Sustainable Development in the New Economy: Risk, Vulnerability and Eco-Social Justice

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Abstract

Sustainable development continues to be a key concept for social scientists and planners concerned with eco-friendly development. We argue that sustainable development should be conceptualized as the progressive development of social processes that promote reflexive, radical democracy and the equitable sharing of ecological, economic and social costs and benefits, rather than as a technocratic solution, end-state or equilibrium. In the context of the New Economy and the increasing dominance of internet-based information, new kinds of risk are produced. In our view, information and communication technologies (ICT) and growing gaps in terms of digital access, application, and control are significant new generators of risk for digitally disenfranchised populations. This includes the risks associated with accessing information that is not well suited to local circumstances, sensibilities and development aspirations. The digital divide is a source of vulnerabilities that are distributed unevenly and an important axis of inequality that restructures social relations at the individual, household, community, and societal levels. A more insightful sociology of risk is required to support the development of a more adequate sociology of development and more serviceable approaches to sustainability. Sustainable development must address the construction and distribution of risk, and deal with both new and old sources of inequality.

Introduction[1]

Given its differential diffusion and application in wealthy and poor countries, the information and communications technology (ICT) revolution gives rise to a growing global digital divide (ILO, 2001). In

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this paper, we consider the expansion of the New Economy and its associated politics and discourse of risk, focusing on issues of social justice, inequality and development in Third World contexts. Looking at new kinds of risk linked to the increasing dominance of internet-based information, and at the ways that these risks interact with risks emanating from other domains, we consider how information and communication technologies (ICT) may promote new vulnerabilities that are distributed unevenly across societies. This inquiry is intended as a modest contribution towards, and a stimulus to, the elaboration of a more comprehensive and critical sociology of risk.

In our view, the digital divide is fast becoming an important new axis of inequality that restructures social relations at the individual, household, community, and societal levels. ICT and growing gaps in terms of digital access, application, and control become significant new generators of risk for disadvantaged, digitally disenfranchised populations. The risks experienced by individuals, households, and subpopulations often manifest in reduced access to, or degradation and devaluation of, productive resources. These resources or assets include the very foundations of people's personal productivity—their health and education, the latter encompassing both access to formal learning and training, and the recognition, validation, and valorization of skills learned through experience and informal apprenticeship. New personal exposures to risk in the context of digital inequalities likewise include the erosion or devaluation of stored assets, and the collapse of social relationships and networks that allowed needy individuals to make claims on others. At the societal level, these risks have been generated or amplified through and throughout institutional-material and cultural structures.

The analysis of social developments such as the digital divide from the standpoint of risk is important because it addresses core processes and consequences surrounding rapid, unplanned social and environmental change. While analyzing new sources of risk, however, it is important to note that risk is not a purely objective category, but one that is "constructed" through social practice. Risks may take on their risky attributes and may become more important because they are perceived to be significant; risks also become more or less severe and consequential based on the institutional fabric of society.

The late 20th century has been characterized as a "risk society" in that the culture of risk seems to dominate social thinking (Beck, 1992, 1999). The rise of the New Economy over the last few decades has presented not only new hazards but also new frameworks for assessing risk. Risk is disembedded and individualized. Most studies of risk focus on the "risk of" particular events or eventualities. We broaden the discussion here by addressing the "risk to" particular groups and communities, which,

coupled with risk analysis, can help to explain differential vulnerabilities and responses to social change. In unequal societies, the costs and benefits of change are not borne equally. The reapportionment of "goods and bads" manifests in multiple forms of social exclusion and environmental degradation. Sustainable development, we argue, must address the construction and distribution of risk as well as respond to the progression of old and new forms of inequality. A more insightful sociology of risk is needed, not just for its own sake, but also to support the development of a more adequate sociology of sustainable development. The necessary questions include: How is risk socialized? How are people protected from risk? How are costs borne or shared? What are the formal and informal arrangements for mitigating, or adapting to, risks?

Sustainable Development

"Sustainable Development" is a broad idea that encompasses social, economic, political, and environmental goals. Sustainability actually describes several different approaches to development—these approaches carry with them different visions of society and different political commitments to action. Sustainable development decision-making takes place within a context of competing vested interests and contested social, economic, political, cultural and environmental values (Jones et al., 1999). In all of its guises, sustainable development is a reflexive concept that carries its normative commitments up-front within its analytical apparatus. In this way, sustainable development has more in common with the feminist and Marxist social sciences than it does with conventional social science disciplines. At the most general level, all sustainable development approaches have what might be called the "Brundtland commitment," meaning that societies must meet the needs of today without compromising the livelihoods of future generations (Becker et al., 1999). At a more specific level, however, differing normative commitments present dissimilar approaches to risk, as well as contrary political, economic and institutional diagnoses and solutions.

