

Towards inclusive waste management: participatory video as a communication tool

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This paper describes the outcomes of a participatory video (PV) project with recycling cooperatives in the metropolitan region of São Paulo, Brazil between 2008 and 2012. Through a participatory action research approach, four PVs were co-produced and a collaborative research design was developed with participants to use the videos as a communication tool for enhancing dialogue and promoting inclusive and integrated approaches to waste management with policy makers. The catadore/as ('recyclers') involved are all participants of the Participatory Sustainable Waste Management (PSWM) project, a six-year partnership programme between the University of Victoria, the University of São Paulo, over 30 recycling cooperatives, municipal governments and various non-governmental organisations in the metropolitan region of São Paulo. This paper explores the methodological and theoretical contributions of using PV for enhancing the representation of catadore/as and the potential for shifting power dynamics in spaces of public policy. It also points to the growing organisation (and movement) of recycling cooperatives and associations as instrumental in improving the livelihoods of recyclers and crucial to expanding models of PSWM. The key findings highlight: the importance of building strong partnerships between the government and the recyclers; the necessary expansion of environmental education programmes valuing the principles of PSWM; and the need for adequate public policies to support these initiatives. The paper also draws attention to the relationship of power and knowledge that emerged through this process and reflects on the changing nature of citizen engagement in policy processes.

1. Introduction: PV for social action

Participatory action research (PAR), along with visual methodologies such as participatory video (PV), offers an innovative vehicle for marginalised groups to engage in public policy discussions and take action concerning social issues that impact their lives. PV provides individuals and communities the opportunity to play a leading role in researching and developing ways to create awareness, reflect on their own practices and take action. Increasingly, PAR is becoming the default methodology in a number of contexts, especially in deconstructing traditional research relationships between academics and marginalised communities (Evans and Foster, 2009). PV is a key tool, under the guidance of PAR, in combining process and action in ways that provide avenues for communities to engage in both critical self-analysis and political action. In this way, participants are equal partners alongside government authorities to provide a collaborative approach to problem solving (Stringer, 1996). In their article entitled Community-based participatory research as a tool for policy change, Peterson *et al.* (2006) document that this approach can 'produce credible research, build community capacity, and help bring about contributions to policy changes' (Peterson *et al.*, 2006: p. 352). Enabling community members to identify issues in need of investigation, collaborate

in the conduct of the research, translate research-based findings into action and advocacy for policy level change has been an important component of the environmental and social justice movements (Peterson *et al.*, 2006) and in developing community governance (Secret *et al.*, 1999).

This approach is also increasingly being recognised as important in yielding and validating community knowledge and understanding that can guide policies and programmes to reduce social disparities (Flicker and Savan, 2006; Ritas, 2003), particularly by improving communication between stakeholders (Hickey and Mohan, 2005; Luckin and Sharp, 2004). This type of community-based planning takes the form of citizen participation and is contested to be more likely to address symptoms of poverty, such as difficulties with access to basic infrastructure, services and unemployment. Governments are realising the long-term sustainability and locally relevant outcomes of working with communities in development and planning, and even more so in building the capacity of a community to lead engagement processes (Corneil, 2012). An important aspect to truly approaching participatory community engagement is how individuals understand and appreciate various forms of knowledge.

These approaches are largely grounded in theories of 'knowledge democracy', pioneered by scholars such as Santos (2007), in 't Veld (2010), Gaventa (2005) and, more recently, Hall *et al.* (2013). In this paradigm, there is an openness and embracement in the representation and co-creation of knowledge of those previously 'invisible' or excluded. The idea of democratising knowledge is central – theoretically to understanding change in society and also pragmatically in the creation of spaces for civic engagement that dismantles traditionally oppressive structures. This paper builds on previous research on community engagement in policy processes and aims to fill some gaps on the use of PV as a tool for visual communication, in shifting power dynamics and in valuing varied and representational forms of knowledge not typically present in these political spaces.

2. The global context of organised and informal recycling

The recycling sector provides an important livelihood for many of the world's poor and excluded populations. Often informal in nature, this activity includes individuals collecting, separating, classifying and selling recyclable materials as a means of subsistence. According to the Global Alliance for Incinerator Alternatives (GAIA, 2012).

