

Opportunity is reflected by the degree to which there is a democratic voice, access, and an enabling economic setting which are often non-existent in many developing countries. One may dare say that this may be found lacking in many developed countries, especially with regards to immigrants, indigenous groups and marginalised constituencies in these countries.

Mike Davis, recently, wrote a book titled: *Late Victorian Holocaust*, which examines the records on the Great Hunger in Ireland between 1845-1850. The potato blight caused partially by a fungus called *phytophthora infestans*, killed about a million people and led to the forced emigration of another 2 million people. The book however, portrays a more sinister causal relation when it points a finger at the then British government's policy of willful neglect. This echoes the view held by Amartya Sen, Nobel Laureate for Economics, that mass starvation is almost always a political, rather than a natural disaster. Although Davis' thesis is contentious, it does reveal new insights that confirm the view held by other intellectuals. They argue that as much as famine is a reflection of the temperament of nature, it is also a political instrument in the hands of the powerful. Sen points out: "What is crucial in analyzing hunger is the substantive freedom of the individual and the family to establish ownership over adequate amount of food, which can be done either by growing the food oneself (as peasants do), or by buying it in the market (as the non-growers of food do)". In other words, chronic food insecurity has the effect of limiting the potential of people to participate effectively in the economy and within the political processes. This is as a consequence of shortened life-spans, due to stunted growth and wasting.

At the other extreme of food insecurity resides the world of "conspicuous consumption", that the economist Thorstein Veblen (1899), had many moons ago gave an elucidation of, in his *Theory of the Leisure Class*. To put it simply, the theory is: those who live in leisure and have disposal incomes, buy those things outside of wanton necessity, merely for the triviality of maintaining the semblance of status. In this way, we spend half or more of our productive energies and creativity in advancing the habits of "conspicuous consumption", at the expense of dealing with issues of poverty. The philosopher and ethicist, Peter Singer recently quipped: if we were all to live on the bare necessities of life, then our conspicuous consumption would not lead to others dying. This is especially significant, given the fact that since the end of the cold war about 200 million people are estimated to have died from starvation and preventable diseases. Indeed, he argues that over-consumption is tantamount to the murder of other global citizens, because by spending more on ourselves, we increase the deprivation of others. Needless to say, the manner in which conspicuous consumption leads to perverse use of natural resources in itself contributes to externalities that are often

The views expressed here are not that of the IUCN, but the opinion of the author(s)

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GMOs for food security: a corporate misnomer

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The GMO debate has once again raised the spectre of corporate control over food production, and its influence over the nature of agricultural production. The notion of food security has been bandied around to be synonymous with food surplus. It is herein demonstrated that the manner in which the issues of social equity, economic disparity and the failure of agrarian reform in developing countries, are being simplistically enunciated as a problem of yield. Furthermore, when the discourse is locked into notions of yield, then most certainly, technocratic approaches to matters concerning political economy, gain ascendancy.

It is estimated in the FAO State of food insecurity Report for 1999, that about 800 million people in the developing world; and a further 43 million in the developed world, suffer from chronic food insecurity. Chronic food insecurity is defined as follows: "...estimates of the number of people whose food intake does not provide enough calories to meet their basic energy requirements, i.e. the undernourished". While the FAO Report points to some gains having been made since the last World Food Summit (1996), the progress made still falls far short of meeting the Summit's target reduction of world hunger by half (about 400 million), by the year 2015. Interestingly, the Report also provides information on the status of hunger in the United States. In the USA, about 800 000 households suffer from severe hunger, underscoring the fact that chronic food insecurity while predominately a developing country problem, is also found in the developed world.

The dictum is simple: there can be no food security without economic upliftment; improvement of household income capability; and opportunity for the poor. The proponents for GMOs have clearly missed a glorious insight: poverty is associated with disempowerment, arising from the removal of land, water, and political rights. While much of the debate on livelihoods have focused on issues of assets and capability, a lot more attention needs to be given to questions of opportunity.

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borne in greater proportion by the poor.

The tussle between private and public control over food production and supply may offer reasons as to why genetic engineering as a technology is being promoted above other possible alternatives. It serves as a vehicle to use that technology which is optimally profit generating, given that it is simply an extension of the current commercial agricultural production system in the developed world. If there is no balance, privatization of food production (the development of germ-plasma and seed) can lead to the total destruction of a very ancient practice within agriculture, which in many societies is still a collective resource and activity. The inevitable result of which is the monopolisation of food production by a few individuals or firms.

The International Food Policy Research Institute (IFPRI), a CGIAR think tank, estimates that by the year 2020, global demand for staple foods such as rice, wheat and maize will increase by 40%, an average of 1.3% per annum. The question on everybody's mind is how the additional demand can be met economically and sustainably. The FOA also indicates that to some degree this increase in demand of 1.3% p.a., has been met since the 1970's. There is a possibility of projected decline, due to political upheavals in the countries of the former Soviet Union, and the general decline in subsidies for cereal crops. This has forced farmers to shift to other high value crops, or totally take their land off cereal production.