We are arguing here that unsustainable development is rooted in inequality. The rich pursue unsustainable forms of livelihood and lifestyle in the quest for status, wealth, and profits—they are able to do so by externalizing the costs of unsustainable practices; the poor may also contribute to environmental destruction in their attempt to eek out a living today—even if this means undermining the basis of tomorrow's livelihood. Systemic approaches to sustainable development must, therefore, address the causes and consequences of inequality. This approach to sustainable development takes eco-social justice as a central

tenet and includes, as necessary preconditions and as worthy goals, both the lengthening of time horizons and the redefinition of whose interests are to be included and sustained. It involves the broadening of democratic participation in the ownership and control of resources. It also means more closely linking the derivation of benefits with the defraying of costs, so that all participate more fully and equitably. In terms of production and consumption systems and management of environmental impacts, this version of sustainable development calls for holistic vision and attention to the full range of ecological costs engendered, and ecological services rendered (Mooney & Ehrlich, 1997).

Sustainable development (and risk) involves interactions of natural and social systems, both of which are complex, non-linear, dynamic and unpredictable. These qualities mean that sustainable development as an endpoint or state of equilibrium may be a worthy and useful goal, but will never be attained (Jaffe, 1990). Sustainable development should rather be conceptualized as a process that allows society to minimize its eco-impacts while maintaining or increasing the capacity to support a desirable quality of life for all.

As a philosophy, sustainable development embraces the precept, "first, do no lasting harm." As powerful new technologies are introduced rapidly, and are capable of inflicting great damage, sustainability includes capacity for *ex ante* impact assessment and the development of nimble and responsive social systems that are capable of engaging in the activities of regulation and timely decision-making. Sustainable development calls for the design of production and consumption systems that work in greater harmony with natural processes, and reduce the potential for degradation or catastrophic collapse of natural systems. It puts a special responsibility on human beings to treat their fellows and the rest of the world in such a way as to avoid destruction of cultural and biological diversity. It is a 'radical' orientation when it addresses contradictions in commercial-industrial development through a combination of fundamental changes in values, organization, and technology. It is also a 'conservative' orientation when it admits to limits in our ability to comprehend, model, and manage natural processes. This implies a need to err on the side of caution and safety (Gertler, 2001).

Sustainable development is not a clear-cut project, nor one with predetermined solutions. The nature-culture divide is more constructed than real. Furthermore, much of what we consider to be natural landscapes exist due to human intervention (Cronon, 1996). Throughout history, human projects—from making gardens to establishing transport and communication infrastructure—necessarily have involved some degree of ecological disturbance (Sing, 2001). In unequal societies especially, change has differential impacts and creates or confirms who

reaps the benefits and who must absorb the costs. There are winners and losers. Typically, in unequal societies, the costs of change are socialized, diffuse and generalized across society, while the benefits are privatized, well-defined and individualized. The construction of major public works, such as hydro-electric dams, can seem to have a contradictory effect where they create a diffuse and general public good with very particular and sharp negative effects for a minority (often an already disadvantaged subgroup). The pattern of unequal sharing of costs and benefits may play out in different ways, but the general principal holds. The rich can usually avoid the negative consequences and reap a disproportionate share of the benefits. Sustainable development, therefore, involves important questions regarding the distribution of risk and the degree of acceptable disturbance, as well as what landscapes, local ecosystems, and activities are to be sustained. In the end, sustainable development is also a matter of ethics and value judgments that generally reflect material relations and culture, and the power to categorize, to define, and to rank what is valued.

The sustainable livelihoods approach focuses on the ways that people make a living and a life worth living. "A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the long and short term" (Chambers & Conway, 1992, p. 7-8). Livelihoods are created, pursued, and secured through the mobilization of individual, household, and community assets/capitals that are used to carry out activities related to production, distribution, exchange, and consumption. The apportionment of those assets, and the ways that they shape broader social relations, are intrinsic to livelihoods and key to sustainability.

The ability of social actors to attain livelihoods that are sustainable is constrained or augmented by significant processes and structures that have undergone fundamental changes in the context of globalization and the New Economy. The restructuring and remaking of international regulatory regimes, state policies, markets, enterprises, social arrangements, and cultural practices, transform the conditions under which people pursue livelihoods. Personal, organizational, and communal practices are thus shaped by new opportunities but also by new forms of risk, uncertainty, insecurity, and danger. These new conditions shape choices related to strategies in the spheres of production, consumption, distribution, and reproduction, and these strategies themselves change the economic, social and ecological conditions under which livelihoods are pursued. Social and biophysical realities are intimately linked as people

experience increased or decreased security, differential and contradictory impacts on their well being, and new types of equality and equity or inequality and inequity. In this context they may act or fail to act, invest or disinvest, in ways that increase resilience or vulnerability, and that promote or degrade ecological systems. They may evaluate individual and public choices more broadly or more narrowly. Sustainable livelihoods thus become both a condition and a goal for sustainable development of regional economies.