Recycling provides productive work for an estimated 1% of the population in developing countries (approximately 15 million people), in processes such as collection, recovery, sorting, grading, cleaning, baling, processing, and manufacturing into new products ... even in developed countries, recycling provides 10 times as many jobs per ton of waste as do incinerators and landfills.

Most of their work is considered informal and conducted by independent recyclers, subject to risks, accidents and exploitation. Those engaged often remain extremely socially and economically marginalised, also facing harassment, stigma and disempowerment.

Despite providing a valuable contribution to society and the environment, this sector is most often unrecognised by government and the larger community. In general, the attitude of the formal waste management sector to informal recycling is very negative, regarding it as backyard, unhygienic and generally incompatible with modern waste management systems (Wilson *et al.*, 2006). This activity is often associated with risk, unhygienic environments, criminal activities, homelessness, unemployment, poverty and backwardness. These associations tend to perpetuate discrimination against the informal recycler and, in turn, often lead to exclusionary policies regarding this sector in solid waste management (Sembiring and Nitivattananon, 2010).

There has been a considerable amount of literature, and debate, on the integration of informal recycling into formal waste management systems (Baud *et al.*, 2001; Jaffe and Nas, 2004;

Wilson *et al.*, 2006). There are still major challenges in demonstrating the significant value inherent in this sector, and resistance in moving traditional policies of repression and neglect to one of positive engagement, support and integration with the formal system. In order for this shift to occur, governments and society need first to recognise the social, economic and environmental benefits that result from working with this sector, particularly through cooperative-based models. Despite these challenges, there are strong arguments for the inclusion of the informal and organised recycling sector in formal municipal services (Iskandar, 2003; Sembiring and Nitivattananon, 2010). An obvious debate is highlighted in the Millennium Development Goals (<http://www.un.org/millenniumgoals/>), whose focus on poverty reduction would be counter-intuitive if municipalities tried to eliminate the livelihoods from a major section of the urban poor. Clearly, a solution to move forward in this direction would be to enhance the existing recycling system, including recycling co-operatives, and building on their capacity

Approaches in integrated solid waste management and the growing organisation of recycling cooperatives and associations have been instrumental in improving the livelihoods of recyclers in many parts of the world (Berthier, 2003; Gutberlet, 2008a; Medina, 2000). Increasing complexity, costs and coordination of waste management have necessitated multi-stakeholder involvement at every stage of the waste stream – calling for an integrated approach. This reflects the need to approach solid waste in a comprehensive manner with careful selection and sustained application of appropriate technology, working conditions and establishment of a 'social license' between the community and designated waste management authorities (most commonly local government) (Hoornweg and Bhada-Tata, 2012). An integrated system considers how to prevent, recycle and manage solid waste in ways that most effectively protect human health and the environment. Gutberlet (2010) and Tremblay *et al.* (2010) go on to consider a more socially 'inclusive' approach described as resource recovery with reuse and recycling practices that involve organised and empowered recycling cooperatives supported by public policies, embedded in solidarity economy and targeting social equity and environmental sustainability. This approach aims to tackle socio-economic vulnerability, reduce waste management costs, promote greater resource efficiency, build social cohesion and foster community – all of which require an inter-sectorial and inter-disciplinary urban planning and development approach.

Well-cited experiences from around the world document the organisation of recyclers into social groups, such as the rag pickers in India (Pattnaik and Reddy, 2010) and China (Jha *et al.*, 2011), the zabbaleen in Egypt, pepenadores, catroneros and buscabotes in Mexico, basuriegos, cartoneros, traperos and chatarreros in Colombia, chamberos in Ecuador, buzos in

Costa Rica and cirujas in Argentina (Berthier, 2003; Medina and Dows, 2000). Many of these groups operate as cooperatives, providing an important organising structure that has more capacity to form important partnerships with government and the non-governmental sector, creating creative and inclusive solutions to waste management. Cooperatives operate on the principles of reciprocity and shared democratic decision-making and are in themselves vehicles of community empowerment and collective agency.

