



A Success of Some Sort: Social Enterprises and Drip Irrigation in the Developing World

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Summary. — This paper explains the processes behind the framing of drip irrigation as a promising technology to address current poverty and environmental challenges in the developing world. I draw from critical development and science and technology studies and highlight that this imagery has been actively performed. Insiders elaborated a compelling narrative calling upon a *will to improve* through technology and the *moral legitimacy* of social entrepreneurship in development; they worked hard to establish a supportive coalition in an ever wider network. This story hinges on several assumptions, which upon closer scrutiny appear to be problematic: the unicity of smallholder farming, the attribution of inherent technical characteristics to a specific object—the “drip kit”—regardless of the context in which it is used, and the framing of social entrepreneurship and market-based approaches as alternative models even though these rather constitute a re-working of existing arrangements within the international development community. Nonetheless, the pro-poor and environmentally friendly smallholder drip irrigation narrative still continues to be successful in harnessing the support of the international development community, despite the little capacity drip irrigation has had to transform smallholder farming, especially in sub-Saharan Africa. Unpacking the origins, actors, and building blocks of the discursive success of smallholder drip irrigation provides fresh perspectives on the practices of development in the sector and is the first step toward more meaningful engagement with smallholder farmers in the developing world.

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1. INTRODUCTION

For nearly three decades, drip irrigation, that is, the frequent application of small quantities of water directly at the root zone of crops through a system of perforated plastic pipes¹ has imposed itself as one of the most popular technologies in the field of irrigation and agriculture amidst professionals and the wider public (Venot *et al.*, 2014).²

One of the reasons for this is because drip irrigation is a material embodiment of a broader agricultural development discourse popularized by the former UN Secretary General Kofi Annan. This discourse stresses the need for “more crop per drop” or, in other words, for using agricultural water more efficiently and productively in a context of water crisis and food insecurity. In short, drip irrigation would allow to address a current challenge, that of the finite character of natural resources, in order to contribute to the shaping of a better future, that of sustainable development.

Over the last 50 years, most research and development efforts on drip irrigation have been driven by the notions of efficiency and productivity, leading to ever more hi-tech and expensive systems for farmers in developed economies. In the late 1980s, at a workshop on technological and institutional innovation in irrigation organized by the World Bank, Daniel Hillel, recent recipient of the World Food Prize, could only wonder:

Perhaps the most glaring problem demanding attention arises ironically from our very success in developing the technology of drip irrigation to such a high level of mechanization. Have we let our fascination with high technology take control of our research, and have we, in consequence, turned away from the majority of the people in this hungry world who really need irrigation? I am referring, of course, to the special needs and circumstances of developing countries.

[Hillel, 1988, p. 93]

Despite the high-profile of the person and of the arena in which this statement was made, it yielded very little immediate action. The situation changed in the late 1990s/early 2000s. An increasing number of calls and development efforts from non-governmental organizations to design and disseminate “modern” irrigation technologies that would meet the needs and specific circumstances of smallholder farmers³ in developing countries (i.e., systems that would be smaller, cheaper and easier to use and manage that those designed for farmers in developed economies) acquired a resonance they never had before on the basis of early report of success in south Asia (Cornish, 1998; Kay, 2001; Polak, Nanes, & Adhikari, 1997). In addition to being a “sustainable” and “modern” technology, drip irrigation came to be seen as a powerful tool to bring upon prosperity and development among poor smallholders as “a new spectrum of [low cost] drip systems now exist and can form the backbone of a second green revolution, this one aimed specifically at poor farmers in sub-Saharan Africa, Asia,

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and Latin America” (Postel, Polak, Gonzales, & Keller, 2001). In this paper, we use the term “smallholder drip irrigation” to designate such type of systems.

Nearly 15 years after this call, the standard tale of smallholder drip irrigation continues to be articulated by development practitioners and in peer reviewed academic publications. Burney and Naylor (2012), Friedlander, Tal, and Lazarovitch (2013), Kulecho and Weatherhead (2006), Namara, Nagar, and Upadhyay (2007), Woltering, Pasternak, and Ndjeunga (2011) are example of studies using field-level empirical evidence to assess the extent to which smallholder drip irrigation delivers on the promises of higher income and improved livelihoods. These studies invariably frame smallholder drip irrigation as a powerful tool for poverty alleviation, even though they point out to the many constraints that exist toward a successful, sustainable, and large-scale adoption of these systems, especially in sub-Saharan Africa.

This paper shifts the focus of analysis away from the technology, its perceived potential, and the dynamics of its (dis) adoption. It tells the story of *how* drip irrigation has been framed as a successful technology for addressing the global challenge of poverty in developing countries, including an analysis of the extent and ways scientific publications contributed to this phenomenon. The main concern here is not about assessing whether a particular artifact, approach, project, or policy (in this case, drip irrigation for smallholders in the developing world) is successful (or not) but to unravel the processes through which a *positive connotation* about a given type of intervention is constructed and transferred.