Risk

The literature on vulnerability points a way forward to understanding the impacts of social and technological change. Vulnerability has been defined as "the risk of adverse outcomes to receptors or exposure units (human groups, ecosystems, and communities) in the face of relevant changes in climate, other environmental variables, and social conditions" (Clark et al., 2000, p. 2). Vulnerability is a multidimensional concept that includes: exposure to crises, stresses, or shocks; degree of sensitivity to exposure; resilience or capacity to cope with the damage of exposure to multiple stresses (Clark et al., 2000; Polsky et al, 2003). An important component of vulnerability is the ability to predict or foresee—which includes the ability to interpret—what is happening. In the absence of an adequate and finely-tuned ability to do this, managing vulnerability hinges on the ability to build flexible systems that moderate or mitigate sensitivity through adaptation, portfolio diversification, and innovation. Vulnerability is greatly affected by wealth and poverty; in general poorer people, regions and countries have greater problems adapting to or coping with change. A key factor is the ability to marshal relevant resources, including non-material resources related to social networks and education. Institutional and organizational issues are also central. An important portion of the coping capacity of most societies inheres in, and relies on, its institutions and organizations; the question is how well and how equitably do institutions and organizations respond to crises, but also, how well they have laid the groundwork for resiliency. In societies where coping and adaptation are left mostly to individuals, one can expect vulnerabilities to be acute and widespread, particularly if there is widespread poverty and need (Chinsinga, 2004).

Risk is sometimes conceptualized as hazard plus the probability of its occurrence—divided by capacity to withstand, absorb, adapt to, or mitigate. Note, however, that risk is derivative of hazard—hazards occur or are constructed first. Society helps to determine what is dangerous, and also generally influences the conditions of exposure. A key source of risk is variability. If pests and weather always harmed the crop to the same

degree, these would not be classified as risks, but rather as certainties. By definition, those things that increase variability increase risk.[2] "The concept of risk begins where our trust in our security ends and ceases to be relevant when a potential catastrophe occurs" (Beck, 1999, p. 135). Society and culture are critical to risk in many ways—they help to determine how and when risks are perceived, and to what degree risks will be shared or individualized. This means there is substantial variation within and between societies in how they recognize and deal with risks (Hood et al., 2001).

The various literatures on risk are more in competition than in discussion with one another. Much of this writing is devoted to analysis of individual level responses to probabilities of undesired outcomes, but there is little attention to the social context of decision-making. The pro-development literature (c.f. Avery, 2000) talks about risk in relative terms. It views risk consciousness as an over-reaction to social change—in short, a recent form of Luddism. Another literature, long-established, focuses on the individual's calculus of risk in making decisions about their own production practices, particularly cropping systems (c.f. Cancian, 1980). This is frequently an applied literature that poses risk aversion as something to be overcome in order to move beyond the developmental limits of traditional societies. The literature that focuses on modernity as risk society (Beck, 1992, 1999) advances the position that the condition of reflexive modernity is to be increasingly cognizant of the attendant risks of technological change while at the same time understanding the limitations of science in correcting them.

In our view, significant transformational processes at work in contemporary society are associated with their own sources and types of risk. In agriculture, for example, natural risks originate in the baseline variability of climates and environments. Market-related risks derive from the nature of market competition, from the changeable character of consumption that depends on many factors, including fashion, and uncertainties about the price and supply of inputs for production. Techno-system risks derive from undermining nature's resiliency by the degrading and polluting of resources, by simplifying ecosystems, and by narrowing or modifying the genetic information available for species' adaptation. Social risks relate to distribution, regulation, inclusion/exclusion, and the more subtle problem of meaning. These risks take on a different character depending on whether they are acute or chronic, short- or long-term.

[2] Luhmann (1993) speaks of the difference between risk and danger—risk being the result of one's own calculated decisions, and danger being the harm to people or groups that is caused by the risks taken by others, but this paper will address both of these conditions as situations of risk.

Long-standing relations of risk often invoke risk-minimizing strategies to cope with them. Agricultural production systems, for example, have evolved in the context of risks emanating from multiple sources: weather, pests, markets, accidents, disruptions in labour supply, and so on. Managing these risks has, in some cases, led to the elaboration of quite resilient and stable farming systems. These systems rely on optimization strategies that deal relatively effectively with a predictable range and frequency of risk factors. Under reasonably stable regimes of risk, the resource management strategies deployed are often quite appropriate and adapted in a manner that contributes to long-term sustainability. In this case, risk aversion may translate to the adoption of a "precautionary principal" in which social actors use extreme care in modifying the parameters of their production (and livelihood) systems. To some observers, this appears to be a tenacious kind of conservatism.

