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Technology For Social Inclusion

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Popular social movements in Brazil (and elsewhere in Latin America) often intersect with networks for cultivating what is called 'social technology', which 'comprises products, techniques and/or replicable methodologies, developed in interaction with communities of marginalized people, that represent effective ways for furthering their inclusion in empowering projects'. I will first discuss the meaning of 'social inclusion', and then what is distinctive about technology that furthers social inclusion and the science that is needed to inform it.

Social inclusion

'Social inclusion' has become an objective virtually uncontested by political groups in Brazil, where it is evident that the marginalization of vast numbers of people with its attendant sufferings is unacceptable. However, competing ideals underlie its interpretations: *the individualist ideal* – that everyone have the opportunity to live in a way, experienced as reasonably fulfilling, that incorporates the values of hegemonic society (individualist, acquisitive, consumerist, hedonist); and *the social ideal* – that everyone lead lives in which people and their communities can cultivate and express values that they themselves reflectively hold and consider integral to lives of well-being (solidarity, cultural difference, strengthening of personal and communal agency).

There are also competing accounts of the causes of marginalization. Where the institutions of capital and the market are hegemonic, and the individualist ideal is celebrated, 'underdevelopment' is said to be its cause. In contrast, the networks of social technology identify these very institutions, and the social arrangements they foster, as the principal cause. Moreover, they consider it a delusion that the individualist ideal can be universalized. The obstacles, constantly experienced by those making efforts to bring about changes, lead them to challenge that current socioeconomic arrangements are on a trajectory that could progressively lead towards acceptable social inclusion (even according to the individualist ideal). Hence, for them, the social ideal must inform the aspirations of any coherent movement for comprehensive social inclusion.

The key agents in movements for social inclusion are marginalized people, whose experience has led them to reject the individualist ideal. The movements also involve constructive alliances – based on solidarity and shared ideals – with technical, scientific, academic, legal, political, religious, etc collaborators. Negating the sufferings (oppression, dependency), experienced by the marginalized, is the first objective of the movements: *in the short term*, to create and engage in a struggle, with the capacity to expand so as to incorporate increasingly more people, that enables the marginalized to gain some degree of relief now from their sufferings and, at the same time, that constitutes a means towards realizing the *long term* end of producing a social order that eliminates the causes of the sufferings. What the *social ideal* amounts to positively and concretely is to emerge in the course of the struggle – marked by the dialectic of means and ends – and critical reflection on it. The point of departure is how marginalized people themselves identify, experience and articulate their sufferings, that which is to be negated, and how this shapes their aspirations for better lives; it is not theories developed by others about how to organize society in order to realize *the social ideal*.

Sufferings of the marginalized and their negation.

The sufferings of the marginalized vary in dimensions, kinds, details and intensity from place to place. The material (bodily) dimension, at times, tends to overshadow other dimensions because of the intensity of the sufferings of hunger and sickness. There is a social dimension, often with racial and gender components, as people experience the disruption of their families and communities, the necessities of migration, a sense of isolation, and gross inadequacies of housing, social services, transport, schooling, playgrounds and facilities for leisure activities. And a cultural dimension involves sufferings derived from perceiving their traditions, cultures, languages, bodies of knowledge, histories and ecologies being destroyed. Linked to these, there is their sense of powerlessness and helplessness – sometimes demoralization and depression, and threats of nihilism or hopelessness – of feeling subject to the pushes and pulls of forces outside of their control and often understanding, and where their own perceptiveness, values and agency can play little role in the unfolding of their lives and habitats. Their sufferings – exacerbated by vulnerability to natural disasters, environmental devastation and the effects of climate changes, and often caused by pollution to which many of them are directly exposed – may also involve the early and painful deaths of their children, the woes of unemployment and unstable intermittent

employment, daily confrontations with drugs and violence, the devastation of being driven from their lands, experiencing the contempt (and fear) of the powerful and well-off, and the experience of violence exercised against those who organize for change.

