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Sociotechnical associations and management practices in development: analyzing traces through the route of P1MC

Associações sociotécnicas e práticas de gestão em desenvolvimento: analisando rastros por entre o traçado do P1MC

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Abstract

The purpose of this article is to discuss an alternative understanding of the management of development from unfolding practices linked to so call social technologies, indicating possible innovations for development in this century. In this sense, development concepts are discussed and their implications with regard to technology, taking the critical about their neutrality, even when it comes to experiences in appropriate technologies and alternatives of development. Under this matter, actor-network theory is presents as output to by passing the determinism and its conceptual tensions to analyzing social and economic domain. And, to this end, it is presenting a case study that, by adopting the methodological assumptions of ANT – agnosticism, generalized symmetry and free association –, analyzes the unfolding moments of translations from One Million Water Catch tanks programme (P1MC), deployed in the Brazilian semi-arid region, also identifying one technological trajectory in which cultural creativity and social morphogeneses of true development pursuant to Furtado (1974; 1982), stand out and whose repercussions are differentiated from those of traditional development projects. Finally, the concluding remarks, it is highlighted these trajectories as constituents of efforts to the development, based on a multiple issues that are revealed by the translations, and where sociotechnical construction are practically achieve.

Keywords: Development. Social technology. Sociotechnical association. Management practices.

Resumo

O objetivo deste artigo é discutir um entendimento alternativo da gestão do desenvolvimento a partir do desdobramento de práticas vinculadas às denominadas tecnologias sociais, indicando possíveis inovações para o desenvolvimento

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neste século. Neste sentido, são abordadas concepções de desenvolvimento e suas implicações no que diz respeito à tecnologia, criticando-se uma compreensão sobre sua neutralidade, mesmo quando se trata de tecnologias apropriadas em experiências "alternativas de desenvolvimento", sendo salientada a teoria do ator-rede como saída conceitual da tensão paralisante entre determinismo econômico e social. Para tanto, é apresentado um estudo de caso que, ao adotar os pressupostos metodológicos da TAR – agnosticismo, simetria generalizada e livre associação -, para analisar o desenrolar dos momentos de translação do programa Um Milhão de Cisternas Rurais, implantado na região do semiárido brasileiro, identificando-se uma trajetória tecnológica em que a criatividade cultural e morfogênese social do verdadeiro desenvolvimento, nos termos de Furtado (1974; 1982), se destacam e cujas repercussões são diferenciadas daquelas tradicionais aos projetos da gestão do desenvolvimento. Finalmente, as considerações finais destacam essas trajetórias como constituintes de gestões em desenvolvimento, fundamentadas em um caráter múltiplo que é revelado pela translação naquilo que construções sociotécnicas podem praticamente concretizar.

Palavras-Chave: Desenvolvimento. Tecnologia social. Associação sociotécnica. Práticas de gestão.

Introduction

With the aim of discussing development management, considering the social and technical associations that unfolded, linked to the so-called social technologies, to indicate possible innovations in development management in this century, this article adopted the Actor-Network Theory (ANT). From the ANT and its critique of the purifying domains of modernity – technical-scientific and social –, that do not allow to understand how facts and interests unfold ensemble in the practice (LATOUR, 1994a; 2004; 2005), it is discuss the concepts of development and technology, proposing the mediation for the joint analysis of both.

Therefore, if there is the predominance of technical-scientific determinism under the development of capitalism, the shift to another domain, naming the technology as social neither solves the problem, nor significantly changes the perspective of development and its management. So that, it is understood that this duality keeps the development imprisoned under the dual mandate of exchange and co-opting of the leaders from underdeveloped countries, from colonial times until now with the institutions of Bretton Woods, as pointed by Cooke (2001; 2003), running the risk of using the social realm as unique explanatory domain, without, however, understanding what connections (that are not exclusively social) provide that collectives are formed in transforming its reality. (LATOUR, 2005).

According to Latour (2005), this prison built on the explanatory bases of either one or the other domain only allows us consider intermediaries, and far from what actors do in their own terms, from their frames of reference when preparing transformations. On the other hand, it is necessary to understand that the development was formed by the idea of diffusion as it means that others do the same thing somewhere else from an ample scope of knowledge and power. (ESCOBAR, 1988). Also making attention to the fact that a model of development brings aggregated at itself a concept of technology (HERRERA, 2010) and management (COOKE, 2004).

In this sense, it should be pointed that the notion of development, throughout the 20th century blends with the idea of the development of capitalism. Therefore, technical-industrial progress allows the accumulation, whilst the economic dynamic movement favours the wealth of nations and the natural human progress. This evolutionary notion is one amongst others modern purifications to be spread – the history of the development of capitalism. However, when the contradictions are considered 'in the orthodox view of the history of capitalism, it should be asked until what point developed countries are not seeking to hide the 'secret of their success''. (CHANG, 2003, p. 13).

That which Chang (2003) wants to point is that the development of the so-called developed countries always based itself on political intervention linked to its space-time particularities. However, these countries 'threw off the ladder' (CHANG, 2003), when they enclosed the development in a technical-economic black box,

present in standard institutions and spread to underdeveloped or developing countries through intermediary agents, identified by Cooke (2004) under the Administration of Development (AD), from the second half of the 20th century. Notwithstanding, if this model apparently became a success to inserted almost everyone in the scope of economic growth, it should also be pointed that AD in the Third World did not mean a shift that would truly transform the social inequalities of these countries, despite their modernizing promises, considering, amongst its many inconsistencies those pointed by Motta (1972) to Brazilian case.

Once the hegemonies of the AD were emptied, in the South, and the Welfare State to the North, at the end of the 20th century, there is a discourse effort aimed at consolidating another hegemony based on a management proposal for the reform of the State: neoliberalism. In this context, a framework is set for the Administration and Management of Development (AGD) 'in a peculiar way, through reducing the emphasis of the role of the State as a promoter of development' (COOKE, 2004, p. 64). The AGD implies a modification of the management, that linked previously to the action of State technocracy, starting to adopt multi-organizational characteristics based on a re-structuring aimed at the training of communities and non-governmental organizations under the scope of participation-based programmes and a normative stance of emancipation, also named as empowerment, directed at groups that were impoverished and discriminated against (BRINKERHOFF and COSTON, 1999 *apud* COOKE, 2004).

According to Cooke (2004), three points define the AGD: 1) the incorporation of more management elements; 2) the emphasis on participatory management and on the language of the emancipation; 3) the facet of the values in management and the recognition that the goals of development, with regards to social change, are susceptible to the conflict of interests and beliefs. At the same time, the AGD is aligned with the revisionism established by Bretton Woods' institutions, between the 1990s when they acknowledge in their reports the global growth of income concentration and of social inequality on account of the neo-liberal measures. The idea in the new world order then moves to mitigate poverty and the flaws at the base of the pyramid, expressed by the polysemy of the concept of development that seeking sense when it receive multiple adjectives: local, human, sustainable, local-sustainable, etc., and not qualities. As pointed by Cooke (2004, p. 66), the World Bank, supported by the International Monetary Fund, works with a 'world free of poverty' seeking to integrate strategies to reduce poverty for the macro-economic models of economic growth, from the incorporation of ideas and practices of management, based on multi-sector partnerships between the civil society, the private sector, governments, and other agents of development.