The selective collection of recyclable resources is now widely recognised as a sustainable approach to solid waste, both as a means of environmental education stimulating the reduction of waste generation and by addressing the urgency of conserving natural resources. Municipal programmes that include cooperatives in their programmes provide many benefits to these groups, including a better standard of living, validating their profession and creating a link between the cooperatives and government (Baud *et al.*, 2001; Jaffe and Nas, 2004). Partnerships between the government, the non-governmental sector and the recyclers have been shown to provide creative solutions for solid waste management. Adequate public policies therefore need to be created to support these initiatives and open structures and processes for inclusive communication.

2.1 The role of recycling cooperatives in Brazil

In Brazil, most recyclers are still informal. According to a national survey in the early 2000s by the network Lixo e Cidadania, 37% of the municipalities in Brazil acknowledged having informal recyclers separating landfill, particularly in cities of over 50 000 inhabitants (Gutberlet, 2008b). It is estimated that there are approximately two million catadore/as (recyclers) in Brazil, out of which 60 000 are organised into cooperatives and associations (Gutberlet, 2011). In the metropolitan region of São Paulo many of the recyclers – catadores and catadoras, carrinheiros, carroceiros or recuperadores – are organised in cooperatives that provide employment, improved working conditions and increased environmental education (Gutberlet, 2008a). For example, the recycling forum Forum Recicla São Paulo includes 29 groups (cooperatives, associations and other grassroots recycling initiatives) (Gutberlet, 2011).

In 2010, the Brazilian government sanctioned new federal legislation on waste management, institutionalising selective waste collection and formally recognising catadore/as as key agents in the system. The law requires each municipality to develop a solid waste management plan that focuses on a hierarchy from not generating to reduction, reuse, recycling and final disposal of waste at landfills. The law (articles 41 and 42) specifically guarantees the contemplation of recycling cooperatives and associations in the waste management plan and in addressing the needs of these groups to participate in the implementation of the programmes. Despite these innovative policies for inclusive programmes,

there are a number of shortcomings that make the inclusion of cooperatives still problematic, if not impossible (Gutberlet, 2011).

Worth mentioning in the legislation is the inclusion of waste incineration as an option before reuse, recycling or composting has been performed. Essentially, cities can choose to go with incineration as a viable option, leaving the entire recycling sector with few options or little power in these decisions. In addition, article 58 excuses governments from including catadore/as in the programmes if the recycling organisation is inefficient. Unfortunately, the reality of most recycling cooperatives is that of serious vulnerability and lack of support – creating serious barriers for them to be efficient in terms of municipal standards.

Few governments in Brazil, and globally, have embraced an inclusive waste management model by recognising the social and economic benefits that are present in working with recycling cooperatives. This support, however minor, is most urgently needed in infrastructure (triage centres, equipment, trucks, etc.) and remuneration where recyclers are paid for the service they provide.

The purpose of this action research project was to strengthen dialogue, using PVs, between governments and recycling cooperatives in three municipalities in the metropolitan region of São Paulo. Specifically, the project aimed to raise awareness of their struggles and the capacity to provide selective collection services given proper support and remuneration. The following provides a brief description of the methodology and the outcomes of focus group discussions concentrating on the most pressing policy debates.

3. Research methodology and results: towards an inclusive approach

This section has two main foci: first, to provide a description of the PV methodology used in this research and insights into its use as a tool for communication with policy-makers and, second, to discuss inclusive approaches to waste management with recycling cooperatives, with specific attention to remuneration, incineration and participatory planning.

3.1 PV methodology: case studies from three municipalities in the metropolitan region of São Paulo

This project used participatory approaches as part of a process specifically designed to create the space and opportunities for leaders of participating recycling cooperatives to voice their perspectives on inclusive waste policies in their municipalities. The main focus of the research was on understanding how PV empowers citizen–government engagement and creates opportunity for dialogue about issues related to how government is supporting the inclusion of recycling cooperatives in waste

management policies. During a one-week workshop in April 2008, 22 catadore/as were trained in PV technology, storyboard development and post-production editing as a strategy to improve community networking opportunities and to stimulate awareness and education of recycling programmes in their municipalities. Following the collaborative production of four PVs (over a period of 10 months in 2009), three focus groups were conducted with local governments and catadore/as in Maua, Riberão Pires and Diadema over the course of 4 months in 2010. The methodology applied in each case study was the same; however, the contexts differ, reflecting the dynamic nature of the situations and relationships in each municipality.