Declines are possibly due to diminishing returns from technologies developed during the Green Revolution. The Green Revolution succeeded in improving yields not only through genetic improvements, but also through the use of chemical fertilizers and irrigation. Fertilizer use from 1961 to 1996, increased from 31 million metric tons to 135 metric tons. Both developments have led to serious environmental problems. It is questionable therefore that the extension of biotechnology - that amounts to the same thing in a different form - will lead to the much vaunted promise of a new Green Revolution.

The new Green Revolution introduced as its first set of R and D investments two traits: herbicide resistance and pesticide resistance through the engineering of Bt in crops. Many argue that these changes merely maintain current yields, and did not in any major way shift the yield ratio since the green revolution first started. The point being made is whether single gene tinkering, or more adventurous, costly, and arduous manipulation, is likely to lead to the kinds of revolution that would be forthcoming from the biotech industry? A special feature article in Science notes: "The vast majority of these crops are the result of single-gene transfers, in which one or more genes coding for desired characteristics. Such efforts, although important to raising actual yields, are unlikely to raise potential yields. To break yield barriers, the plants will have to be thoroughly re-engineered".

Proponents of alternatives argue that further improvements in yield can be done in two ways: improving on farm management (and perhaps a revolution in this is needed); and improving the genetic stock, so as to make crops more resistant to adverse weather, pests, and other natural conditions. In the latter case, while genetic engineering may provide some solutions, use of indigenous landraces, and livestock may extend the range of options to poor farmers. Partly, or perhaps the main reason for which we ought to recommend research in alternatives, is that if it is based on locally specific needs and conditions, it is more likely to be poor orientated and adaptive. GE on the other hand, has commercialism as its major value orientation.

This commercialism is evident in the narrow attention that GE companies have given to the ways in which the technology is being used. These traits complement already extensive large-scale commercial operations, which are on an economy of scale that makes GE a viable and profitable option to commercial farmers. As there is a greater shift towards privatization, food production becomes more commodified in all aspects. Farmers get locked into a purely commercial set of rules, rather than the traditional notions of the roles they should be playing, which is a societal role. Parallels to this commercialism are to be seen in sectors such as medicine and education, which were once regarded as noble fields, where community service featured as the main rewarding mechanism and incentive.

That which is more worrying is that international public institutions such as the CGIAR, and through its network of National Agricultural Research Systems (NARS) are buying into this new paradigm of commercialism. And by doing so they are losing sight of the fact that its strategic role should be to ensure that the vast majority of peasants, and poorer farmers continue to benefit from technologies that are appropriate to their needs. This loss of focus by public institutions, is due partly to many of our public research institutions having been nudged into embracing the privatization bandwagon, noting that governments have begun to implement budget cuts to these institutions.

In most developing countries, issues of food security for poor households are not driven by an intrinsically commercial framework. Their main aim is to ensure that there is sufficient crop diversity that is risk resilient, and which enables households to attain sufficient levels of stable and nutritious food for the year. To say that the intention is to make all farming into viable large-scale business enterprises, is extending the commercial logic too far, and in many developing countries this may be an entirely inappropriate intervention. The paradigm of commercialism, finds its home in the neo-liberal discourse that argues that markets are the best providers of information, and drives what should be supplied and how (the means to do so). This would be plausible if one were to believe that markets operated justly, fairly, and efficiently. Markets in general are not value and

power neutral forces that allow people to engage freely in economic exchange. As many case studies will show, free marketeering, given its profit motives are ineffective mechanisms for nurturing the interest of the poor. As the political historian, Eric Hobsbawm points out: “market sovereignty is not a complement to liberal democracy: it is an alternative to it. Indeed, it is an alternative to any kind of politics, as it denies the need for political decisions, which are precisely decisions about common or group interests as distinct from the sum of choices, rational or otherwise, of individuals pursuing private preferences. Participation in market replaces participation in politics. The consumer takes the place of the citizen” (New Statesmen, 5 March 2001).

More importantly, even if GE were to be successful, constraints such as water; good agricultural soils; and artificially improving marginal land will become a major issue. In Southern Africa for instance, Angola, the Congo, and northern Mozambique have high quality soils and good rainfall to feed the whole of Africa, however, war and poor infrastructure prevent these opportunities from being realized. A case in point is the northern parts of Mozambique where most of the food is produced, ironically one will also find the highest rate of food insecurity. This is primarily so because it continues to suffer from the ravages of the war.