Described in the AGD and in the strategies to reduce poverty is the adjustment of the countries to the goals of development established by the international agencies (COOKE, 2004), and therefore, parallel to the structural adjustments prescribed by the Washington Consensus, new guiding principles are added. However, the implementing of the AGD is not without ambiguity and, according to Cooke (2004), the institutions of Bretton Woods are not the only ones to implement as little accepted the centrality of its powers. As a result, the strategies to reduce poverty are exposed to opposed or unforeseen effects, which does not guarantee the homogenization of a single model, fragmenting development management amongst the plurality of many perspectives, when dealing with poverty and its flaws in different contexts expressed by local practices and its recalcitrant attitude to use the reductionist frame of a single model, despite the intent of the AGD to try and capture its premises from an emancipating and participatory discourse.

That is, the intentions to deliberate on the efforts for social progress, pressing on the AGD, are faced with the uncontrollable historical process of the local practices. More specifically, those called indigenous practices that inspired the post-development and were classified by Gulrajani (2010) as radical development. In the understanding of Escobar (2005, p. 69), this radicalism would come from the fact that 'the ecology [the ecological politics] and post-development would facilitate the incorporation of the economic practices, based on the local place, to the process of delimitation of alternative orders'.

Therefore, the proposal of the AGD to publicize management techniques to empower local communities in finding solutions for their problems, unbound from the political processes inherent to the State-society relation, is faced with a pluriverse of practices that are reticent. Along this line, Cooke (2004, p. 71-72)

suggests that the Critical Management of Development (GCD), 'when presenting Management more as political rather than technocratic instrument', as intended by the AGD, would allow 'a version of learning in the practice [...] that explores the opportunities of a genuine Management of the emancipation".

In this scope of understanding the learning in the practice and to glimpse opportunities for the management of development that are open to difference as indicate by the GDC, this article proposes an analytical framework of the Actor-Network Theory (ANT) in the analysis of these experiences. It is worth explaining that the ANT, as a negative theory, is marked by the denying of the purifications in the first place, so peculiar to management, proposing to follow the actors at practices, and to understand how the enunciate their practise in their own terms, based on the principle of generalized symmetry amongst technical and political issues, identifying those practices stabilized by mediation. (LATOUR, 1994a; 2000; 2005). In this sense, when presenting this proposal, we do not intend, as Gulrajani (2010), to integrate the GCD to post-development, but only to present a contribution to the understanding of alternatives to the management of development that, from the perspective of ANT, are called managements in development that which has been drawn in the practice amongst social and technical associations.

This way, with a renewed eye directed at the circular movements of translations and to the plural character of the current world, it is possible to recognize multiple developments as an effect of the translations of actors and 'describe local processes of social ordering, organization and resistance.'(LAW, 1992, p. 5). For that, the section after this introduction deals with the concepts of development and their implications as regards technology. The understanding of the neutrality of technology is criticized both as regards the conventional technologies linked to techno-economic development as well to the technologies appropriated from experiences alternatives in development, with highlights to the Actor-Network Theory as a perspective that allows overcoming the paralyzing tension between economic and social determinism. We present below the methodological premises that guided the analysis of an case study: the One Million Water Catch tanks (P1MC) programme. The analysis focuses on monitoring the four moments of sociology of translation (CALLON, 1986) what was associated with developing the technology of rural water catch tanks in Brazilian semi-arid region in a trajectory put forward from a specific ***locus*** that considers the pluriversality of the world (WANDERLEY and FARIA, 2012), and 'candidates itself to common existence', to belong to the 'common world' (LATOUR, 2004, p. 382). To conclude, we focus on the different repercussions of this trajectory that are the basis of a multiple character of specific mixtures and performances of social and technical associations in the practices of management in development.

Development and Social Technology: the technical, the social and the symmetrical

This item is structured into three sub-items. Therefore, it seeks to show the differences between the explanations purified by both the technical domain and the social, establishing a relation with the concepts of development and technology that are peculiar to each one, and also implicit in the understanding of development management. At the same time, it proposes the understanding of technology under the premises of generalized symmetry of the ANT, to show that the technical and the social are mutually produced by the dynamics of sociotechnical associations, that are understood as management actions in development and different from the technical-economic understanding of the management pertaining to Administration of Development (AD) and Administration and Management of the Development (AGD).

Economic and technical-scientific development

For Dagnino, Brandão and Novaes (2010), conventional technologies (CT) are marked by their internalizing a premise of linearity between technical progress, economic growth and human progress. To Herrera (2010,

p. 27), CT is no more than western technology or 'modern technology' that represents a 'full set of coherent technologies [...] including an integrated concept of development'.

In this sense, the faith in Science and in technical rationality is the basis of 'creation of a society equipped with material and organizational factors required to pave the way for the rapid access to the forms of life created by the industrial civilization' (ESCOBAR, 1988, p. 429). According to these premises, scientific knowledge and technology are neutral, and there is linearity between the transfer of that which was prepared by basic and applied research in universities and research centres for the industry, while the technological progress drives economic growth, and society may enjoy the well-being installed by the industrial production and by capitalist accumulation.

These are the roots of a new strategy that redefines the structures of global power, making the development between Post WW2 to the 1970s the hegemonic discourse as a matter of capital, technology and education, and of planning policies and mechanisms appropriate to successfully blend with these elements. (ESCOBAR, 1988; 1992). Such combination of reason and systems of power formed a knowledge basis to create the symbols and practices of a rational society in that reason, economy, representation and modernity became the references to pave the way to development as a model which 'characterize affluent societies: industrialization, modernization of the agriculture, and urbanization' (ESCOBAR, 1992, p. 25). A very concrete structure that has its social, economic and cultural dimensions unequivocally defined (HERRERA, 2010) from the premise that the future can be predicted by designs that pre-determine fundamentally economic directions of development.

At the same time, the scientific and technological development explained as technology and/or knowledge is marked as a factor of industrial production that uses them intensively. After all, developed societies, under the premises of the Social Welfare State, start to be mobilized by consumption in a quick circulation and obsolescence of goods and therefore, by the continuous and escalating creation of new goods, making the economic dynamics, regardless of social value, have competitiveness and innovation as their core elements.

As pointed by Escobar (1988), the development was an invention instrumentalized by mechanisms of knowledge/power (in the terms of Foucault), its actions being professionalized and institutionalized his organizations and domains of knowledge, especially economic planning, that which shall apply a set of repertoires, as the modernization, the industrialization and the urbanization. It is not strange, therefore, that in Brazil still in the 1950s, these repertoires entered the discussions of Brazilian development under two intellectual sources: CEPAL - Latin American Economic Commission, and ISEB - Higher Institute of Brazilian Studies. The first directed at the economic fundaments of a Brazilian industrialization process, and the second in search of public bureaucracy and industrial capitalism consolidation that would provide the basis to the coalition of classes to support the strategy of Brazilian development from an ample economic and institutional intervention of the State.

Both sources consolidate governmental planning as an instrument for Brazilian development, linking with ISEB, the sociologist Alberto Guerreiro Ramos, and to the CEPAL, the economist Celso Furtado. These thinkers developed a rather peculiar approach about Brazilian development, but shared an understanding about industrialization as strategic factor to development and for social change. Notwithstanding as noted by Furtado himself years later:

> At that time, we were certain that economic development and its main spring, industrialization, were a necessary condition to solve the big problems in Brazilian society: poverty, income concentration, and regional inequalities. But we took too long to realize that they were far from being a sufficient condition. That awareness of success I had in the early stage of the advance of industrialization was replaced with a sense of frustration. (FURTADO, 2007, p. 20)

On the tripe of industrialization, modernization of the agriculture and urbanization, and on the bases of that which was accepted as a national-development-centred project in their many plans, Brazil also created her own model of development from a strong State intervention. However, this model is shown to be a myth when one considers that the integration of a part of the Brazilian population into industrialization represented, at the same time, that another significant part would remain orphan of the State in the amplitude of the Brazilian rural space as well as other spaces produced by an urbanization with exclusion: the slums of the large urban centres.