What is aspired to is the negation of these sufferings in all their dimensions, and the elimination of their causes. This negation is made positive by visions of the general contours of 'another world' (in the words of the World Social Forum), in which the sufferings would have been negated, and free and flourishing lives could be led by as many as possible. The forms of 'another world', and the values that define free and flourishing lives, are to be identified in the course of the practices and deliberations of the movements for social inclusion. These movements make use of modes of communal organization that enable what is experienced and learned to be taken into account as it unfolds, and missteps to be corrected as they are recognized. They aim now to create communal arrangements locally (or strengthen already existing ones) – for example, the *assentamentos* of *Movimento Sem Terra* in Brazil – in which values held reflectively within the communities can become more fully expressed in people's lives, thereby enabling problems of social marginalization (and environmental threats) to be begin to be dealt with in a way that reflects the interests, values and inputs of the members of the communities themselves. They also aim to devise forms of work that the communities themselves manage (social technologies are relevant here), and that are integrated into economic arrangements (like the Brazilian *economia solidária*) that enable community self-reliance to be developed and maintained. Radical rupture with traditional cultures is neither required nor desired. Positive visions may have their roots in conceptions of social justice, drawn from these cultures, that are articulated by such values as solidarity, widespread participation, self-reliance and respect for nature, and that may be expressed in a variety of forms of life that reflect different cultural (and ecological) contexts.

The 'measure of progress' towards social inclusion

The 'measure of progress' towards social inclusion, therefore, cannot be material progress or economic growth, and unhindered (market oriented) technological innovation cannot be its driving force. Only fuller manifestations of the values that define the social ideal can be. These values (which are open to various interpretations and rankings) usually include: solidarity in balance with individual autonomy, social goods ranked above private property and profits, the

well being of all persons ranked above the market, strengthening a plurality of values in place of commodification, human emancipation (liberation) in balance with individual liberty and economic efficiency, rights of the marginalized above interests of the rich, taking responsibility for the future instead of resignation in face of the projects of the powerful, democracy enriched with participatory mechanisms and not limited to formal democracy, and proper balance of civil/political and social/economic/cultural rights. In summary, these are the values of enhancing local well being, agency and community – and, since enhancing human well being is dialectically intertwined with sustaining the environment, they also include environmental sustainability. These values are incompatible with those of capital and the market that inform interpretations of the individualist ideal.

The objectives of social inclusion include the means to achieve them: to generate a process of negating current sufferings, aiming towards a transformed social order, 'another world', informed by the understanding and values of the marginalized themselves, and with their active participation.

Agency

The exercise of the agency is fundamental here. Diminished agency is causally linked with most of the sufferings; hence the importance for marginalized people of enhancing their agency through their own leading participation in the communal practices and popular movements aiming for social inclusion. Exercising agency is integral to human flourishing. Human beings are agents, beings with capacities for self-consciousness, self-reflection and self-determination, and for acting according to their own reflectively endorsed values (and the goals and ideals they inform) and their own intelligent assessments of current realities.

Agency is the distinctive human capacity shared by all human beings. However, for its effective exercise certain conditions are required. It can be enhanced – or diminished – by people's relations with others and their places in social institutions. Effective agency and relations of solidarity mutually reinforce one another. The places left to the marginalized within current socioeconomic arrangements are a major source of diminished agency, as also are most of the places they might aspire to if they are gripped by the individualist ideal. Social inclusion, in which the conditions for the effective exercise of agency are widely available, would require socioeconomic arrangements in which (in principle) everyone could participate in decisions that

have impact on the availability of these conditions – decisions about such matters as the production and distribution of goods (manufactured and agricultural) and services, the goals and processes of the work environment, and how to balance institutionally social/economic/cultural rights with civil/political rights.

Social inclusion, incorporating the social ideal, could grow towards fruition only outside of the trajectory of the currently hegemonic institutions of capital and the market. Movements for it have to counter the influence of the propaganda, with which people (the marginalized included) are bombarded daily, that 'the good life' can only be reached within this trajectory and that it is illusory to think that the individualist ideal has any viable competitors. They also often have to contend with violence exercised against people in movements who contest this trajectory.

The 'dialectical unity' of means and ends

It is certainly difficult in the current world to cultivate hope that a struggle informed by the social ideal might be successful. Nevertheless, it is in this world that steps towards social inclusion have to be taken, in wherever spaces can be found where the lures of the individualist ideal have not been succumbed to. Consequently, social inclusion needs to be understood in terms of 'organic' or 'dialectical' unity between means and ends, between ameliorative action and structural transformation, and between short and long term objectives. Movements for social inclusion, and communities that have enacted steps towards its realization, represent in anticipation the values that they desire to have embodied throughout society. Their movement towards new socioeconomic arrangements involves growth whose claims and appeal are grounded in the partial realizations already actually realized in the movements and communities, and a keen sense of the dialectic of personal development and social change.

