



Grassroots innovation movements: challenges and contributions



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ABSTRACT

Technologies for social inclusion in Latin America are a recent manifestation of grassroots innovation movements whose global activities go back to appropriate technology in the 1970s and earlier. Common to these movements is a vision for innovation processes more inclusive towards local communities in terms of knowledge, processes and outcomes. A comparison in this article between movements for technologies for social inclusion now and appropriate technology in the past reveals three enduring challenges for grassroots innovation: attending to local specificities whilst simultaneously seeking wide-scale diffusion; being appropriate to existing situations that one ultimately seeks to transform; and, working with project-based solutions to goals (of social justice) whose root causes rest in structures of economic and political power. Each challenge effectively frames grassroots innovation differently, and responses generate valuable forms of knowledge production: grassroots ingenuity; grassroots empowerment; and structural critique. Overall, these movements contribute valuable plurality and reflexivity to innovation policy and politics.

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1. Introduction

Grassroots innovation movements seek innovation processes that are socially inclusive towards local communities in terms of the knowledge, processes and outcomes involved. Whether focused in resource-based sectors, or manufacturing and services, whether in rural or urban settings: dissenting voices and movements periodically call for a quite different vision and practice of innovation and technological change (Illich, 1973; Dagnino, 2009).

Examples historically include, the appropriate technology movement in the 1970s, the People's Science Movement in India in the 1980s; and today include, the Honey Bee Network in India, and the technologies for social inclusion movement in Latin America. We group these initiatives under the label 'grassroots innovation movements' (Seyfang and Smith, 2007).

We include in grassroots innovation movements people and organisations coming from outside local communities, such as engineers and designers, but who engage the grassroots in innovation processes in their ideas from the outset, and put local knowledge and communities in the lead in the framing of a collaborative innovation activity. This is a broader definition compared

to that used by others, such as Anil Gupta and the Honey Bee Network, which focuses on the local processes generating individual artefacts, and seeks processes for helping these inventors to develop their ideas and, if desired, diffuse their innovations. In this more circumscribed view, grassroots innovation movements should start from the inside and move outwards (from grassroots ingenuity to wider-scale assistance and diffusion), whereas the broader view includes movements from the outside moving inwards to mobilise and empower grassroots innovation² (Gupta et al., 2003; Bell, 1979).

Grassroots innovations rarely feature in the foresight exercises and innovation policies of formal scientific, technology and innovation communities. Mainstream innovation policies focus upon rent seeking firms developing new products, processes and services in conventional (globalising) markets. Good practice in innovation policy is considered to nurture partnerships between firms and science and technology institutes, fosters entrepreneurship, and incentivises investment in innovation activities (OECD, 2010). Often, innovation policy aims are expressed as an imperative to catch-up with or keep-up with an apparently universal technological frontier, currently based in information-, bio-, and

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² In practice, movements often combine in both directions. For a discussion see the Spotlight on Grassroots Innovation in SciDev.net (<http://www.scidev.net/en/science-and-innovation-policy/supporting-grassroots-innovation/features/supporting-grassroots-innovation-facts-and-figures-1.html>).

nano-technology (Freeman, 1992; Perez, 1983; Bell and Pavitt, 1993).

Grassroots innovation movements, in contrast, arise in reaction to perceived social injustices and environmental problems often arising in conventional innovation models. It is no coincidence, for instance, that the resurgence of Brazilian and Indian³ economic development in recent years – and the persistence of structural inequality – has been accompanied by calls for patterns of innovation and development appropriate for those left behind in those countries (Dagnino, 2009; Abrol, 2005; Gupta et al., 2003).⁴

Analysts have argued elsewhere that technological controversies constitute informal forms of technology assessment, in the sense that the very different framings of the technology being protested and debated can generate knowledge about the technology useful to policy-makers and investors. Social learning can be enhanced when controversies are viewed and engaged in a technology assessment light (Rip, 1986; Woodhouse et al., 2002; Jamison, 2002; Waks, 1993). We argue that grassroots innovation movements should be taken seriously in a similar vein (Smith, 2005, 2007): grassroots innovation activities and challenges generate knowledge highly relevant to policy for sustainable innovation, where sustainability is understood after Brundtland to mean socially just and environmentally sustainable development (World Commission on Environment and Development, 1987).