It is the outlines of a conservative modernization that, as Furtado (1974) said in a self-critique, enabled the economic growth of the country and its modernization, but did not effectively mean development. For him, development would occur only when the people were able to constitute themselves into an element of transformation, to act on themselves, as well in society to fulfil their potentiality and social change, in a fundamentally human dimension (FURTADO, 1984). In his critique of the Administration of Development (AD), Furtado (1974) points that development translates as the fulfilment of human potentials in a society wherein men and women can satisfy their needs and renew their aspirations in that it is centrered on cultural creativity and on social morphogenesis. In this sense, 'the true development is mainly a process of activation and channelling of social forces, advance in creative capability, exercise of initiative and inventiveness' (FURTADO, 1982, p. 149), that cannot, however, be confused with the discursiveness of the Administration and Management of the Development (AGD).

The search for technological and developmental alternatives

Herrera (2010, p. 28) points that the rise of appropriate technologies (TAs) took place after the need of a new reference as regards the design of society and the concept of development. Drafted on the premises of 'a better and more humane society', that consider 'concrete human beings' and their needs that are 'fundamental for a full and active incorporation to its culture', as well as in the 'rational use of natural resources and the preservation of the environment', forming social-economic and political axes committed to the transformation of the majority of the fields in human activity. Nevertheless, as pointed by Thomas (2009), even when considering their purposes, such technologies having been approached in a completely different manner by the literature, which implies a challenge in setting the limits of the concept. Table 1 below presents a summarized view of the time evolution of these conceptualizations.

Table 1

Conceptualizations for Technological Alternatives

Concepts	Decade	Main Authors	Contents approached
Democratic technologies	1960	L. Mumford	Denounces the political risks of scale production. Proposes the development of democratic technologies marked by small-scale production, based on human ability, on animal energy or small machines under community-based guidance.
Appropriate technologies (stage I)	1960	N. Jecquier	The first theoretical approaches on appropriate technologies emphasized the need of producing technologies in small scale, the use of mature technologies, low complexity, low cost, low power consumption and intensive labour. In practice, many implementations resulted in paternalistic experiences, set to solve specific problems.

Continuação

Intermediate technologies	1960	H. Pack, K. Riskin	Technologies set to solve local problems, with no intensive technical, cognitive or economic requirements, that use available raw materials and human resources. Based on mature technologies and intensive labour technologies.
Appropriate technologies (stage II)	1970	P. Bourrieres, K. Reedy, A. Robinson	The conceptual complexity of an 'efficient appropriate technology' tried to determine appropriate technology for both developed and developing countries, and for small communities and companies. It saw the incorporation of tools of analysis and criteria for planification, designs, implementation, and evaluation.
Critique of appropriate technologies	1980	W. Rybczynski, A. Ahmad	Understands that the implementation of intermediate and appropriate technologies, without previously questioning the dominating western technological rationality, leads to a neutral conception and therefore deterministic of technology as means to social change.
Alternative technologies	1990	R. Dickson	Aims to move out of the conceptual problem of appropriate technologies and to instrumentalise 'alternative technologies': machines, techniques, instruments needed to reflect and maintain the forms of social production that are neither oppressive nor manipulative, and a non-exploratory relation with the natural environment.

Source: Thomas (2009).

This human emphasis on technology that emerges from the 1960s also echoes in the conceptualization of development in the context of the United Nations (UN). Therefore, in 1990, the UNPD - United Nations Development Programme sets the concept of human development, proposing to include an ethical-political dimension to development as it criticizing a development conception that privileges only economic growth and the tangibility of the GNP of the nations. The proposal of the UNDP is based on the ideas of AmatyaSen that understand development as freedom and proposes the expansion of human capacities, that all citizens of any country should enjoy, by means of the expansion of social services and the growth to achieve collective goals, so collective well-being is made compatible with the satisfaction of individual needs and social justice, should be ethically directed at equity. (SEN, 2002).

Apart from this, there are the discussions on the diagnosis of the impacts of economic growth as published by the Club of Rome in the early 1970s. This diagnosis warns of the limits for growth as regards the compromising of natural resources and environment, indicating the non-sustainable nature of industrialization in the world according to the terms of the developed countries. This way, in a trajectory of discussions that goes from the UN International Conference on the Environment, also known as Stockholm Conference to the UN World Commission on the Environment and Development and the Brundtland Report, results the concept of sustainable development: to meet the needs of the present without compromising the capacity to meet the needs of future generations. (BRUNTLAND, 1987).

It is possible to see then that knowledge and power are also mobilized in the sense of questioning the hegemonic representation of development, linked only to economic growth, in search for other representations in the multilateral context of the UN, trying to adjust the new contradictory elements amongst economic growth and environmental conservation with the already-known contradiction between economic growth and social justice, now seen on global scale. Notwithstandig, we should not forget neoliberalism and its hegemonic intent to build a new world order centred on the market that gives the State

minimal expression, mainly in social policies, and also that which the institutions of Bretton Woods start to propose from the mid-1990s as regards the strategies to reduce poverty. In this case, the emptying of the social policies as well as the UN triple bottom line – economic, social and environmental – guide the intervention of those institutions by means of programmes to fight poverty, conforming development management to operate in the empowerment of poor local communities that, organized in community associations and instructed by a set of management techniques, should find autonomous solutions for their problems whilst, at the same time in which the social and economic organization of these territorialities is fragmented when re-affirming the minimal condition to act of the State that is supported by the premises of the neo-liberal reform.

However, we should not forget that, in the context of developing countries, themes that had been previously disregarded came to the fore, such as 'the reduction of the social exclusion, the non-conformity with a peripheral position in the international order, the aspiring for transformations in world geopolitics, by the search for autonomy, [...] the revitalization of the debate on social reforms.' (DINIZ, 2011, p. 502). Furthermore, in this same context, given the direct involvement of the civil society in the processes of communitarian development and the struggle to achieve human and social rights, known as grass-root movements, also named local power, there is the goal to create alternatives for development many identified with post-development.

In these initiatives, there is an 'interest in the local autonomy, culture and knowledge; and defense of localized, pluralistic [...] of new spaces opening up in the vacuum left by the colonizing mechanisms of development, either through innovation or the survival and resistance of popular practices' (ESCOBAR, 1992, p. 27) to questioning the hegemony of modernity, including capitalism, as a way of life. (ESCOBAR, 2005). In this sense, in the domain of post-development, a proposal is made for a 'co-movement to intensify the processes for the construction of a direct democracy' and the cooperation, as a historical possibility for an alternative way 'that cannot be described in terms of 'allsociety', but in relation the local and specific communities.'(ESCOBAR, 1992, p. 28).