This paper draws from and contributes to a body of literature within the field of anthropology of development that highlights the importance of the *interpretation* of events over the events themselves (Li, 2007; Mosse, 2005). Notably, the paper is inspired by the statement of Mosse (2005, p. 158) that “*success is not merely a question of measures of performance; it is also about how particular interpretations are made and sustained socially*”. This can happen through narratives, that is, cause and effect storylines that frame a problem, identify its causes and propose intervention solutions that are often depicted, in the narrative itself, as silver bullets or panaceas (for a critique of the notion of panacea, see Ostrom, Janssen, & Anderies, 2007). Narratives have been shown to be particularly stable interpretations whose contribution to shaping the policy and practices of development and the environment is significant (Keeley & Scoones, 2003; Roe, 1991, 1995; Sumberg, Keeney, & Dempsey, 2012). As such, unpacking their origins and the reasons they persist constitute an important research agenda; it can indeed yield alternative perspectives on seemingly intractable problems (Scoones, 2005). This understanding of the importance of narratives in development and the environment is complemented with insights from the field of Science and Technologies Studies; more specifically the paper draws from the practice-based theory of innovation proposed by Akrich, Callon, and Latour (1988a, 1988b). This is justified by the material dimension of the study-object (drip irrigation, a system of plastic pipes and ancillary devices) and allows for highlighting the role that materiality play in shaping a positive reference about a development intervention.

In the words of Büscher (2014), this paper studies how success is sold or marketed.⁴ Scholars have shown that the success (as any value interpretation) of a given intervention hinges on two pillars. First, the practices of “insiders” directly involved in its promotion or implementation, and notably the elaboration of a compelling story and the enrollment of a network of actors for its legitimation (the broader the network, the more stable and legitimate the story becomes). Second,

the importance for this insider work to travel outside this immediate circle and draw on broader theories and models (Blaikie, 2006; Büscher, 2014; Mosse, 2005; Rap, 2006).

Understanding how, and why, smallholder drip irrigation has acquired a positive connotation among a wide network of development actors requires situating this specific story within broader trends and discourses of development. This is discussed in the next section, which focuses on the increasing role and importance of the private sector in development and makes reference to the emergence of a specific organizational form, the *social enterprise*. The paper then describes how “insiders” shaped a positive connotation about smallholder drip irrigation for poverty alleviation. The paper highlights that success formation rests on five key dimensions reinforcing each others, namely, a compelling—if simplified—story, a technological innovation framed as a “perfect” product, an “innovative” development approach, a personalization of change and innovation, and a legitimation network pro-actively built. The discussion comes back to the correspondence between insider practices and characteristics and broader ideologies and value systems regarding technology, social entrepreneurship and development. A short conclusion recaps the findings and highlights potential areas for future research.

2. THE CHANGING FORM OF DEVELOPMENT AID

Companies have more of a role than ever to play in reducing the poverty and social exclusion that widens the gap between the haves and have nots. [BPD, 2002]

This address of the then president of the World Bank Group at a meeting of Business Partners for Development (a network of development agencies, non-governmental organizations, and businesses) reflects a widely shared belief that private sector actors have a growing role to play in the field of development.

Such calls are grounded in the diminishing role and importance of the state following structural adjustments plans in the 1980s and 1990s, a growing disillusion vis-à-vis the effectiveness of public development aid, and the sheer scale of corporate financial transactions (OECD, 2012; Reality of Aid, 2012). Public-Private-Partnership (PPP), Foreign Direct Investment (FDI), Corporate Social Responsibility (CSR), and Bottom of the Pyramid approaches (BoP) are among the main models of private sector involvement in the field of development (for instance, OECD, 2006; UNDP, 2004). The increasing influence of the private sector in the field of development is not without sparking debate. Whether pursuing the dual objective of profit making and social improvement remains mere rhetoric or constitute a real breakthrough vis-à-vis current approaches remains, for instance, a highly disputed topic (Reality of Aid, 2012).

This debate is at the core of the concept of *social entrepreneurship*, which has received increasing attention over the last 20 years. Social entrepreneurship has become an international cultural phenomenon following increasing skepticism about the ability of governments and big businesses to meaningfully address social problems such as poverty, exclusion and the degradation of the environment (Dacin, Dacin, & Tracey, 2011; Teasdale, 2012).

The academic literature on social entrepreneurship is characterized by definitional debates about what it *is* and what it *is not* (Mort, Weerawardena, & Carnegie, 2003; Peredo & McLean, 2006, and Short, Moss, & Lumpkin, 2009). The concept, however, remains overwhelmingly framed as a positive

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