The focus groups were intended to provide the opportunity

- for collective self-reflective inquiry of the lived realities of the catadore/as
- to demonstrate the capacity of the cooperatives to provide recycling services
- to strengthen dialogue between local governments and recycling cooperatives
- to highlight pressing issues
- to encourage support for infrastructure and remuneration from government for the service provided.

The focus groups were organised with local government, with one or two catadore/as representing their group, and the executive members of the Participatory Sustainable Waste Management (PSWM) project (including the author). In all three of the focus groups, various representatives from local government were present, including those involved in social and economic development, waste management and engineering services and, in one case, the mayor (Diadema). The focus groups were structured into four stages

- pre-video interviews
- watching the videos
- focus group discussions
- post-focus group interviews focused on the methodology and impact of PV.

The research design of the project was entirely participatory and was developed through numerous discussion sessions with the larger PSWM group and smaller PV groups. As an additional strategy to shift power dynamics during the focus groups, the catadore/as guided the questions; the role of the researcher in this case was more of a facilitator.

The focus group and interview discussions were videotaped, transcribed and translated from Portuguese into English over the course of 8 months in 2011, in collaboration with members of the PSWM project. The focus group sessions were then analysed across groups for recurrent themes and

issues. Group interactions enabled the discussion and identification of issues that probably would not have come out in individual interviews or participant observation.

This video project provided a space to discuss the mounting challenges and barriers, despite the successes, that all the cooperatives were facing. The space was also an opportunity for inserting the diverse and often absent community-based knowledge into the policy discussions. Although difficult to measure the long-term policy impacts of this project, it was clear that the process of PV and using video as a representational tool for this community for enhancing dialogue was successful. The following sections describe the outcomes of the focus group discussions and in-depth interviews with the catadore/as, focusing on how the PV process enabled supportive representation and power dynamics. Some of the current challenges for these cooperatives are briefly discussed, providing some context for the nature of the policy discussions in the focus groups.

3.1.1 Enhancing communication: 'a new way of seeing'

Communication can be described as a complex process of creation, transmission, maintenance and transformation of information and ideas, using a mix of inter-personal and mediated channels, which are sustained by political, economic and social structures (Melkote and Steeves, 2001). Participatory communication is a social process in which groups with common interests jointly construct a message oriented towards improvement of their living conditions and change to unjust social structures (Morris, 2003). This form of communication provides people – including the marginalised – with access to information and communication systems and an equal opportunity to participate in creating new information and challenging existing unjust social practices (Servaes, 1996). PV can enhance and stimulate this form of communication. It is a powerful medium, and the images can be revealing and eye-opening – it can provide new ways of seeing, challenge existing perceptions and give the opportunity for creative processes. Given the increasingly accessible nature of video technology, this form of representation has enormous potential for widespread, immediate and powerful impact on how communities are perceived and understood by both community members and outsiders (Evans and Foster, 2009).

There is a strong history of using PV and various forms of video media for social and environmental justice around the world (Gumucio-Dagron, 2009; Khamis *et al.*, 2009; O'Neill, 2009; Suarez *et al.*, 2008; White, 2003). Turner (1991), for example, describes the use of video media with the Kayapo people in the Brazilian Amazon region as a tool for political, cultural and historical motives, in settling issues of common concern among tribal leaders and in negotiations with Brazilian authorities. This tool has been transformational for the Kayapo culture and their interactions with Brazilian and international

society. More than this, it became an important catalyst of Kayapo cultural self-conscientisation and political mobilisation. The social/political transformation and action has been central to the work of numerous communities using video around the world and has effectively shaped how PV is used today. This methodology, and those housed within the theories of Paulo Friere's popular education, is well positioned and accepted as a valuable and legitimate tool for enhancing communication and processes for participatory planning within the public sphere.

The participatory methodology in this project proved to enhance the process of dialogue by providing an iterative process of visual and communicative data. The images provided the audience – in this case the government – with a 'real-life' picture of the realities of this community; a significant step in challenging preconceived perceptions of this community and in documenting their struggles.