According to Veiga (2006, p. 87), the post-development rescues an inheritance of thinkers and activists from Mahatma Gandhi and Henry Thoureau to Karl Polany, Marcel Mauss, Paulo Freire, and Michel Foucault, focusing their discussions on basically two dimensions: the valuing of societies that did not develop and the de-valuing of the idea of progress. It is also marked by two currents of ideas: those that act for 'another' development (and 'another' concept of globalization), and those who 'want to simultaneously move out of development and the 'economicism' from to a real 'deconstruction' of economic ideas, starting by challenging the notions of growth, poverty, needs, aid, etc.', and proposing to promote a cognitive subversion which depends of the necessary political, social and cultural changes to build a alternative society different from that based on the market economy.(VEIGA, 2006, p. 90).

Veiga (2006, p. 89), nevertheless, criticizes the lack of direction of the post-development's thinking that wishes to justify itself from the proposition that 'a definition [of new development] will only be possible after the 'development era' is gone.' For him, the design of a future 'neo-developmental theory' for more than propose incorporating heterogeneities must touch what still remains untouched in Development Studies, and pointed by Celso Furtado: cultural creativity and the social morphogenesis. Therefore, the human inventive genius should be harnessed in the technical creation to move away from cognitive ruptures and avoid the slips of technological determinism and of social and economic reductionism, as warned by Furtado, and present in the designs of development management. (VEIGA, 2006).

The discussions on appropriate technology (TA) cannot go without being touched by the activist inheritances and by the focus on local communities. As Herrera (2010) reminds us, TA goes back to Mahatma Gandhi and his ideas of updating local techniques, adaptation of modern technology and environmental conditions when proposing that scientific and technological research be directed at relevant problems that would bring immediate solutions to local communities.

Dagnino, Brandão and Novaes (2010) indicate this same origin when proposing the conceptualization of Social Technology (TS), and pointing its proximity with the movements of the solidarity economics and technological incubation in popular cooperatives in Brazil; however, they criticize the technological determinism found in the approaches of TA. For these authors, the 'flaws in the cognitive model that served as the basis for the TA movement' can only be overcome with the theory of innovation that adopts 'a perspective based in the interaction of actors in the domain of a process of innovation', and it can 'be extended to others way than that which was conceived, giving rise to a concept of social innovation that is more adapted to the TS vision'. (DAGNINO, BRANDÃO and NOVAES, 2010, p. 17-18). In this sense, their conceptualization of Social Technology (TS) adopted the concept of social innovation. Notwithstanding, we should consider that social innovation presents different propositions, as pointed by Thomas (2009), and summarized in Table 2 below. Or better still, as pointed by Pol and Ville (2009, p. 881), ''social innovation' is a term almost everyone likes, but nobody is quite sure of what it means'.

Table 2

Conceptualizations of Social innovation

Grassroot-innovation	2000	A. Gupta, R. Sinha, R. Koradia, R. Patel	Already known in India for over 20 years, it was conceived as a research-oriented project, to rescue the technological knowledge of vulnerable sectors in society. Its premise was to recuperate the capacity of innovation from sectors that been set aside by industrial society.
Social innovation	2000	L. Martins, S. Osberg	Fundamentally oriented to the development and to the diffusion of organizational technologies, destined to favour social change, through the attending of less privileged social groups. Different from conventional innovation, that focuses on economic goals and oriented to increase profits, social innovation is concerned with attaining social, cultural and political goals.
Pyramid Basis	2000	C. K. Prahalad	Oriented to the development of innovations destined to the poor population market that respond to their true needs. This proposal criticizes the traditional assistentialist focus and proposes the private sector as the driver to relieve poverty.

Source: Thomas (2009).

Asymmetrical look in the movement of social and technical associations

Dagnino, Brandão and Novaes (2010, p. 17) understand that Social Technology 'should not – and does not need – to be understood as a concept', once the technology is in itself a process of social construction that is justified itself in a political rationality and not by technical rationality when considering the specific domain which is directed, that is, solidarity economics. For the authors, what should be understood are their constitution references, identified in the concept of socialtechnical adequacy (AST). This concept was developed as a critique to the deterministic premises and to the neutrality attributed to technology present in the concept of the conventional technology, as well in appropriate technology, and adopts three basic pillars: the procedural character, ideological vision, and specific operational character. (DAGNINO, 2007).

When leaving neutrality and technological determinism, the AST adopts the constructionist perspective created by the Social Constructivism of Technology (CST) as understood by Bijker (1995) that technologies acquire their form and meaning by means of social interactions until their stabilization as an artefact. Therefore, 'technologies would be socially built as the groups of consumers, political interests and other similar elements that influence not only the fine shape technology will assume, but also its contents.'(DAGNINO, BRANDÃO and NOVAES, 2010, p. 24).

However, we should consider that according to Latour (2005), this change, when considering the 'matters of interest' in the explanation of technology, as suggested by Dagnino, Brandão and Novaes (2010), does not mean that the 'matters of fact' (technical-scientific) and the 'matters of interest' (policies) have been explained on the premises of generalized symmetry. As it seems, the AST takes the 'construction of scientific facts' (LATOUR and WOOLGAR, 1997) based on epistemological premises of a constructionism did not intended by these authors. (LATOUR, 2005). We should remember the warning of Latour (2005, p. 103), that the point is not to seek for social explanations, soon 'to explain is not a mysterious cognitive feat, but a very practical world-building enterprise that consists in connecting entities with other entities, that is, in tracing a network'.

Therefore, in our understanding, when these authors propose that 'the ATS would target the TC (and also conceive alternatives) applying supplementary criteria to the usual technical-economic processes and the circulation of goods and services in not formal circuits, located in rural and urban areas (as the RESs[4]), aiming at optimizing their implications' (DAGNINO, BRANDÃO and NOVAES, 2010, p. 38), they would end up by privileging a pre-set social structure as the domain of the TS. Nevertheless, Latour (2005, p. 107), criticizes this structural vision, pointing that the social is not closed in any particular sphere, as something distinct from other things, but may circulate everywhere as a movement connecting non-social things.'.

In this movement, some cause others to do things throughout a course that to create 'a link that did not exist before, and that, in certain measure, alters the two elements or agents involved in the relation' (LATOUR, 1994b, p. 32). There is a connection that transports, should we say, transformations, and them are identify as translations, and defined as 'a relation that does not transport causality but induces two mediators into coexisting' (LATOUR, 2005, p. 108). In this sense, Latour (2001, p. 106-107) understands that 'the circulating operation consists in to associate two interests until then differents [...] into one single composite goal' in that what matters to translation 'is not only the fusion of interests that it entails, but creating a new blend'; a sociotechnical association.

On the other hand, we agree with Dagnino, Brandão and Novaes (2010, p. 43) when they say that 'technological innovation – and by extension TS – cannot be seen as something done in one place and used in another.' This idea of a logic operating far from the point of origin is inherent to the concept of diffusion when black-boxes are closed in facts and machines and 'people do not do anything else with the objects whereof to pass them along, to reproduce them, to buy them, to believe in them.' (LATOUR, 2000, p. 200). There is, therefore, an smoothly adoption, and replication are the behaviour, or, as pointed by Dagnino, Brandão and Novaes (2010, p. 44), the actors would be, 'in the best of hypotheses, simple users of the TS and not active agents into one process of sociotechnical construction that would produce a technological artefact as a result, that guaranteed the fulfilment of their needs and expectations.'

In this case, the social becomes 'simply a means to different resistances covered by ideas and machines' (LATOUR, 2000, p. 224), as described in AD, when it is tries to expand technological capacities directed solely at the productive within industrial system (FURTADO, 2000), or, only in the reduction of poverty as in AGD, making the social morphogenesis and human creativity that are inherent to true development (FURTADO, 1982; VEIGA, 2006) surrender to technological determinism and reductionism.