Risk-averse behaviours may take many forms, some of which contribute to, and some of which undermine, the long-term sustainability of production systems. Under regimes of increasing risk, risk aversion may lead all kinds of social actors to discount the future and to adopt a shortened time horizon—to exhibit heightened "time preference." This is an attempt to increase the predictability of outcomes, to raise the certainty that investments will be recouped and rewarded. As Leach and Mearns (1991, p. 3) state, heightened time preference can affect the environment in different ways.

> First, fewer investments are likely to be undertaken, particularly investments with longer- term payoffs and large initial costs. The impact of this on the environment depends on the type of investments – i.e. whether environmentally damaging, or in conservation measures, or non environment-related (e.g. in human capital such as investments in education; or in inventories etc). However, high rates of time preference do imply a more rapid development of exhaustible resources, shorter rotation periods and smaller stocks of renewable resources (Pearce, Barbier & Markandya, 1990). High rates also reduce incentives to find more depleting resources (water, copper) or to develop technologies or output-mixes that economise on them.

Social actors may adapt to risk, but they may also work to mitigate it. Mitigation implies an intervention that actually changes the nature of the risk itself, rather than just the response to it. Sometimes this distinction is more apparent than real, however, in that practices that mitigate risk may

in the long run be adaptive, while adaptations may involve practices that fundamentally transform the character of risk.

Social safety nets, both formal and informal, play an important role in mitigating and adapting to risk. Insurance for one group, however, may be license for another. Unemployment insurance, for example, mitigates the risk of consumption crises for workers. From a different standpoint, this same mitigation can be seen to make workers more vulnerable. As an adaptation for capital, it allows industry to lower relative wages and be more flexible and 'resilient'—that is, to lay workers off with greater impunity. In this case, the state may be considered complicit in aiding the creation of a 'reserve army of labour,' although its intention was otherwise.

The social context that serves to mitigate risk may, in some cases, encourage more risky practices. Seatbelts and air bags may encourage drivers to drive faster and more carelessly. Crop insurance, necessary to protect farmers in risky environments, may encourage farmers to plant crops that are poorly adapted to local conditions. This loss of risk aversion may even be a desired outcome of crop insurance in light of the very low returns for traditional crops grown in a given region, such as is seen on the Canadian Prairies with respect to staple grains. Farmers may allow crop insurance to bear a large portion of the risk. These patterns contain distributional implications – those who are the most affluent and largest farmers have the resources to access crop insurance and other risk spreading (or income stabilizing) mechanisms and also have the cash reserves necessary to engage in innovative (risky) behaviour. Crop insurance coverage may also require practices that are known to be environmentally harmful, but less risky to the insurer.

As the context moves from one of increasing risk to one of *uncertainty* in which it is difficult if not impossible to assign probabilities to the occurrence of a particular outcome, social actors, paradoxically, may adopt novel practices that are riskier (economically and ecologically), and at the same time continue to exhibit a shortened time horizon (Jaffe, 1989). The rise of uncertainty implies a qualitative as well as a quantitative change in risk in which social actors find it increasingly difficult to anticipate or to predict the likelihood of events and conditions that have significance for the enterprise. Perversely, attempts to deal with uncertainty may themselves contribute to greater unpredictability as individuals and sectors experiment in uncharted territory—and as the cumulative impact of adaptive decision making leads to intensification of competition, the flooding of markets, or the overloading of ecological carrying capacity.

These strategies may involve novel, unorthodox, or quite extreme changes in practices or products. Under the new calculus of survival, it is

harder to say what will work, and whether there can be any expectation that what works today will work again next season. It may thus seem to make sense to try something that is untested, to attempt to "make a killing" with the hope that one success can be achieved before something dire or unheralded takes place. It may also be the case that, faced with increased uncertainty, vulnerable players will withdraw from the field of production, abandoning livelihood efforts or failing to maintain resources in a productive state.

For small rural producers whose production and enterprise reproduction strategies are household-based, elevated risk and uncertainty has particular implications stemming from the intergenerational character and logic of resource use. Family farmers and peasant producers manage resources in the context of, and under the constraints of, the interlocking cycles of family and enterprise development (Bennet, 1982). (Agri)cultural commitments to pass on both the vocation and the land, constitute a strong orientation towards a planning horizon and strategy that is intergenerational and developmental, as well as short-term and cash-generating. When uncertainty combines with worsening terms of trade to challenge the wisdom or practicality of a livelihood rooted on the land, the plans and logic of the household-based enterprise are thrown more strongly into short-term mode. In this context, it will make less sense to invest in long-term strategies to improve or protect the productivity of agricultural resources. The possibility for taking on such projects may be further undermined by a shortage of labour power due to selective out-migration of the young and able bodied.