The dialectic of means and ends is crucial underpinning of the motto of the World Social Forum, "Another world is possible'. It frames how the dominant consciousness can be challenged, *by constructing and making visible concrete images of alternatives,* and thereby attracting more of the marginalized to choose freely to participate in the quest for social inclusion, expanding the spaces that are not dominated by the trajectory that incorporates the individualist ideal. The desired new structures cannot be defined or created from above or from outside (though not without alliances). They emerge from the voluntary practices and commitments of the marginalized themselves and those in solidarity with them.

Social technology

Technological objects incorporate ethical and social values, and their possible uses require social environments that themselves embody specific values. Their identities – the kinds of objects they are and the values they incorporate – are complex functions of their physical/chemical/biological organization, their social genesis and the interests behind their manufacture and/or utilization, their associated techniques and bodies of 'know-how', their users, and contexts (social, economic, environmental) of their uses.

'Social technologies' are 'tools' for bringing about 'another world'. They incorporate the values that articulate the social ideal, and that are expressed in practices aiming for greater social inclusion. The key agents of bringing about social inclusion, the marginalized, have an important epistemic role in assessing the role and value of a proposed social technology, for its users must have effective control over its production and use, over its material conditions, such as the raw materials needed to make and operate it, and over the services needed to maintain it.

In order to gain images of what the forms and possibilities of social technology might be, it helps to look at already realized achievements. Agroecology is one of them.

Agroecology

Agroecology refers both to a mode of farming and to a body of scientific research/knowledge that informs it. It is different from 'conventional' and transgenics-oriented forms of farming that are capital and petrochemical intensive, integrated into the institutions of capital and the market, and responsive largely to the interest of making profits. Agroecological farming aims to fulfill a variety of objectives simultaneously and in a balance determined by the farmers and their communities, including: productivity, sustainability of agroecosystems and protection of biodiversity, health of members of the farming communities and their surroundings, and strengthening of local people's culture and agency.

Many technologies deployed in capital and petrochemical intensive farming, because of the values they incorporate, cannot be inserted into agroecology. Transgenics, for example, cannot be. Using them requires land on which monocultures can be grown and the availability of large quantities of petrochemical-based fertilizers and agrotoxics. It occasions greater risks to health and the environment; it already has caused serious harm; and it undermines the conditions

needed for agroecological farming. Moreover, because it is a technology restricted in accordance with intellectual property rights, it can have no place in farming practices in which its users have control over its production and conditions of use. Transgenics are not only biological objects; they also embody the values of capital and the market.

In contrast, agroecology utilizes kinds of technology that vary with cultural, geographical and ecological conditions: on the one hand, variants and developments of traditional techniques (informed by local and, sometimes, indigenous knowledge), for example, rotation of crops, integrated pest management, plantings of polycultures with different varieties and species in appropriate designs, green manures, natural fertilizers from locally accessible sources, and selection of seeds from harvested crops for future plantings. On the other hand, illustrating that what is important is the context of use of technological objects and who has control over their use, some advanced technoscientific innovations may also have a place, the outcome of collaboration between the primary agents of social inclusion and technical 'experts'. For example, following recent research on 'participatory breeding' of crop plants, varieties of maize have been developed using traditional methods of selection, aided by techniques of genomic analysis.

Science

Agroecology needs to be informed by scientific knowledge, as does transgenics-oriented agriculture; but different kinds of scientific research are needed in the two cases.

The notion of 'methodological strategy' is helpful for clarifying this. The principal roles of a 'strategy' are, first, to constrain the kinds of hypotheses and theories that may be entertained in a research project, thereby specifying the kinds of possibilities that may be explored and conceptual resources deployed; and, second, to provide criteria for selecting the kinds of empirical data that acceptable theories should fit.

I take scientific inquiry to be systematic empirically-based inquiry, conducted under strategies that are apt for gaining knowledge and understanding of the phenomena being investigated. This leaves it open that different kinds of strategies may be needed to investigate different kinds of phenomena – for example, one for the structure of plant genomes and ways to alter them, another for the possibilities of sustainable agroecosystems. Even so, it is often held to be of the nature of scientific inquiry to adopt strategies – that I call 'decontextualizing strategies'

– under which admissible theories are constrained so that they can represent phenomena and encapsulate their possibilities in terms of their being generable from underlying structures, processes and interactions of their components, and laws that govern them. Representing phenomena in this way decontextualizes them; it dissociates them from any place they may have in relation to social arrangements and human lives, from any link with human agency and value – and from whatever possibilities they may gain in virtue of their places in particular social, human and ecological contexts. Under decontextualizing strategies, for example, transgenic seeds are investigated for their genomic and molecular biological properties and their effects, but not for the consequences that follow from their being objects to which intellectual property rights obtain. Complementing these constraints on admissible theories, empirical data are selected and reported using descriptive categories that generally are applicable in virtue of measurement, instrumental and experimental operations. They do not include data about, for example, who owns transgenic seeds, who uses them and under what conditions, or the impact of their use on biodiversity, greenhouse gases in the atmosphere, the health of small-scale farmers and their communities, and worldwide food security.