Other potential threats to developing countries do not stem from Genetically Engineered (GE) technology per se, nor the Green revolution. However, given the ideal conditions, countries with resources will have the power and the incentive to produce large surpluses of food, which would push prices down, and thereby force developing countries to import rather than produce their own food.

Thus we enter the fray of international trade and social equity. Depressed prices on the international market for food will force poorer farmers to sell off their land, thereby increasing the chances of consolidation by more prosperous farmers. This pattern has already been evidenced with the decline in family farms in the US, and in many Asian countries where the Green revolution was launched, leading to richer farmers squeezing out the peasantry even further.

Trade in food may be affected in yet another manner if GMOs were to be widely rejected by the economies of developed countries. Farmers in developing countries will face boycotts of their GE based crops, or at the very least they may not capture any sizeable market opportunities. Already in Southern Africa, the Namibian government has raised heckles over South African animal feed contaminated with GM crops. This may lead to the rejection of Namibian meat products or livestock by consumers in Europe. As it is, the European Union’s existing food safety rules, which are tighter than the standards set by the Codex (which sets international food standards), is already hampering the export

of food. According to a World Bank study, this can cost African countries about \$700m per annum.

This draws our attention to the issue of pushing for an international trade regime. This will ensure countries do not suffer more than they already are from multi-lateral trade agreements, which diminishes their ability to earn sufficient foreign exchange. A favourable trade policy that will improve food security hinges on three factors: export subsidies; market access; and domestic subsidies; all of which affects demand and supply and therefore influences the price of food.

Whether food security is best achieved through a liberalized trade regime, is a moot question. This is not to say that countries that produce food at a cost, should not be obliged to engage in profitable trade. But, the reality is that many countries whose agriculture is export orientated subsidise in one form or the other their farmers which gives them a unfair competitive edge. GE technology and the current system of global food production advances the ethic of commercialism. Is this the framework for the future? Does it guarantee international food security? How do poorer countries ensure that their food needs are not jeopardized by an aggressive commercial food trade regime? How will international institutions like the World Trade Organization secure the ability of poorer countries to feed their own populations? Is the current trade regime for food a fundamental infringement of international human rights? These are the important questions that have not been given the attention it deserves in the corridors of trade negotiations; debates on the merits of GE foods; or by other forums. Perhaps, international food security will better achieve its’ objectives through an international framework or charter, that enshrines the principle of collective responsibility and encourages a much more responsible approach to food trade.

The issues are better understood through the knowledge of how production and service sectors are changing in the world today. With service industries becoming the predominant forms of economic activity we are, to use the insights of Jeremy Rifkin, slowly moving away from economies in which markets are solely being based on seller/buyer arrangements, to supplier/user arrangements. This is particularly evident in sectors that are reliant on knowledge, where intangibles such as ideas, become concentrated in the hands of a few corporations and individuals. In the field of genetics this is already evident in the widespread patenting of gene sequences of plants and animals.

Genetic information is the ‘gold-mine’ of the future. The chemical processes of nature, it’s building blocks and defenses, can be ‘naturally’ produced at costs far cheaper than is possible to do so through artificial means. Gene information is important in a range of industries: medicine; information technology; chemical industries; fermentation etc.

Patenting confers more power to corporations than Plant Breeder's Rights do. As there is more concentration, access can be controlled through price and the recruitment of selective users. Within the current framework of capitalism, buyers cannot own the goods they purchase, they simply have the privilege of use for a limited period of time and at a specific price. Furthermore, a whole range of services or value additions are added on, which increases profitability. Within a supplier/user market system, the scale of profit becomes even more lucrative because of the narrow supply chain. The notion of competition, which is the hallmark of classical capitalism, is also eroded under new capitalism, as supplier/user systems encourage mergers and acquisitions, corporate alliances, and networks (this is very evident for instance in the entertainment industry, and already exists in certain categories of e-commerce). The trend of neo-capitalism is to shift away from notions of ownership to that of access. If you control access, you control the size of the revenue stream. The future is not about "who owns what", but rather, "who has access to what".

GMOs, if understood under the guise of new corporate strategy, is an attempt to lock farmers into a supplier/user relationship. In this relationship users have little power and only restricted access; can be embargoed for infringements; and there exists a perpetual service dependency. In a supplier/user milieu you are not a once off customer, but in a life long relationship. Why not get more out of customer, if he/she is your life-long friend, and shares your value system?

Recombinant technology makes it possible for products to be designed in a manner that allow these features to be established e.g. genes can be inserted to induce certain genetic traits by the application of chemicals by the farmer, without which the seed is useless. This is also referred to as Genetic Use Restriction Technology (GURT) technology. Soon, if only private corporations are to own the majority of gene information, the notion of free market falls away. GM technology fits the new supplier/user paradigm, into which knowledge based industries are beginning to shift. This is so as it enables maximum control over intellectual property, and can restrict use and access without recourse to normal State regulatory systems.

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