Whilst relations with mainstream innovation policy will always be difficult, and whose politics we do not go into in this paper, grassroots innovation movements nevertheless constitute innovative spaces that can enhance the plurality and reflexivity of innovation policy. At a time when innovation policies are increasingly called upon to address issues of poverty, social inclusion and sustainability, the knowledges produced by grassroots innovation movements should be taken seriously; not as a blueprint for the future, but rather as a resource for debating and constructing different pathways to sustainable futures (Demeritt et al., 2011; Jamison, 2002; Hess, 2007).

By definition, grassroots *innovations* for, say, locally-appropriate house construction techniques for the urban poor in Argentina are very different to, say, innovations in small-scale food processing techniques for the rural poor in India. Nevertheless, grassroots *innovation processes* share a broadly similar vision and shared set of principles, regarding local inclusion and control in processes of technology development and innovative social organisation. Shared principles suggest all grassroots innovation movements confront similar fundamental challenges, even though manifesting in particular ways in contrasting settings.

In this paper we compare recent experiences with technologies for social inclusion in Latin America with those for appropriate technology in the 1970s. The appropriate technology movement aimed to use technology development as a tool for broader social and economic development goals. These goals were considered to rest in technologies that were accessible and beneficial to the poor in terms such as, using local materials, building upon local skills and knowledge, creating and enhancing jobs rather than destroying them, and open to maintenance and control by users. The current movement promoting technologies for social inclusion in Latin America shares similar aims, in the sense that their technology development projects are intended to be inclusive towards the poor, and act as a catalyst or tool for generating broader

development benefits. Community energy projects, agro-ecological farming initiatives, locally-organised housing developments, village and neighbourhood materials recycling and local remanufacture, and community-led water and sanitation projects are typical examples.

Our purpose with this comparison is to identify enduring challenges confronting grassroots innovation movements that can form the basis of a framework for understanding their knowledge producing contributions to deliberating sustainability pathways. Whilst the contexts and times are quite different, some of the fundamentals endure precisely because these movements share similar visions and principles. Methodologically we adopt a retrospective analytical approach, whereby recalling and contextualising the appropriate technology movement and ‘thinking with history’ sensitises us to challenges confronting grassroots innovation movements today (Tosh, 2008; Bayly et al., 2005). As such, our work draws upon the archives and literature associated with appropriate technology, including references to studies by others; in-depth interviews with practitioners of appropriate technology; and more recent fieldwork analysing technologies for social inclusion, case studies of specific projects and visits to them in the field, organising workshops, and in-depth interviews with representatives of support organisations and networks.

The paper is structured as follows. Section 2 discusses a recent movement for technologies for social inclusion in Brazil and Argentina. We provide some historical perspective in Section 3 by recalling the experience of the appropriate technology movement in the 1970s. Common to both movements are three fundamental challenges, elaborated in Section 4. We suggest in Section 5 that, in learning to live with these challenges, grassroots innovation movements generate valuable ethnographic, instrumental and critical knowledge. Taken together, these challenges and knowledges constitute important innovation spaces for sustainability and social justice, and of potential value for innovation policy, even if engaging mainstream policy-makers with the grassroots remains far from easy.

2. Technologies for social inclusion in Latin America

There have been various levels of grassroots innovation activity in Latin America going back to appropriate technologies in the 1970s, but also intersecting with broader movements for democratisation in the region. These strands coalesced in the 2000s into a reinvigorated movement for technologies for social inclusion. Actors involved in this process included local communities, public institutions, R&D laboratories, universities, NGOs, cooperatives and factories reclaimed by their workers. Interest in grassroots innovation ranged from dedicated networks in Brazil, to the cooperative movement in Uruguay, and R&D extension units in Argentina, as well as corresponding approaches active in the region, like agro-ecology and solidarity economy. For the sake of simplicity we group these movement activities under the umbrella label of ‘technologies for social inclusion’.

One of the most important and articulated movements over this period has been the Social Technology Network in Brazil (RTS, *Rede de Tecnologia Social*). RTS emerged through long-standing discussions and debates about technology, development and social inclusion in the country, with a formal network dedicated to ‘social technologies’ created in 2005. Over 900 organizations joined RTS, including non-governmental organisations, universities, private firms and state organisations from both Brazil and other Latin America countries.

The origin of RTS has to be seen in the context of the civil society activism and social movements around the Worker’s Party in Brazil, and that finally propelled leader Luis Inácio Lula da Silva into

³ In China too, there is revived interest in grassroots innovation. Segments of wealthier societies too, confronting their environmental legacy, have seen grassroots innovation movements for sustainability (Seyfang and Smith, 2007).

⁴ Conventional innovation agendas are also normative, but this is often left implicit.

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