Risk and uncertainty affect social actors unequally. Some social actors are better positioned to withstand a lack of return on investment or shocks to their organization or livelihood. What is an acceptable level of risk for some is barely tolerable for others. Social actors experience different levels of insecurity in relation to their control over resources and the reliability of their command over entitlements should a negative outcome occur. The more doubtful the ability to successfully survive unfavourable consequences, the more intense the response to risk and uncertainty is likely to be. Insecurity itself can be a source and a generator of risk and uncertainty when it involves tenuous access to, and control over, strategic resources. Many of the changes that we recognize as part of the New Economy can reposition social actors vis-à-vis access to resources. This occurs when new social and political developments either entrench existing privileges or provide (new) groups with preferential access to "rents" of various kinds. This may also occur when new technologies, products or markets provide fresh opportunities for accumulation.

It is important to recognize that insecurities have origins that are social and political as well as more classically economic and ecological. Beyond the competitive forces of globalized markets and the power of global economic actors, and beyond the costs and risks of over-loaded or degraded ecosystems, personal insecurity can often stem from persecution, institutionalized discrimination, or the capricious use of political, legal, police, or military powers. The issues may be as mundane and as commonplace as the patriarchal privileges that frustrate the ability of women to control crucial aspects of their personal and economic lives. The insecurity may be structural and contextual, as in the case of undocumented (illegal) workers, or squatters without secure tenure on the land. It can also be dramatic and cataclysmic, as in the case of people displaced by warfare or ethnic cleansing.

This is not to say that oppression inevitably breeds insecurity. Longstanding, stable systems of oppression may provide a nexus of security for those within them, particularly if these systems involve some level of (mutual) obligation of the oppressor for the oppressed. Those whose social positions are dependent on oppressive relationships (meaning that they have tenuous control over entitlements) may be threatened, and experience heightened insecurity, as a result of challenges to, and even an abatement of, that oppression. This is not an argument for living with or embracing oppression, but rather to explain why people may be reluctant to trade one form of structural (and thus relatively secure) insecurity for new arrangements that are of a more open and unknown quantity. At a more fundamental level, oppression typically deprives its targets of many forms of freedom and protection, which are crucial to self-determination and the ability to respond adequately to the innate risks of living. Oppression is likewise often associated with forms of "lock-in" that perpetuate low levels of productivity and high levels of ecological risk.[3]

In many settings, corruption, both petty and pervasive, undermines rational and legitimate strategies to develop and use resources in a manner that meets tests of viability, sustainability, and social equity. As neo-liberal reform movements take over centre stage (Wedeman, 2004) (displacing earlier campaigns to head off and to decapitate challenges from socialist- or communist-inspired reformers), new kinds of political and economic corruption may be routinely ignored or condoned. This corruption becomes a major drain on resources and a source of

[3] The authors are particularly familiar with this phenomenon in poor countries, such as Haiti, El Salvador, Indonesia, and the Philippines, in which the pervasiveness of patrimonial cronyism and authoritarianism has contributed to underdevelopment and environmental degradation.

uncertainty and instability that subverts all forms of legitimate business or public-spirited intervention.

Risk, uncertainty, and insecurity interact with each other in complex ways. The outcomes for individuals and for the environment are indeterminate and rarely linear (in any respect). There are risks and uncertainties associated with any life. To some degree, these are normal, acceptable, and inescapable. As with other phenomena, however, there are cumulative effects, thresholds, and tripping points that may trigger quite dramatic effects. These can include movement to new levels or forms of activity. Risks contribute to uncertainty. Uncertainties can bring new forms or levels of risk. Insecurity is an outcome with both objective (material) and subjective (psychological) dimensions. Insecurity may contribute causally to uncertainty, and to our perceptions and responses when confronting risks.

As has been suggested, risk and uncertainty are, to some degree, necessary and unavoidable components of any system or situation. They may be associated with certain positive habits and adaptive stances, creating new openings and keeping the precautionary principle alive as a working proposition. On the other hand, risks, uncertainties, and insecurities may be manipulated and deflected in ways that punish or handicap certain groups of social actors, and reward, disproportionately and without merit, those who can insulate or protect themselves. The contracts (or informal and customary arrangements) under which products and services are produced or traded, and those that govern the relationship between employees and employers, shift risk. Where exposure to or assignment of responsibility for risk is concerned, power is a constant companion. The players in the New Economy may be considered entrepreneurs when they make investments and take financial risks. They may also be acting in an entrepreneurial fashion when they find new ways to reapportion risk. Sometimes these risks are quite difficult to document or discern due to their nebulous, diffuse, or delayed character. In other instances, the risks are tangible and well understood but, nevertheless, ignored if they can be shifted onto more vulnerable partners—young, female employees, for example, who can be replaced when and if they develop the quite predictable health problems associated with the risky character of their working conditions.

