds are becoming the “property” of private-sector big business. This sector has a vested interest in increasing the proportion of seeds bought annually for both major food and cash crops in order to maximize returns. Hence, big business adopts a variety of practices that centralizes seed availability and marginalizes small farmers; for example, IPR makes reuse of seeds illegal for farmers.

If forced by circumstances, such as a bad harvest year or lured by promises of greater returns, farmers buy seeds from big businesses, they have to buy hybrid seeds. This reduces genetic diversity of new crop varieties. This is because hybrid seeds are genetically engineered to be sterile so that they

cannot be reused, forcing farmers to buy them every year (Wolff, 2004). According to Wolff (2004), in developing countries this process has been reinforced by donor policy that has promoted the import of exotic breeds and crossbreeding that threatens the survival of local breeds.

This situation of monocropping is worsened by the fact that illiterate farmers do not have the technical knowledge needed to manage hybrid seed cropping. Moreover, hybrid seeds require more inputs in terms of fertilizers and pesticides that poor farmers can ill afford and that inevitably leads them into debt. Moreover, monocropping is less able to buffer stress (diseases, lack of growth factors) without suffering major quantitative and qualitative losses (Wolff, 2004).

As one of the major civil-society proponents of India, Vandana Shiva points out that high-technology agriculture is a short-term solution that will ultimately destroy the land (Ganguly, 2002). Navdanya, an organization established by Shiva, has shown that, in some areas, organic farmers with a knowledge of local conditions and traditional methods can achieve high yields at little cost to the environment. Such ecofriendly standards challenge agribusiness to demonstrate that it can outperform. Similarly, the challenge for genetic engineers is to create seeds adapted to particular locales that enable farmers to reduce, not increase, the use of chemicals.

This is critical; since seeds of monocrops are controlled by large corporations and their availability is uncertain due to corrupt practices of hoarding, unregulated pricing, etc., farmers’ lives become unpredictable. Farmers fall deeper into debt and lose their lands. This is apparent in the increasing rash of suicides among male farmers across India (Srinivasan, 2005). As men die, it inevitably has an impact in terms of reduced income and sustainability of the family unit as a whole. Small and marginal farmers cannot circumvent this situation in times of need by accessing government safety nets such as subsidies. This is because of rules that demands (from illiterate farmers) variety registration and seed certification in order to receive subsidies (Gupta, 2005).

The irony of this situation is that studies show that, if we take into account growers’ power in terms of “product asymmetry” and “asset specificity” in relation to bargaining power with large corporations in an oligopsonistic situation, women

have an advantage over men. Women who are already embedded within social networks with high trust and reciprocity factors are more likely to have bargaining power against corporations. They are also more likely to deliver the goods on time than dispersed male croppers. In case of men, corporations need to provide incentives to ensure that, under conditions of uncertainty such as availability of alternative product markets, there is a constant supply of products. Hence, it is ironic that there is lack of provision to take advantage of already existing institutional structures (Sivramkrishna and Jyotishi, 2008).

If the MNCs access such structures and provide help to women, they can help to incentivize fair trade. Much of the growth in cultivation could follow a cluster model where incentives of financing and in situ processing facilities could increase efficiency. That would help farmers get a better price for their crop, procurement will be easier for the industry, and there could be a qualitative improvement in products if processing facilities are set up in the clusters (livemint.com, 2007).

However, lack of such measures reduces women's choices and autonomy of practices; for example, the changes in institutional environment undermine women's social networks which are sources of farmer-to-farmer seed exchanges that help maintain ecological sustainability. This sustainability is achieved through implicit, "impure" circulation of knowledge flows amidst community networks of women defined by heterogeneity and agent orientation (Padmanabhan, 2008).

Venturini (2007) distinguishes communities and networks. He claims that the former produce linear innovations through implicit knowledge. The latter, through explicit combinations of original knowledge, however, produce radical innovations. He gives the example of contestation over neem biopiracy to support his claim. Corporations that claim patents over traditional knowledge seek to defend it by arguing that formalization or making implicit knowledge explicit through scientific terms is substantial progress because it represents novelty or inventive step that has industrial application. Communities, on the other hand, point to linear innovation through constant nurturing and experimentation to generate biodiversity.

However, our point is that, in India, women are both part of general ethnic communities, such as

castes and religion, as well as parts of independent networks that cross over community divides. Hence, they are capable of both linear and radical innovation. Sustainability is ensured by both types of innovation. Hence, with the loss of seed capital, there is also loss of seed variety derived from varieties of innovative processes. Thus, there is a loss of knowledge rather than its flourishing as depicted by the knowledge-economy model. Hence, there is a decline in agricultural productivity and a failure to shift to the modern/efficient sector as predicted by the knowledge-economy model.