In an interview with the president of the National Movement of Catadores (MNCR) in São Paulo in November 2010, it was made clear that 'very few [governments] know the day-to-day reality here. Not everyone knows'. This indicates a real disconnect between the perception of government and reality of catadore/as. A catadore from Coopercate, Maua, spoke of the challenges of being a catadore and the importance of working with government in inclusive planning.

It is a tremendous challenge being catadores, right? Knowing, understanding, participation in public administration it is essential and they [catadores] are making so much progress, they already know both the secretary and the mayor, and they know that we are trying to expand in a constructive manner, in a planned way because without planning we get nothing, so we can reach the goal. I have a dream, do not know if this is a dream or utopia, which Maua has within five years, has, at least covered 50% of selective collection and the next 10 years is 100% ... and the work it has to be visual I'm afraid to show who we are and what we came for, and where we go, no doubt.

Similarly, during the focus group in Diadema in December 2010, one government representative commented on how the video provided a new way of seeing and reinforced his perceptions of catadore/as as environmental stewards – one of the main goals of the PV project.

I found it interesting because it shows the reality for those unfamiliar with Diadema, and Sao Bernardo do Campo. ... It is interesting to draw people's attention. ... People put their waste at their home door and think it will go away on its own. There is a whole work towards the environmental awareness of people that is important. People say 'lixeiro' (garbage man), stigmatizing the collectors, but I say, I'm lixeiro, I am the one who produces it. ... The catadores are environmental agents who collaborate. ... What's cool here and in other places I visited [cited Bogota and Buenos Aires], is that the

catadore/as are the ones who speak, are prepared, represent. ... It is important to think about this consciousness.

Video can provide an opportunity to shed light on local knowledge and understanding of the reality of the community. It is an excellent learning tool for government agents, who are typically not in direct contact with these groups. In December 2010, another representative of the municipal government of Diadema said

I think the first is to show the reality of Diadema, because the images sometimes speak louder than words, for even a representative, for example, [a member] will talk about the network or Cooperlimpa, when you have a video, you register the image of the entire process.

The focus groups enabled a 'two-way' form of communication, where the catadore/as initiated the conversations and, in one case, provided a more accurate picture of the process at the cooperative. During the focus group in Riberão Pires, for example, a catadora from Cooperpires highlighted that the cooperative actually separates 30–35 t per month, which is a significant amount more than the perceived 15 t that the government had indicated. This discussion was valuable in that it made a clear distinction between what the government had initially assumed and was indicated as one of the reasons why it could not more fully support the cooperative, given the small amount of material processed compared to other more established waste management companies. The discussion then flowed into what some of the main barriers are for expanding production and meeting higher targets. The representative from Cooperpires explained that a lot of material is not clean and then has to be discarded, producing a huge discrepancy between the amount collected and processed.

Another example where communication was strengthened was in the city of Diadema, where the municipal government revealed significant budget restraints for expanding the support for collective waste collection with recycling cooperatives. During the focus group meeting, it was suggested by the government representatives that the video be used to place pressure at state level to increase the budget in this area of the sector.

In all three case studies, the governments all supported the use of the videos as tools for communicating with other government departments and the business sector and for public educational programmes. Overall, the government responses to the videos were positive and sympathetic, despite some of the challenges associated with political agendas and bureaucratic ties (i.e. budget constraints). In each case, there was genuine interest in working with the cooperatives and to strengthen their participation and capacity in recycling services. A government representative from Diadema highlighted the importance of strengthening dialogue with cooperatives and recognised the process as a 'two-way' negotiation.

... it can always improve, I think this is an ongoing process of improving dialogue. There is an issue there that is the two sides; there is always a two-way in this process, the public manager and also the person who is representing the cooperative or association. This is a permanent process of dialogue. Of a common goal, on one side the public management is in charge of the waste, which is important to the city, a metropolitan area ... and on the other side it is the effectiveness and establishment of these collectives.