[4]Solidarity Economics Network or "Redes de Economia Solidária" in Portuguese.

As pointed by Latour (2005, p. 71), '*any thing* that does modify a state of affairs by making a difference' is an actor, both human and non-human, however, to include the non-human in their analysis, the ANT only considers them as they are commensurate with social bonds, so that an asymmetry between technical and social domain is not established at first. Therefore, it is necessary to consider 'the countless entities in action that shape the facts and are also shaped by them, the complex negotiations to define what association is stronger or weaker [...]' (LATOUR, 2000, p. 221) in that which can be transported between the multiple spaces of controversies and the translations that bring transformations.

The technical-economic designs for development management are a typical example of the diffusion in which many technological packages, including a lot of tools of management, are wanted diffused elsewhere. This way, very few on the technical domain assume to establish wills, conditions and priorities for the social domain. The same can be said as regards the technocratic proposal of the AGD that determines its understanding of the fight of poverty to the domain of the 'Third World' (COOKE, 2004).

Dagnino, Brandão and Novaes (2010) criticize the determinism of institutions of capitalism; however, when firming the idea of the sociotechnical construction of TS and proposing the Social Technology Network (RTS) to support solidarity economics, these authors privilege the social domain. The network is understood by them as a social structure, a new organizational form, that could, in itself, transform the dominant management techno-structures. Latour (2000, p. 233) illustrates this situation well when saying that 'social determinism fights courageously against technical determinism, whilst *none of them is* nothing more than a fantasized description proposed by the model of diffusion.' (italics from the original).

However, what the ANT proposes is that the transformation is in translation, in social and technical associations that transport change, of that which was set in motion in the flows of the social domain, and the network being only the method to monitor the unfolding of its design. It is in this sense that we propose here the idea of actions in development to monitor those that could transport transformations and to innovate development management. So that, the social change inherent to development, of which Alberto Guerreiro Ramos and Celso Furtado spoke, can abandon the shackles of pre-established plans, where strategies have the pretence of being forecasts of the future with no guarantee of materialization, locating themselves in 'strategies in action' by whose means actions in development will give way to political, cultural, economic, organizational and technical transformations constructed between multiple materialities of social and technical associations that, according to Latour (2005), are no more than the social without the pretence of being separated from the world that constitutes him.

Methodological Paths

First of all, it is necessary to explain that the data handled here was originally collected for a case study from a dissertation on the One Million Water Catch tank Programme (P1MC) in the context of the micro-region of Juazeiro, state of Bahia, NE, Brazil, that did not adopt the Actor-Network Theory (ANT). However, to verify the progress of the program and technology rural cisterns for decades, as the interviewees reported abundantly, we understood that an examination with ANT's eyes would be in order, in the case of this experience.

In using the material collected by this case study – documental and 22 interviews –the methodological premises of the ANT were considered, as indicated by Callon (1986, p. 196) – (i) agnosticism – impartiality between the actors involved in the controversy; ii) generalized symmetry – the commitment to explain conflicting points-of-view on the same terms; iii) free association – abandonment of all distinction, at first between the natural and the social. The interviews, as narratives, constituted up into sources to identify the spokes people and their controversies, whilst the documents were used to access enrolment devices and map connections.

Therefore, from one place, it was possible to adopt the flat topography proposed by the ANT and to follow the actions transported from one place to the other, understanding how a place was 'connected to many others through some medium transporting specific types of traces features' (LATOUR, 2005, p. 255), taking into account that which had been previously listed under Social Technology and management actions in development.

At the same time, we sought to deal with the pluriversality of voices and histories, considering the relativist ontology based on the empirical realism of the ANT, fundamented translations and actors the capacity of making their own theories and report in their own terms as the collective existence changed in their hands. (LATOUR, 2004; 2005). Therefore, the purpose was to follow the movement amongst the frames of reference of the actors themselves, rather than being a prisoner of the purifications of modernity and their artificial separation between technique, knowledge, power, and discourse. (LATOUR, 1994; 2004; 2005).

Finally, in the analysis of the translation set by the actors in their movement of transformation, we used the four moments of translation as defined by Callon (1986) to define transformation events. They are: 1) problematization – the moment when the actors seek to become indispensable to one another and negotiate 'central points of passage', 'calculation centres', that may reflect the interest of all; 2) rise of interest – consisting of a series of processes where the actors seek to ensure that the other actors will play the roles assigned to the mat the time of problematization, seeking the stabilization of identities and of spokes people; c) involvement – it understands a set of strategies through which the actors encourage the participation and negotiation of their interests so to enable them to ensure the success in their endeavour; and d) mobilization – it refers to a set of methods to guarantee the representation of the collective, forming a legitimate voicing of all the interests.

The Translations of the One Million Rural Water Catch tank Programme

In 1975, in the region of Juazeiro, BA, NE, Brazil, which saw the start of implementation of big developmental works of the military governments – the Sobradinho Water Dam – had the arrival of the new bishop, Dom José Rodrigues. His actions would occur in the rural communities that had their land flooded and who were moved to other places with the same names – Remanso, Casa Nova, Sento Sé, Pilão Arcado, and Sobradinho – to give place to the lake of the dam. The work of Land Pastoral is started with to provide support in the defence of the rights of those communities, in legal support, also organization and training for the development of community leaderships and the constitution of associations and unions. Therefore, it was 'from the moments of celebration, the moments of prayer, that you started to discuss the needs for seeking water out, seeking land, seeking housing, with the survival there in those communities' (E.BII), and with the bishop's motto gaining prominence: 'There is no lack of water in the Sertão, but of Justice' (E.BII).

The representatives of the Catholic church insert themselves in the Brazilian Sertão, as said one of those interviewed, 'with a very real bias of the involvement with the rural populations' (E.CI), and, in conjunction with these communities, work is started to create awareness of the need of live with the semi-arid climate of this region. Therefore, the Theology of Liberation is inserted in the practice and an understanding starts to be created that:

> There is no water because there is no place when the rain falls for the water to go to [...]Dom José Rodrigues, he always said this, right, that our problem here is not the drought, but the **lack of political will in seeking alternatives** to live with the drought. And he was bold enough to show the society that our problem here is **not the lack of rain, but a lack of an appropriate place to save the water** when the rain falls. Then, the idea of the water catch tanks rose from there.(E.BII).

The moment of problematization for the water moves to one moment of interestment raising much peculiar of rural communities as regards living with the semi-arid region. Far from that were the rural producers linked to the irrigation projects in implementation of big fruit plantations in the semi-arid that, from another angle of life, based on conventional technologies created by EMBRAPA - Agricultural Research Company, typical of the projects of Administration of Development, and that made intensive use of the water resources of the region, which made even more scarce the water of those communities and generated violent conflicts in 1983 and 1984.

The problem of access to water by part of the rural communities gains strong centrality, as pointed by an interview: 'we saw there the issue of more urgent needs of the communities [...] especially the water problem [...] in 1984, 1985, more or less, was the emphasis we placed, on the water problem'. (E.BIV). With the Dioceses of Juazeiro as an obligatory centre of passage and calculation, rural communities start to join, to generate alternatives for the lack of water to find ways of storage for the rural families. The alternatives move to the construction of pools to accumulate rainwater and the drilling of well store water in underground layers, when possible, creating ways for collective supply.