Overall, there is a negative impact, since the positive spillovers of seed variety are lost. The following are the positive spillovers that are lost. First, seeds with variable capabilities to respond to different environmental conditions demand minimizing risk of crop failure. Second, women can ensure that crops are sown at optimal times because they have control over its availability. They are not forced to rely on vagaries of market supply. Since they do not have legitimate control over land, credit or inputs, women do not have to rely on a monetary base in order to access expensive commercial seeds. Open-pollinated, instead of genetic, varieties of seed, ensure that women farmers can easily reproduce them. Third, control of seed stock ensures that the types of crops that are produced are suited to the specific needs of women; for example, they can select seeds that are the most resistant to damaging pests. Fourth, the autonomy that comes from having seed capital means that low-caste Dalit farmers can maintain their self-dignity by not being always forced to go begging for seeds to upper-caste families. Fifth, this autonomy ensures food security and helps to enrich nutrition in the long run.

When multiple types of crop are grown in small quantities they are not marketable. This gives women the power to convince their husbands to not sell the crop. This is because, once sold, the income earned from the crop is controlled by the man, who can use it for nonfamilial, self-indulgent purposes. If the crop is not saleable, women can convince their husbands to save the crop for domestic consumption. This also ensures that there is food stock for lean agricultural periods. Food stock thus gives women bargaining power within the household as well as in the community. The latter reduces intercaste and interclass inequality in the society. It also ensures

continuity in local network's social capital of reputation, trust, and reciprocity (Padmanabhan, 2008).

However, when such networks are broken down, the demand for women's expertise decreases. In matrilineal communal networks such as those of the Kurichya tribe in Kerala (India's hotspot of biodiversity), this causes a significant decline in women's social status. This is significantly connected to issues of sustainability. In the Kurichya tribe, common property holding is the domain of men. A turn towards cash crop by men entails a disaggregation of common land, thereby reducing the collective incentive to preserve sustainability of plants and seeds.

Hence, all government attempts at conserving women's knowledge through new political institutions such as the Biodiversity Register or local grass-roots institution such as the *panchayat* become ineffective. However, NGO facilitators play a key role in supporting the newly evolving governance structures by reducing skepticism and fear of government-induced acts of control. They encourage women to come forward and share their tacit knowledge even though it means handing over their source of local power. At a time when their knowledge is being threatened by marginalization, the mere courage to step forward helps overcome gendered norms and increase their self-awareness. Hopefully, dynamically, this would reenergize the drive towards actual sustainability of natural resources along with the need to preserve knowledge. It would also, hopefully, provide women with material resources to independently increase their capability and reinforce their networks.

Conclusion

Knowledge economy, despite its potential, has yet to bear substantial fruits. This is due to multiple extant barriers. First, there are institutional barriers in the form of uniform IPR that may prevail despite attempts to customize it. Second, there are ethical barriers in the form of prioritizing of efficiency of growth by both state and businesses. Third, there are sociocultural barriers in the form of constraints on women's capabilities within a patriarchal framework of worldview. Fourth, there are natural barriers in terms of a deteriorating ecosystem. However, most

critically, there are evolving dynamics of economic and political demands, as both the state and market seek to adjust to each other. Such demands/incentives cannot be resolved overnight. In the agricultural sector there are commercial incentives to breed hybrid genetic seeds that threaten access to seeds and food, and hence jeopardize sustainable agrobiodiversity and food security.

Adi (2006) provides an analysis of the conflicting priorities of treating genetic resources as public goods and biotechnology as private good. Overwalle (2005) complements this concern by providing an anthology of public policies that can be adopted by the government to protect traditional knowledge.

We end by arguing that, in the presence of countermovements, the private sector is more likely to recognize the philosophy that ethics makes "good business sense." The private sector, then, will hopefully mobilize to lobby an indolent government into sovereign action. We also argue that, in the presence of countermovements, the government itself may be forced to take actions that will bring about better distributional justice. We argue for civil-society activism targeted towards government and industry because it is harder to mobilize diffuse user interests than concentrated producer interests. Compared with the former, the latter has lower costs of organization and greater individual gains. A coherent reflexive strategy of action that takes into account integrated knowledge production, anticipation of systemic consequences, adaptively solving problems, as well as participatory evaluation and goal formulation will produce better outcomes (Wolff, 2004).

One can hope that the resultant actions of negotiation between stakeholders and decision-makers will illuminate the fact that growth and equity are two sides of the same coin. Dynamic achievement of one without the other is impossible. This should help narrow the development divide of haves and have-nots. This would also help bring about several effects. First, enhanced equity would promote cooperative behavior in the shared production of public goods. This would lead to the instrumental outcome of greater volume of production. Second, norms of fairness and justice would provide focal points around which social conflict could be mitigated. It could also provide for efficiency-enhancing social bargains leading to more consumptive distribution. Third, there would be an

increasing level of good governance. This would enable the development of a polycentric matrix of actors and institutions (Burris et al., 2007). This polycentric character will hopefully ensure better accountability and efficiently help deliver good results.

Note

¹ IPR refers to intellectual property rights or rights to property.

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