Similarly, a government representative in Riberão Pires stressed the need for better communication both with the recycling cooperatives and the general public about environmental education and door-to-door recycling programmes. Another government representative from Riberão Pires continued by adding that in working with the cooperative there are always new challenges and that greater integration in solving these problems is key: 'If it does not work, we will change, so it's a constant exchange ... we are always looking to improve this relationship, we are having very good interaction, we are working on writing a project right now'. At the end of the meeting, the government representative suggested using the video produced at a meeting with businessmen in the city to look for support for training and equipment at the cooperative. The idea of increased visibility (through radio, billboards, working with schools) of the cooperative in the city was also suggested in order to raise support and legitimacy of inclusive programmes. Despite the support and will of the government in this municipality to continue partnerships with the cooperative, they face many challenges financially to remunerate the recyclers for their work.

3.2 Towards an inclusive approach to waste management

Increasing complexity, costs and coordination of waste management has necessitated multi-stakeholder involvement at every stage of the waste stream – calling for an integrated approach. This reflects the need to approach solid waste in a comprehensive manner with careful selection and sustained application of appropriate technology, working conditions and establishment of a 'social license' between the communities and designated waste management authorities (most commonly local government) (Hoornweg and Bhada-Tata, 2012). An integrated system considers how to prevent, recycle and manage solid waste in ways that most effectively protect human health and the environment.

PV and other forms of participatory arts-based methodologies are well aligned to enable creative spaces for this engagement, particularly due to the large inclusion and direct representation of the community. The focus group discussion brought to light the importance of an integrated and inclusive model and provided an opportunity for the government and catadore/as to discuss the why and how of enabling policies for this support. It is increasingly being recognised that social, economic and

environmental challenges are inextricably intertwined and need to be addressed in a holistic multi-dimensional perspective, particularly within the context of public policy and planning. Integrated programmes provide an opportunity for shared learning processes in which governments can also learn about poverty reduction through social economy practices. A representative of the Department of Economic Development in Diadema, stressed that

the departments need to be integrated, for example, the secretary of the environment that is responsible for the selective collection, but also needs to be with welfare, economic development, etc. ... So suddenly this video helps one approach to show the departments who are away.

So, videos can be used long after the 'research' is conducted, representing the community to multiple audiences and in varying contexts. This is a valuable, and perhaps underestimated, use of PVs, where the 'action' component of the project is dynamic over time and space. A government representative from Diadema highlighted the importance of integrative practices during the focus group

The department of social welfare has to be together in this process. I will speak in the specific case of Diadema, which has a term partnership, I think that this term gives legitimacy and makes room for other offices, while we're talking with the secretary of health, we want them to come with knowledge, not only with the supervision, but to work on this issue of health and mainly talk with them about the developments of the recycling industry. These contracts are already in partnership, it gives legitimacy to dialogue with other departments.

As a capacity-building activity of the PSWM project, the participants – including local government representatives – visited the city of Londrina to see an inclusive model of waste management. This was an important discussion that later came up in the focus group in Diadema, as highlighted by the same government representative.

It was important our visit in Londrina because we saw a model. From this experience we will come back and sit down with the program managers, and even with the cooperative and say that we will resume door-to-door. ... Now, with the door-to-door you raise environmental education and this justifies the program, and from this experience we will resume in Diadema, we are more willing to reach the homes in the near future to achieve 100% collecting door-to-door.

It is clear from discussions with recyclers and government and the literature that inter-sectorial approaches are needed for economic and resource planning. Lack of communication between agencies, complex structures, overly bureaucratic procedures and inefficiencies can be major institutional barriers (Gutberlet, 2008b). There needs to be enabling structures in place that can support breaking away from siloed approaches,

and key stakeholders need to be engaged for appropriate and effective policies that can support integrated solutions for waste management. In addition to the integration of multiple departments, there needs to be increased decentralisation of decision-making to local levels of government. This will enable greater power at the local level, with active engagement of local stakeholders, co-creating solutions and enabling more effective forms of democracy.