The New Economy, ICT and the Reapportionment of Risk

The New Economy is the outcome of a series of multi-layered and multi-level societal events and processes. Many factors have contributed to its emergence as a global phenomenon: the new orthodoxy of the market and the consequent transformation of the role of the state in production, trade,

and welfare; the rising importance of finance capital in determining strategies of development; discoveries in the biological sciences and information technology; the increasing role of communications—including vehicles that allow social actors to bypass monopoly media; and the rising impacts of social movements, civil society, and women's formal and informal participation in the labour force. The New Economy is restructuring national and regional economies and economic sectors in different ways. One can point to the rising importance of cities and their hinterlands, the decline of the welfare function of states, and a New International Division of Labour (NIDL) in which production for global markets is controlled by a relatively few transnational corporations. As opposed to the previous (Fordist) era, in the NIDL particular labour processes are located based upon the 'competitive advantages' of place—largely related to their environmental, social and political conditions and regulations—as well as the application of selected techno-scientific advances in the production process. In many places these 'competitive advantages' are mostly dependent upon the intensified exploitation of environment and labour, with negative consequences for local environments and social conditions.[4]

The New Economy represents/carries/transmits, and structurally encompasses and accommodates, a dramatic rise and extension of both risk and uncertainty. This increase in risk and uncertainty stems from increased rates of change (technologies, markets, policies, etc.), from the interaction of regions and subsystems that were formerly relatively separate and isolated, and from new "rules" of competitive market relations which make risky behaviours and practices more common and commonplace. For individuals, families, communities, and organizations this new set of conditions and contingencies creates uncertainties and insecurities that can interfere with the capacity to work (individually and collectively) towards sustainability.

The New Economy increases exposure to risk, uncertainty, and insecurity through a variety of mechanisms and pathways that affect every sphere of public and private life. This heightened exposure often follows predictable patterns, affecting the poor more than the rich, the less-educated more than the university-degreed, and the older more than the younger technology user. Expanding markets displace other modes of economic coordination and exchange, while economic power is centralized and concentrated, leading to new competitive pressures, but also to anti-competitive, oligopolistic practices. Corporate strategies

[4] The haphazard and predatory character of the linkages between these export producing activities and the local economy also increases the risks associated with their existence within a region or country.

reflect increasing uncertainties, commercial pressures, and risks which are generally passed on to workers and consumers but may also result in reduced corporate longevity. Employment is increasingly contingent and insecure. Increased use of markets to regulate, allocate, and coordinate (dismantling of marketing boards, etc.) introduces risks that stem from the decline of public protection and the lack of (local) control over commerce. Declining and fluctuating terms of trade for resource sectors make it difficult to plan for a stable rate of exploitation and encourage rapid extraction. Growing foreign exchange dependency in the context of rising import costs and falling export revenues means increased exposure to the risk of secular deterioration of the terms of trade, and the risk of "structural adjustment" imposed by the IMF. Rising exposure to international currency and commodity market fluctuations introduces risk through monetary systems. The biotechnological revolution implies global-scale experiments with the stuff of life. Technical and cybernetic refinements to deal with risk lead to new forms of risky activity.

Deregulation/reregulation leads to changing rules of performance and the social reallocation of risk given reduced state subsidies, state interventions, and regulatory efforts, as well as the withdrawal of social safety nets. On the other hand, the state may be called upon to underwrite risks that the private sector is unwilling or unable to absorb, as in the case of the nuclear industry or more generally in the provision of medical services to workers injured on the job, or to citizens injured by industrial diseases. The state may also step in to absorb the risks where these may threaten the accumulation and legitimation of both the private and public sectors, such as happened with the Canadian Bombardier loans of 2003, the US Chrysler bailout, the Mexican debt crisis, and the US Savings and Loan debacle. The extension of business managerial models to public agencies focuses attention on a narrowed set of performance criteria. Uncertainty increases regarding state policies and programs given fiscal austerity, political competition, and the willingness of states to sacrifice sectors or regions that are not "performing" economically. Governments and agencies are subject to more frequent destabilizing events/forces.[5] The reorganization and downsizing of public agencies erodes their

[5] Paradoxically, in some instances governments have found ways to use widespread fear and uncertainty to solidify and extend their hold on power. In the process, critics are neutralized, the offloading of risks is legitimated, and a new ethos of self-interested and selfish behaviour is naturalized. No longer is it considered the duty of governments to promote economic health by supporting widespread consumption and investment in social goods, rather they accept and legitimize a regime of highly unequal access and participation.

institutional memory, weakens links with sectoral actors, and leads to career-oriented survival strategies rather than to work on reforms or genuine renewal in the government services. It has also led to the loss of external and internal checks and balances on the conduct of private firms, thus contributing to a growth in violations of public trust such as the accounting abuses that came to light with Enron and World.com in the early 2000s.

Underpinning this new post-Fordist economy are advances in information and communications technologies, which make possible the coordination of supply chains and the monitoring of activities across great distances. These same technologies allow for the rapid transfer of capital around the globe. They also allow (some) people and places to be connected instantaneously, locally or across enormous distances. These developments have also facilitated new and aggressive forms of international crime that can envelop whole regions in the transnational supply chains of illegal commodities. New ICT technologies also give rise to novel forms of fraud, theft, and tax evasion. Whether we are talking about overtly criminal acts or routinized forms of corrupt and underhanded dealing by public and private bureaucracies, this effectively undermines the climate and conditions conducive to the pursuit of legitimate livelihoods.