There was, amongst the actors, the awareness of the need for appropriate techniques, for water map of the region, although the techniques to mitigate the problems of the lack of access to water for human consumption with adequate volume and quality, developed until then, were insufficient. Also insufficient were the resources that financed the projects of the pool sand wells. They came from the Federal Government in the traditional budget allocations destined to fight the drought. New allies are brought to centre of passage of the water problem to create new strategies, more specifically, there sources of German entities to drill reservoirs – compartments excavated in rock – to store the rain water, made in collective labour arrangements amongst the communities. However, there was dissatisfaction both as regards the scale of the projects, that were isolated experiments, as well as the quality of the water stored.

> I was only that we had no, no...**we did not know how to do it**... . The problem was this... to **solve the water problem**. We tackled the artesian well problem, but found that their water was salty and we leaving them aside...until we got to the perspective of the water catch tank. (E.BVI).

Therefore, in 1990, the move starts to involve where the calculation centre of the Dioceses of Juazeiro seeks to curve the space around it (CALLON and LATOUR, 1981) to better qualify the work to generate alternatives for the lack of water in the rural communities and to extend their associations. A set of strategiesis established and directed to the development of appropriate technologies and their diffusion throughout the Brazilian semi-arid region, and the expanding of the collection of resources to finance the projects in the rural communities. That year saw the creation of the IRPAA - Regional Institute for Small Appropriated Agricultural and Animal Farming, a non-governmental organization created by an agronomist engineer who provided services to the Dioceses of Juazeiro, his mission being to spread the knowledge of appropriate production techniques in the semi-arid region, with a pedagogical line of action and not limiting itself to the territory of the Dioceses of Juazeiro, but covering all the region, also directing its research to find storage techniques for rainwater, as developed and used in the Brazilian northeast.

These studies identified many types of water catch tanks adopted in several places, in a specific and much reduced scale. Also, the main technologies to build water catch tanks were identified such as the rural water catch tank developed by EMBRAPA at their CPTSA - Tropic Semi-Arid Research Centre, located in Petrolina, PE, NE, and the water catch tank made with cement plates, developed by the Caatinga from Ouricuri, PE, NE, and the Programme of Application of Appropriate Technologies for Communities (PATAC) in Campina Grande, PB, NE. Apart from these technologies, the IRPAA themselves developed the lime box water catch tank based on the knowledge of techniques from traditional communities that did not use cement.

Fundamental to that was also the approval of a project with British NGO OXFAM that allowed a bigger transfer of resources for the construction of 100 water catch tanks for families of the community rural in the city of Campo Alegre de Lourdes, state of Bahia, NE, Brazil. Along with it, other Dioceses projects continued, with rural communities and that were developed with the resources of the FRS - Solidarity Rotation Fund through which the familie stook the commitment of refunding the cost of the water catch tank constructed so that others could also be benefited, as one of the interviewees explains:

> What is this? You **got a water catch tank** and you had the **awareness of the to refund**, according to your financial conditions, there was no term and fixed instalment, but you started to give back, according to your financial status, and your awareness, **so that other people could have their water catch tank**. (E.BII).

From the partnership of the Dioceses of Juazeiro with the NGOs, it was possible to experiment and evaluate the main types of water catch tanks known at the time, appropriating from their techniques to supply the families with quality water for human consumption. The water catch tanks opened, with their own covers, proved troublesome due to the impurities they collected in the gutter pipes and stored along with the water in the reservoirs. The one that were square or rectangular ended up by developing technical defects and cracks. As they were closed reservoir, with the water collection done with a mobile system of gutter pipes connected to the roof of the homes and with a rounded shape that reduced the appearance of cracks, the water catch tanks made with cement plates slowly became the best option. The technology of the rural water catch tanks becomes real, entering the space with its translation as the technical issues align the points of interest.

> All of that which was discussed, butthere was a **lack of instruments**, **thewater catch tankbecame**a... **some kind ofinstrumentthatsays**therefore: see, it **ispossibleandmaybe we can create other things**... (E.CI).

This attempt to create other things in the semi-arid region is also expressed in the mobilizations that denounce the problems of the 1992/1993 drought (ASSIS, 2012), that, apart from occupying SUDENE, established the Drought Forum, demanding viable alternatives for living with the semi-arid and the proposal to insert the construction of water catch tanks from amendments made to city budgets. Faced with the negative response of the governments, the alternative was to appeal to popular initiative laws, a mechanism provisioned for in the 1988 Brazilian Federal Constitution. From 1994 law drafts are prepared that constitute plans for the water supply that entail many ways of access to the water in the cities of the state of Bahia , as Campo Alegre de Lourdes, Remanso, Sento Sé, Pilão Arcado, and Curaçá, with Water Commissions being organized, where groups of representatives from local organizations work to mobilize rural communities to vote laws in their Chambers of City Representatives. However, in this case, there is none translation, and from all plans it were approved only the City Chambers of Curaçá, with a reduction of the resources to be destined from 5% to 2%, and of Remanso, that were never fulfilled by the City Administration. The others were rejected under the allegation that there was a better prepared project from the local Executive branch.

Despite that, this experience was important as it moved the water catch tanks to the rural communities. As said one of the interviewees:

> [...] **this served**, and... **the collecting** of signatures, as to collect them a whole task of explaining it to the people was needed... then this served for the people to see that what was lacking there, in the problem... **the lack of water** they endured was not simply a problem of... of... obviously it a climate problem, but **there was a solution**, what they thought was that there was no solution for it, but **there was a solution all right**. (E.BVI).

But it was necessary to involve more allies both on the technical areaasin the social one. In 1997, the 1st Symposium for Rain water Collection and Management was held in Petrolina, PE, Brazil. This event was attended by representatives of the International Rain Water Catchment Systems Association (IRWCSA),

invited by the IRPAA to evaluate the possibility that the next international conference of this association would happen in that city. With the approval of that party, the IRPAA gained the support of EMBRAPA-CPTSA for the organization of the event to be held two years from then.

Almost at the same time, in 1998 the Dioceses of Juazeiro launched a campaign called 'Adopt a Water Catch Tank – until 2004 with none family without water'. This had financial support, firstly from resources from German bodies which religious people, then working in the Juazeiro-BA region were linked to, as well as others NGOs, apart from public organizations, that were enlisted via the Land Pastoral and the Caritas Movement. It also relied on the contribution of small money transfers from North-eastern migrants who lived in South and Southeast Brazil who, seeking to help their relatives and friends in rural communities of the semi-arid, organized parties and bingos in the communities to raise funds for the campaign. In the words of Latour (2005), it is possible to say that Juazeiro, BA, started to unfold to other places.

> The campaign aimed at **denouncing the drought** here in the region, explaining that the drought was not a thing... it is... **that was unsolvable, but** was a thing that for the entire life had, there had been no public policies to help fight **the effects** of the drought, and there were no **public policies to help living** with the climate, right? Until the rainy season you had no public policies **to save the rainwater**, you had no policies **to give technical support,** specialized for the area, as in the rainy season people produce well to... Then, I mean, we denounced **the lack of public policies for the semi-arid region**. And then we took the chance and said: 'no, we have to have an **instrument**... **pedagogical**, that attracts attention, **then we used the water catch tank as this instrument**. That is when the campaign started... is was therefore: 'until 2004, none family without water. Adopt a water catch tank'.(E.BV).