3.3 Remuneration for catadore/as

The issue of remuneration was a common subject in each of the videos and throughout the focus group discussions. Remuneration refers to paying the recyclers for their service, which is still rare in most municipalities throughout Brazil and elsewhere in the world. Diadema, one of the participating municipalities, is a particularly important case as it was the first municipality in the country to pay the catadore/as for the volume of material collected. In 2006, a partnership memorandum with Pacto Ambiental, a civil society organisation, was signed to remunerate the recyclers for material diverted from the landfill. Diadema generates approximately 416 t/day of solid waste. Approximately 120 t/month is recovered through door-to-door and business collection, representing a recovery rate of 3-4%. The recyclers receive 59.94R\$ (US\$ 37.35) per tonne, which translates into approximately 100R\$/person per month. The average monthly remuneration in 2010 was 479R\$/person in Diadema. Remuneration for resource recovery and landfill diversion is a significant step in recognising the environmental services that catadore/as provide.

Despite this successful model in Diadema, few municipalities pay recyclers for this service. During the focus group in Riberão Pires, this was a hot topic of conversation and the urgent need for support in this area was highlighted by a catadora from Cooperpires. Currently, members of Cooperpires are paid by tonnage of material collected, not by the hours they work, making it nearly impossible to earn a decent, let alone honourable, living. It was through the discussions that the government revealed Cooperpires still did not have the necessary structure (infrastructure, equipment, etc.) to be in agreement with the city for remuneration. The government recognises the difficulties in getting to that capacity and a government representative from Riberão Pires stated it 'wants to move forward in this conversation and make payments over time'. Another member of the government in Riberão Pires stressed that their work has to be 'proportional to the capacity of the cooperative, everything has to be gradual'. Indeed, this 'catch 22' is a significant hindrance in the inclusion of recycling cooperatives in waste management programmes. Cooperatives need the start-up support and capacity building to be able to compete in a commercial market, despite policies that support the solidarity economy.

Within 12 months of this project, Cooperpires had been given some additional support from the local government, in the way of toilet facilities (something that had been years in the waiting) and support for improved infrastructure. It is difficult to measure the direct impact of the video on these outcomes, but it is clearly an accumulated effort in the larger capacity building goals of the cooperative.

3.4 Waste for energy is not an option!

Waste for energy schemes have become a popular trend throughout the world. Increasingly, governments are turning to this expensive technology as a strategy to eliminate the massive burden of increasing waste and as an attractive source of energy to meet rising demands. Unfortunately, this waste management option does not take into consideration options for resource recovery, reuse, recycling and other promotions of waste reduction. Gutberlet (2011) highlighted serious alerts to this trend, particularly for the recycling sector.

Solid waste incineration is propagated by business and the media as an efficient management solution . . . yet, the environmental and social dimensions of this technological approach to waste often remain unconsidered. Social and environmental injustice may arise from locating these technologies and from displacing the workers who already make a living through resource recovery. Deliberating authorities often overlook the wider implications from deviating recyclable materials away from the recycling sector. (Gutberlet, 2011: p. 224)

The works of Gutberlet and others (e.g. MNCR, 2013) raise serious questions on not only the environmental impacts (i.e. loss of resources, emissions, the fuelling of consumptive lifestyles) but also the significance of the threat to recyclers, many of whom depend solely on this activity for their survival.

Currently, there are numerous waste incinerator proposals in Brazil leading to a strong social movement organised by the recycling sector, not only in Brazil but worldwide. The GAIA represents a worldwide alliance of more than 650 grassroots groups, non-governmental organisations and individuals in over 90 countries, working against incineration. In São Paulo, and other parts of Brazil, the MNCR and associated cooperatives have been instrumental in forming a strong social movement against this technology. During the focus group, the leader of Coopercate catadores in Maua stressed

And now there is a big challenge for the national movement of pickers, its incineration. I say I'll make this very clear and hopefully it arrives in the ears of those who need to hear you know? We will fight against incineration . . . which is founded on the working class and a mayor who was security minister and former president of the union of the ABC. Then surely, the national movement of collectors, the Brazil-Canada project, and other actors involved will bring society to the discussion.

Recycling cooperatives from São Bernardo do Campo were involved in the production of a PV and had planned to be involved in the focus group discussions with the local government. Unfortunately, owing to serious lack of support, a meeting could not be organised. There is no doubt that, in this city, a very strong lobby was fighting for the approval of a waste incinerator at that time. Over the course of a year, and during this research, there had been numerous social demonstrations against incineration throughout Brazil. Members of the PSWM project and the MNCR were key in this organisation. Unfortunately, after many attempts to meet with the government, there was no support or even slight display of interest in discussing this decision with the recyclers. This goes to show that even with an 'engaged' and empowered community, without support from local government in creating spaces for participatory forms of planning, the power remains in the hands of the elite.