Adopting decontextualizing strategies has undoubtedly led to striking and continuing successes, and it is reinforced where values of capital and the market are highly embodied and technoscientific innovation is held to be a driving force of economic growth. Furthermore, research conducted under these strategies is often said to be indispensable for meeting human needs and generating improvements of agricultural (and other) practices. However, although research conducted under decontextualizing strategies (in molecular biology) led to the innovation of transgenics, important phenomena connected with risks of using them, alternative practices (agroecology), and the causal context of the hunger suffered by poor peoples, cannot be separated from context. Hence, investigating these phenomena requires 'context-sensitive strategies', strategies that complement decontextualizing ones, but cannot be reduced to them. Context-sensitive strategies have been successfully utilized, for example, in agroecology research that integrally takes into account ecological, experiential, social and cultural dimensions of phenomena and practices. They enable agroecosystems to be investigated with respect to how well the four objectives of agroecological farming (stated above) can be met in them, and whether and how an appropriate balance of the objectives, as judged in the light of the values of the farmers and their communities, can be brought about.

The strategies adopted in research should be apt in the light of the characteristics of the objects being investigated. Which objects are investigated, [e.g., the possibilities of transgenics or those of sustainable agroecosystems], and so which strategies are adopted, reflect that certain values are held [respectively, those of technological progress and of capital and the market, or of social inclusion]. There are mutually reinforcing relations between adopting a strategy in research and holding specific values – so that the outcomes of research (and, e.g., what technological objets they can inform) are likely to be of special salience for those who hold the related values. Technology for social inclusion needs to be informed by scientific knowledge consolidated under strategies that bear mutually reinforcing relations with the values of social inclusion.

Concluding remarks

Agroecology provides a concrete exemplar of how social technologies differ from those that embody values of capital and the market. It is being practiced in Brazil and throughout the world, embodying the values of social inclusion (agency, solidarity, sustainability, etc), in a way that is open to variation with local, cultural, and ecological conditions and that anticipates the fuller embodiment of these values in a transformed society. It is practiced in association with a scientific project that deploys context-sensitive strategies that have mutually reinforcing relations with the values of social inclusion. While recognizing that agroecology is practiced now only by a minority of farmers, its success (measured in terms of the objectives of agroecological farming) is considerable, and so it is able to attract new adherents. Its practice is indeed expanding – and a plausible case can be made that, with further expansion, it could be the keystone for the multiplicity of complementary, locally-specific farming practices that could produce food security for everyone. Moreover, agroecology can be included in the package of practices that are needed across many areas of human activity to address the problems of global warming and climate change, since it involves much less use of petroleum (for transport and farm machinery) and petrochemicals (for fertilizers, pesticides, herbicides) – and so it is not unrealistic to entertain that it will attract support for its expansion. It involves interaction of farmers, technical experts/agronomists and scientific researchers, and so can provide the kind of space for collaboration between different groups that is essential for the growth of social inclusion. In short, agroecology shows that technologies for social inclusion can be developed, what they can

be like, and that they can be effective. Technology for social inclusion, and the science that informs it, are not just speculative ideas. Social technology has actual exemplifications. It is a task both for imagination and for practice to explore its potential in the widest, most integrated and most inclusive manner.

Bibliographic comments: My discussion of 'social technology' draws from the website of RTS (Rede de Tecnologia Social), http://www.rts.org.br/?set_language=pt-br&cl=pt-br, and from Renato Dagnino (ed.) *Tecnologia Social: Ferramenta para construir outra sociedade*, 2nd edition, Campinas: Komedi, 2010; that of technology, science and agroecology is elaborated in Hugh Lacey, *Is Science Value Free? Values and scientific understanding*, London: Routledge, 1999; and *Values and Objectivity in Science*, Lanham: Lexington, 2005.

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