With the Adopt a Water Catch Tank, the volume of constructions rose, led by the Dioceses agents. The resources obtained through the campaign covered costs need for part of the labour and building materials. But it was not possible to simultaneously attend to the many families in the communities, still as result of the financial limitation. Therefore, the families also started to share the use of the water catch tank with the neighbours, splitting the water available when the rains were enough to fill the reservoirs, or at least occupy part of the existing storage capacity. The success of the work demanded more allies.

In the following year, the International Conference Rain Water Catchment Systems Association (IRWCSA) is held in the city of Petrolina, state of Pernambuco, Brazil.

> In this conference, in1999, there were people from all the continents, from Australia, India, China, Iran, Zimbabwe, Kenya, USA. Of all the continents. From Canada! Then we were surprised, as **no one thought that rainwater catchment would bring so many people to a conference** like this... (E.AI).

The lack of water issue unfolded amongst other places in all the continents of the world. Many were the experiences of systems and of technologies to collect rain water and many were there searcher from 31 countries involved with this problem that demanded strategies for the use of rain water in the new millennium that started then. (IRWCSA, 1999). The event also had the presence of members of many organizations from the civil society that exposed many Brazilian experiences, apart from researchers of the IRPAA and EMBRAPA, the members of the Land Pastoral Commission - Dioceses of Caetité/BA, Missionary Indigenous Affairs Council (CIMI), Association of Small Agriculture Farmers of Valente/BA, amongst others. All of them would meet that same year in Recife, at the time of the International Conference on Desertification (COP III), promoted by the UN.

> [...] I think **this conference** in Petrolina **helped**, because... it was there that the ASA was started, but they did not have... it did not fall on their laps, there was a preparation. **This same people, and others, who were in Petrolina, were in Recife**. (E.AI).

The moment of mobilization arrives that moves amongst the lack of water issue, the water catch tanks and the organizations in civil society that act in the Brazilian NE semi-arid region. Many organizations that do their work with rural communities in many parts of the region, involving activities of rural education, environmental conservation, technical assistance to agriculture farming, advice to agriculture farmer's associations, dissemination of alternative technologies, fomenting of agro-ecologic experiences, food safety, amongst other experiences of a similar nature, including those of the rural water catch tanks, are found in the COPIII to discuss alternatives for living with the semi-arid.

This greater approximation between the organizations acting in the Brazilian NE semi-arid region, as noted by an interviewee, was 'decisive [...] for the existence of the ASA' (E.AII), whilst to another, it was a 'major inspiration, [for] the bigger number of water catch tanks in the region' (E.BVI). Therefore, during the COPIII, these organizations meet in a parallel forum, along with the Articulation of Semi-Arid Region, from Paraiba state, and the Forcampo, from Rio Grande do Norte state, these organizations created in the early 1990s from the Forum of the Drought, to voice the interests of all, preparing the Declaration of the Semi-Arid, and ensuring its representation with the creation of the Brazilian Semi-Arid Articulation (ASA).

At the same time, in the official activities of the COPIII, the water catch tank made with cement plates earns the spotlights as a concrete proposal for living with the semi-arid climate, as it demonstrates that this rain water collection system has the merit of 'low cost, ease of re-application and the potential for mitigating the lack of water in the Semi-arid in all the country' (ASSIS, 2012, p. 183). The ASA and the technology of the water catch tank made with cement plates start to be those that curve the space around them to give continuity to the work of establishing strategies for the lack of water issue and the living with the semi-arid climate.

A new moment of problematization begins where the mandatory centre of passage relates to the increase in the scale of the construction of water catch tanks in the scope of social formation towards the living with the semi-arid climate.

> **If it is possible in a Dioceses** that have water, **why not in the all Semi-arid?**(E.CI).
>
> And then when **we started to work on the P1MC**, the biggest experience in construction of water catch tanks, in larger numbers, was ours... There were water catch tanks spread out in the whole Northeast. And then we started to find out. In all the states there was construction of water catch tanks. Then we... Then what did we want with the P1MC? **It was to gather all of these experiences** and **do a project to demand financing from the Government**. (E.BVI).

Therefore, the One Million Water Catch tank Programme (P1MC) is set, this organizes the roles of ASA-Brazil of the set of the affiliated organizations, as well as of the technology for water catch tanks made with cement plates. These spokes persons and their identities are stabilized by means of an agreement with the Brazilian Ministry of the Environment (MMA), that financed the preparation of the project and the construction of water catch tanks to attend to 500 families in the year of 2000, whilst a second agreement executed in 2001 with the Brazilian Water Agency (ANA), financed the construction of water catch tanks for 12,400 families. (ARTICULATION OF THE BRAZILIAN SEMI-ARID REGION, 2003, p. 6) and the award given by Brasil Bank Foundation for Social Technology, for the water catch tank made with cement plates also in 2001.

A movement to raise interest begins at the same time that the Association for the One Million Water Catch Tanks Programme (AP1MC) is created, to constitute the central management unit central of the P1MC. The OSCIP that has the 'mission of working to serve the ASA, specifically to attend its needs from the implementation of P1MC.'(ARTICULATION OF THE BRAZILIAN SEMI-ARID REGION, 2003, p. 34), and necessary to make the agreements with the Federal Government. However, partnerships are also sought with the private sector, with the example of the agreement executed with the Brazilian Federation of Banks

(FEBRABAN) for the construction of water catch tanks to attend to 10,000 families and to implement 20 management units for the P1MC. (ARTICULATION OF THE BRAZILIAN SEMI-ARID REGION, 2003, p. 10).

However, the strategies end up by fixing themselves on the partnership with the Federal Government. This way, the P1MC is inserted in the actions of the Fome Zero Programme and later is defined as a programme of the Brazilian Programme for Food and Nutrition Safety, coordinated by the Ministry of Social Development from 2004. The ideal of the 'spiral of mobilization' of the P1MC, that consists of links – 1st being the families of the semi-arid region; 2nd being the rural communities; 3rd being the base community organizations; 4th being the organizations with city basis; 5th being the micro-region or state bases; 6th being the Brazilian or foreign organizations; 7th being the governments, and 8th being the companies (ARTICULATION OF THE BRAZILIAN SEMI-ARID REGION, 2003, p. 14-16) –, apparently reaches the seventh link.

It is a moment for involvement as the P1MC directs itself as 'movement of approximation between instances of the State and organizations of the civil society', that seeks the internalization of a democratizing project from practices with wider social participation, and involvement of these organizations with users in the definition, regulation and execution of public policies (ASSIS, 2012, p. 180) to guarantee the success of the undertaking of the rural water catch tanks. The AP1MC assumes the executive responsibility of its coordination in the entire Brazilian territory of the semi-arid region, but the representation of the collective for the ASA-Brazil, strangely enough, lost, as the programme is defined as 'a Federal Project with a spatial model of articulation that, originated in the city, would gather the operational micro-regions' (ARTICULATION OF THE BRAZILIAN SEMI-ARID REGION, 2003, p. 40), where the Ministry of Social Development (MDS) holds its general coordination.

In spite of that, the management model of the P1MC is designed as an inverted pyramid. At the to pare those that previously (sic) were at the base, the groups of families, the communities and cities; on a second level are the community associations, parishes, NGOS, rural worker unions, City Administrations, land reform settlements, amongst others; on the third level are the Micro-Region Management Units of the programme, whilst the fourth level consists of the State Collective Groups of the ASA. Finally, the fifth level is the Main Management Unit (AP1MC) directly linked to the Federal Government. (ARTICULATION OF THE BRAZILIAN SEMI-ARID REGION, 2003, p. 41). Apparently, the intent of the model seems to want to reveal the purpose of the groups of families, rural communities and cities, that is, to be the bosses in the management of the P1MC, with the remaining levels in the hierarchy, also inverted, subordinated to them.