4. Power and knowledge in spaces of politics

As Gaventa writes, there is an urgency to work on engagement from 'both sides of the equation: that is, to increase both the participation of civil society, and the responsiveness of government institutions' (Gaventa, 2005: p. 27). True public engagement needs to be framed and valued through participatory spaces. This paradigm shift from traditional consultation style approaches to policy and planning requires both specific attention to knowledge co-creation and power sharing with communities. This brings up both the challenges and opportunities in facilitating the common ground between them. PV provides an innovative methodology and practical tool that can enable community-led engagement, with a clear message and direction that exemplifies the voices of the entire community.

The PVs discussed in this paper were made with the intention of facilitating the government in seeing the catadore/as in a new way, recognising their perspectives and struggles, and acknowledging their knowledge as valid and valuable in the spaces of policy and decision-making. It was also the intention to strengthen the communication and dialogue and, in essence, the relationship of power sharing between these two groups. Shifts in power dynamics are not easily achieved and there can be many obstacles in challenging entrenched systems of oppression and authority. The case studies presented in this research offer an example of using PV in spaces of policy discussions, where local knowledge is often absent, lacking in representation or is underestimated. Despite the difficulty in 'measuring any concrete long-term policy implications as a direct result of the PVs, there is no doubt they have contributed to a larger mobilisation strategy within the PSWM project and the recyclers' movement itself, in turn contributing to a more engaged policy environment. Through the PV project, the process of collaboration within the groups and the focus groups led by the catadore/as have

contributed to strengthening relations, trust and enhanced dialogue between the government and recycling cooperatives. However, as stressed by Wheeler (2012), there needs to be an ongoing process of community engagement for significant policy change to exist. Acknowledging the various forms of knowledge expressed through participatory processes is a first essential step in creating more democratic forms of governance.

5. Discussion

A significant portion of the world's poor urban populations depend on the recycling sector for their livelihoods. As urbanisation and the subsequent generation of waste continue to rise, coupled with rising rates of poverty and economic uncertainty, there is an urgent need to recognise the assets, socio-economic and environmental benefits of working with this sector, and improving their working conditions.

Few governments in Brazil – or globally – have embraced inclusive waste management models and recognised the social and economic benefits in working with recycling cooperatives. Support is most urgently needed in infrastructure and remuneration for the recyclers. In order to achieve these goals, strategic planning of municipal solid waste management needs to document, understand and build on existing informal and cooperative recycling structures. Developing good communication and governance practices with this sector is key to their success. More importantly, co-creation of adequate policy for integrated waste management must be in place. This entails moving across 'institutional and knowledge terrains' (Eversole, 2010) and creating spaces for communities and organisations to engage in policy. This timely shift is necessary for participatory democracy to exist.

As demonstrated in this paper, PV is only one of the elements involved in enabling spaces for deliberative democracy. It is a tool that can help shift perceptions, give voice, and embrace diverse knowledge and representation. This form of participatory collaboration challenges the typical consultation-style approaches and can have immediate and long-lasting impacts in contributing to more profound shifts in governance.

Some final highlights from this research include the following.

- The PV project enabled a 'new way of seeing' catadore/as, legitimising their work and validating their capacity to perform selective collection programmes.
- By way of facilitating PV focus groups with government and encouraging a 'two-way' engagement within a space of power redistribution, the participatory process enabled multiple voices and representations of the community.
- The project helped strengthen relationships between the cooperatives and their local governments, providing a more unified space for knowledge exchange.

- The project increased government awareness about the communities' current struggles including remuneration and the need for more support in the way of infrastructure and capacity-building.
- The project increased government awareness concerning the catadore/as a united voice and movement against Waste for Energy technologies and the socio-economic significance of selective waste programmes.
- The project highlighted the necessity of an integrated waste management system that works inter-departmentally, with multiple stakeholders, that is embedded in the principles of the solidarity economy and participatory processes.

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