It could be argued here that the development and subsequent uneven adoption of ICT represents a new source of risk, especially for third world, rural people. Third world rural communities are embedded in a series of nested inequalities that both create the digital divide and increase its consequences. Third World countries are often highly dependent on First World countries for capital, technology and access to information. The spread of technologies such as the internet, therefore, do not fit with models of benign, democratic, self-directed evolutionary processes. Consistent with the development and commercialization of many other new technologies, it appears that the development of the internet is driven by the politics and policies of powerful actors on the world stage, including states and media corporations (Davidson, 2002; McChesney, 1999; Mosco, 1996; Schiller, 1996). While the internet has great potential as a way to bypass official or corporatized media, it is at present dominated by e-commerce, and many governments have instituted measures to limit the internet as a domain of free speech or inquiry. The internet itself is also a vector for new forms of risk – for example the new risks associated with internet scams and commercial fraud, and chatrooms that provide an anonymous vehicle for sexual and other kinds of predators.

The internet offers new opportunities but also threatens to exacerbate existing disparities in power via unequal access to, and application of, the

associated technologies. The geographic distribution of high-technology exports, computer power, and internet hosts follows the hierarchical pattern of the core-periphery system (Wallerstein, 1974, 1980), although there is no single core but a triadic arrangement of country clusters around the cores of Western Europe, North East Asia and North America, each with their respective peripheries (Gunaratne, 2002). There is also evidence that the use of the internet-based information in development programs organized by international aid agencies tends to produce dependency and inequality. Reviewing internet use in Latin American development projects, Everett (1998, p. 386) concluded that "information does not always ensure progress, and integration does not ensure equality. […] Information technology is leading to new forms of dependency." Information and communication technologies appear to be playing an increasingly constitutive role with respect to the inclusion and exclusion of groups from effective participation in the discourse of 'development'. The majority of participants are shut out of critical discussions concerning the conception, design, implementation and evaluation of development projects both large and small. Priorities and modalities are not subject to democratic debate, but are assumed or determined by a technocratic elite serving "private" or "public" bureaucracies.

The ILO (2001) found that only 6 percent of the world's population is on-line, with internet users in industrialized countries accounting for between 85-90 percent of the total. Internet users in the United States and Canada alone make up 57 percent of the global total, while internet users in Africa and the Middle East together account for only 1 percent of global internet users. Only 4 percent of internet users reside in Latin America. These statistics, however, do not convey the full extent of the digital divide. The digital divide has been defined as "inequalities in access to the internet, extent of use, knowledge of search strategies, quality of technical connections and social support, ability to evaluate the quality of information, and diversity of uses" (DiMaggio et al., 2001, p. 310). Unlike other definitions that emphasize the chasm or gulf that may exist between those who have access and those who do not, this definition underlines the importance of relative disparities in the ability to obtain, use and critically evaluate information via the internet. While it is clear that the digital divide has the potential to exacerbate already-existing inequalities, "the notion of a binary divide between haves and have-nots is…inaccurate and can even be patronizing because it fails to value the social resources that diverse groups bring to the table" (Warschauer, 2003, p. 7). The introduction of ICT may sometimes allow previously undervalued characteristics to be appreciated and some previously disadvantaged groups to discover that they have attributes that are valuable. Whether or not ICT is promoting new forms of inclusion or

exclusion, these issues are inescapable because "the ability to access, adapt, and create new knowledge using new information and communication technology is critical to social inclusion in today's era" (Warschauer, 2003, p. 9).

In the context of the digital divide, new sources of risk may be introduced through the very ability to access new types of information coming from 'global' sources. The internet-derived provenance of the material does not guarantee its usefulness, reliability or its validity. It may not be peer-reviewed, and it may not be relevant. This disembedded information may depreciate or marginalize local ecological knowledge (LEK) (Neis, 2003) even though 'intelligence' from the internet may not be locally adapted, appropriate, or indeed, risk minimizing.[6] Nevertheless, information that comes through computerized networks may carry a cachet or imprimatur of sophistication—it may be more 'technified' and considered more modern. Internet technologies may lead to a privileging of written discourse over oral communication. Most internet-based information is in English and conveys Western modes of thought and action. In turn, because of its favoured status, internet technology and information may confer a heightened status on the user. Depending on the context, this may strengthen existing inequalities or become a source of potential resistance to them.