However, this is a symbolic representation that is intermediary and that is not capable of moving, in translation, to create transformation. In concrete terms, the P1MC faces hardship in mediating their contents, as indicated by the interviewees, at least in the case of the micro-region of Juazeiro.

> Already happened when promises were made, **and it came to a difficult point of building a water catch tank and not having even sand or water**, and we called them here from the City Hall, and **they came round and gave their word that they would send a lorry round**, that they were sending a lorry load of sand, and a day and time was set and sent people there and they waited and **they did not do it**. Then we were very disappointed with it (E.CIV).
>
> **You get there with a project of these, financed by the MDS**, there is a whole stage to select the communities, the families, mobilization, training, of the families, right... and this is a long process... takes a while... especially at the time of elections, **a candidate for state representative comes, another one for city representative: we are going to lay down the piping in the entire community, the water will get there... The person says, OK, I do not want a water catch tank no more. Many things happen**. Then some time later **after** you get there... **the piping is laid down but the water never arrives**. **Some other times we did not even get the piping**... (E.BIV).

> And I **still remember that, faced with these impositions there were still some technocrats from Codevasf** that moved about with a measure in the hand, to really measure if the house was not enough... a small house... and saw that, as one of the animators that accompanied the project, **this man would move with a measure in his hand to measure if the house had 40m²**, right? I mean, **may be someone who never felt thirsty, who never carried cans of water on the head**, but who **never came round, to fulfil the determinations of the then Minister**. **And then they put the reports**, too. There was a house here that missed it by 10 centimetres, 20, 30 centimetres and the man wrote there: **family so-and-so**, house, it was there, **39 metres and a half, did not get there**. **I think** [pause]... I will not say it... [smiles], this is **some deep shit, there is the poor bastard dying of thirst because of half a metre** (E.BII).

If the community-based work could extend more widely between mediations and move the closing of the black and grey boxes of the water catch tank made with cement plates and of the ASA, allowing the P1MC, on the other hand the ideal of the 'spiral of mobilization', and the management model of the programme did not get all of its contours in the domain of the local power. Therefore, the P1MC moves away from the practices that shaped it and seems to be a logic operating far from its point of origin from symbolisms such as the spiral of mobilization and the management model, indicating that their strategies could not involve more adequately the local actors linked to the city's public power or even the agencies of the Federal Government such as the CODEVASF - São Francisco Valley Development Company.

This does not imply, however, that the translation cannot occur, especially when one considers the One Land and Two Water Programme (P1+2) and the technologies from water catch tanks in development, directed to the productive processes of family agriculture, as a strategy to expand the scope of the P1MC, which would allow greater involvement and the start of a new momento f mobilization to expand the representation of the collective on the different levels. The actions continue to occur in their capacity to associate new allies such as the P1+2, the expansion of the storage volume for the water catch tanks and their direction to the production in family agriculture, amongst others, certainly enabling translate new mediations, new controversies, new problematizations inherent to the social and technical associations fundamentally practical and of a daily nature, that intend to transport changes.

Final Remarks

We would first of all like to begin these final remarks by saying that we agree with Latour (1994a) when he criticizes the fatalism on the existentialism of Heiddeger as regards the human passiveness before the techno-scientific projects of modernity, also agreeing with Alcadipani and Hassard (2009, p. 11) that 'the 'good' can only be done [and understood] locally and empirically' when one wants to explain, under the political ontologies, the act of organizing, such as the modern purifications and consequently of management, that cannot completely erase all the traces of how the practices operate, that is, by mediations when the technical, political and discourse are jointly considered, questioning the 'modern constitution' (LATOUR, 1994a). When analyzing the lines that are traced between the P1MC programme, one can see that there was no passiveness; on the contrary, what we could learn in the unfolding of the enrolments of this network was the creative wealth of social and technical associations in creating consistent alternatives for the water problem in rural communities of the Brazilian semi-arid region that always were prisoner of the favours of the local 'mandataries', those who exploited them in so called drought industry.

Therefore, amongst the controversies where the Sobradinho dam appeared, in another technological path emerged the water catch tanks made with cement plates and, if the economic growth was polarized in there stricted territorial radius of the power dam with plantations of fruit for export, the water catch tanks extended well beyond to the dry lands of the Brazilian semi-arid region. In this innovation, that in the understanding of Latour (1994b) is no more than a deviation of the practices, social points transformed into technical issues

and vice-versa, discarding the technical-economic and mono-directional sense of development, through which social and technical associations can move and transform as a practical effect – management in development.

One should acknowledge, therefore, that this deviation happens mainly when mediations are created to give sense to that which was not before, the enrolment being something fundamental to create new blend of development, or better still, the translation to transport transformations allow the glimpse of another development. This analysis of the translations is one of the contributions brought by the ANT that, according to Alcadipani and Tureta (2009), has been adopted in the field of Administration, more specifically by organizational studies to analyze the processes of organization. On their turn, these authors also point in another article that the ANT considers that 'the relation between the elements responsible for the organizing process and the practices generated get greater attention when it is sought to understand, still, the possibility of human being equipped with properties as a result of the interaction with non-humans and/or with other humans.'(TURETA and ALCADIPANI, 2009 p. 60).

When studying the case of the P1MC, it was possible to see how much the practices change through time as the organizations were being equipped with properties from the interaction with the technology of the rural water catch tanks. However, it seems important here to point that these connections should imply the modification of a situation, that is, human and no-human as mediators, given that, as intermediary agents, they do not transform anything and only operate in a logic distant that one wants spread elsewhere.

The management in development needs the translations of the mediators – human and non-human – that transport in them the sense of the change of the situation, and this will only acquire form when other actors, in other places, realize their own potentialities in translation movements. For that, it is necessary to vehemently deny the idea of diffusion and consider that the translation does not transport any type of property, but only the transformation resulting from the deviations that the meeting between technical and social elements can generate. Consequently, the management in development trace between social and technical associations will always be unique, in that which the method of the network enabled tracing. At the same time, it will always be open to the multiple possibilities where the unfolding of the variety of connections and deviations provide it. In this sense, a proposal is made that the management in development expresses itself much more in strategies in action than in pre-established plans as it are peculiar to the techno-economic determinism and the difusionism typical of the Administration of Development (AD), and the Administration and Management of Development (AGD). This way, the ANT is not occupied with a praxis to practice, but only accompanies what the practice of the actors was able to practise and extend from its place to others from their own frames of reference – management actions in development. This does not imply that management is denied; on the contrary, only the differences between methods and materials provided are analyzed and how they realize in themselves when producing the organizational daily life (LAW, 1992), questioning, therefore, the naturalization of development management, in the terms of AD and AGD, as a set of neutral practices that mean to be universal without considering that true development is cultural creativity and social morphogenesis from the pluriverses of those that want to experience it in trying unification with a common world. Also, it does not imply that the 'power of the powerful was demystified' but only that we fulfil 'our task [that] is to study these materials and methods to understand how they realize themselves, and to distinguish that which could and almost always would be in another way' (LAW, 1992, p. 391), suggesting to others to give continuity to this investigation in the most varied pluriverses.

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