In the absence of systematic local testing and adaptation, new—particularly exogenous and deracinated—sources of information may increase uncertainty and precipitate unexpected and unwanted outcomes. While ICT and the New Economy may heighten the importance of local places (this process is sometimes referred to as 'glocalization'), the scope, pace and intensity of competition amongst regions and localities are also heightened, as well (Epp & Whitson, 2001). Competition is now frequently considered to be the only option for community survival, but "extreme competition diminishes the degree of diversity existing in a society and contributes to social exclusion: individuals, enterprises, cities and nations that are not competitive (enough) are marginalised and eliminated from the race" (Blahó, 2001). The information transmitted through ICT may not be appropriate to specific places or conditions, and may contribute to a reduction in cultural diversity that leads to a decline

[6] There are, of course, big differences between accessing information and the ability to use it to effect. Many people, for example, can access general information about the WTO, but are powerless to change its rules. There are also differences between acquaintance with information and the ability to use it as knowledge.

in local capacity to innovate in locally adapted and optimal ways. This may decrease the potential repertoire of alternative responses that can be accessed by people solving such problems in other places as well.

ICT access has unpredictable consequences for local groups and communities in the Third World. While in North America the glocalized internet connects people to global sources, it is used primarily for quite local interactions. (Tindall & Wellman, 2001). According to some researchers, internet communications "increase the size, variety of interpersonal ties (sic), and are especially useful for maintaining weak ties in between face-to-face encounters" (Wellman & Gulia, 1999, as cited in Tindall & Wellman, 2001, p. 276). It appears that the nature of community life changes, however, through the presence of internet communications. Compared to historically more dominant forms of community that tended to be densely-knit, geographically and socially bounded social networks, one can observe a shift to "*networked individualism*: greater privatization of community, as contact among individuals supplants contact among households and communal groups" (Wellman, 2000, 2001, as cited in Tindall & Wellman, 2001, p. 276). The implications for Third World rural places can hardly be underestimated, as local social networks and communities of place provide a form of social insurance, and are critical sites for the reproduction and mobilization of social capital. Place-based communities can play a central role in the long-term management of natural resources, because many conservation initiatives require coordinated, collective action. Local communities also serve as the locus that supports adoption of lengthened planning horizons. Such communities provide institutional memory with respect to the history of the resource. They are also the people who matter to those who are making decisions that will impact the future productivity and health of local ecosystems. Without such social connections there may be less impetus to make long-term investments or to forgo any portion of current revenues (Gertler, 1999, 2001).

In the New Rural Economy, family enterprise continuity becomes more uncertain, given the competitive disadvantages of rural regions in the unprotected, ultra-competitive globalized economy. The pressures to exit increase, apparently at least as fast as do barriers to entry. The continuity of the intergenerational transfer of culture, and of orientations to community and production, can be ruptured by the dominance of new channels of communications and new cultural influences, and through increased rates of change combined with pressures for income generation. New risks arise with the introduction of new technologies and practices. The adoption of technologies and practices can appear to reduce risk for individuals, but may in fact shift it onto others or create new risks that must be absorbed by communities and societies. Diversification of

livelihood strategies can augment and stabilize household incomes, but can also increase exposure to new kinds of risk (Gertler, Jaffe, & Swystun, 2002). Communities of place are the least stable, and most vulnerable to economic and social disruption. They may become communities in name only—individualized, privatized, depressed, more conflict-ridden, and marginalizing rather than integrating minorities (Jaffe & Quark, 2004). Sustainable development as a viable political strategy may become increasingly remote as debates become polarized and the environment and environmentalists come to be viewed as enemies of economic survival and viability.

Much of the apparent resilience of the New Economy comes from a down-loading or up-loading of risk, and an "externalization" or socialization of many of the real costs of production. Corporate off-loading of risk is often accomplished without providing any benefits and with no risk premium being afforded to producers (Thu & Durrenberger, 1998). This amounts to the corporate appropriation of the risk premium without the assumption of risk. This reapportionment of risk takes place across international boundaries as well as across classes and segments of industries. Indeed, one may now speak about a "New International Division of Risk" (NIDR), in addition to the New International Division of Labour.

The identification and prioritization of risk is inherently political. Is “economic risk” to be predominantly defined as the risk of slowdown, inflation, or changing currency exchange rates, or is it to be conceived first and foremost in terms of unemployment and loss of livelihood? Each of these definitions of economic risk encapsulates and reflects particular interests, and each repositions different groups as winners and losers. Political sociology has so far tended to treat the question of risk as an individual concern. We propose that it goes far beyond that—to the very conditions under which struggles for eco-social justice take place. In this brave new world of risk and vulnerability (masked as productivity and competitive efficiency), the uneven development and impacts of ICT can have far-reaching consequences. Given the context and biases inherent in the technological package as it is presently configured, ICT will more often than not contribute to the heightening of risk and the exacerbation of vulnerabilities for those who can least afford to see any further erosion in their precarious situations. ICT, along with other powerful new technologies, can potentially support human liberation and sustainable development. The realities of power politics and commercial logic will mean, however, that this is no more than an elusive promise in most Third World settings.

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