

Empowering collective recycling initiatives: Video documentation and action research with a recycling co-op in Brazil

Jutta Gutberlet*

University of Victoria, Department of Geography, P.O. Box 3050, V8W 3P5 Victoria, BC, Canada

Received 10 September 2006; received in revised form 12 July 2007; accepted 27 August 2007

Available online 24 October 2007

Abstract

Video documenting is a powerful instrument used in participatory action research to promote social justice and to empower marginalised populations. The paper discusses results from research conducted in early 2005, on the experience of the recycling co-operative *CooperPires* in Ribeirão Pires, Brazil. The research shows the social and economic challenges of organized recycling groups, it demonstrates their vulnerability due to the dependency on local politics, and it underlines the need for inclusive waste management policies as a poverty reduction strategy enhancing environmental health. This co-op was created in 2004 and with the recent change in municipal politics had lost the previously conquered government support in infrastructure and capacity building. With the participants' consent all interviews conducted with the recyclers, the local government, and the business community were videotaped. The edited film was presented during a local seminar on *building partnerships*, in 2006. This opportunity has contributed to actively engage local stakeholders to support the recyclers' cause. The paper emphasises the need for inclusive and participatory public policies in waste management. It underscores the pressing demand for the recognition of the social, economic and environmental benefits from organized resource recovery.

© 2007 Elsevier B.V. All rights reserved.

Keywords: Recycling; Waste management; Consumption; Informal sector; Co-operative; Participation; Poverty; Video; Action research; Policy; Brazil

1. Introduction

The prevailing wasteful, consumption oriented development model in western societies is threatening environmental health almost everywhere. The fact that solid waste is a re-usable and recyclable resource rather than a disposable material is not yet widely recognized and waste is hardly understood as income generating resource, an opportunity particularly for the urban poor.

The topic involves distributive and environmental health questions to be addressed with public policies and educational measures. Guaranteeing the access to these resources, safe and effective separation techniques as well as efficient commercialization strategies is key.

The livelihood of thousands of people in Brazil (Gutberlet, 2005), in Argentina (Medina, 2000), in India (Sarkar, 2003; Agarwal et al., 2005), in Morocco (UNEP, 2004), in Egypt (Fahmi, 2005) and in many other countries depends on recovering recyclables. These people represent the most disenfranchised and vulnerable part of the population, are socially and economically excluded, and usually powerless in local policy and decision-

* Tel.: +1 250 472 4537; fax: +1 250 721 6162.

E-mail address: jutttag@uvic.ca.

making. In some cities more progressive governments are investing in social programs that support organized selective waste collection, separation and commercialization.

This paper discusses outcomes from action research conducted in Ribeirão Pires, Brazil¹ using video as major tool to record the survival struggle of the recycling co-operative *CooperPires* and to portray the different viewpoints of stakeholders about the local recycling program. Between January and April 2005, semi-structured interviews were conducted with recyclers, the municipal government and local businesses involved in the formation of the co-operative. With the change in government after the election, at the end of 2004, the logistic and financial support for the recycling program was interrupted and the recyclers involved lost their income, which for many meant no food on the table. There was a real need to document the livelihood-threatening situation of *CooperPires*. With the discontinuity the social relations and trust formed between the stakeholders were in jeopardy.

The abandonment of *CooperPires* resembles a loss of carefully built social capital as it often happens after elections. Consequently a sense of disenchantment is widespread, particularly among the voiceless population, which repeatedly lives this kind of experience. It makes the implementation of social programs that build social cohesion a difficult process. Before and after elections the health, education, housing and transportation sectors are typically paralyzed for months, and the new government typically starts from scratch, ignoring previous results and achievements. This happens frequently in Brazil, even when there is no change in the ruling party. Major consequences are waste of social capital and loss of local capacity.

This research emerged from the desire to generate action in favour of inclusive policies that understand waste management as an opportunity to redistribute income and to improve environmental health. Video documentation was chosen as main tool, for its ability to provide more visibility than written documents and oral discourse to those that are excluded. Video documentation has the potential to impact and promote positive change. It is a powerful method for knowledge generation, and facilitates the transfer and feedback to the participants.

¹ Ana Maria Marins, a former government employee was involved in the research since the beginning and has accompanied the interviews and filming.

1.1. The use of video as a research tool

According to Letiche (2002) video documenting is an opportunity for different stakeholders to voice their opinions, achieving more effective responses. The frequent reaction “*that is us, those are our problems*” of participants when viewing the final documentary highlights a level of recognition that a social science report or academic paper could not produce (Letiche, 2002, p. 69). The participants see and hear each other after the research is completed, and this can promote a new way of reflection. It is a form of achieving what Paulo Freire has termed *critical self-reflection on one’s everyday lives* (Freire, 1972). Video documenting bears the possibility of transforming reality with making it visible, and with posing questions that point towards problems and solutions (Letiche, 2002). Hence, research results in the form of video material have great potential to become accessible to a wide public, particularly when posted on the World Wide Web.

Using this tool can also mean provoking the traditional and hierarchical forms of generating knowledge in social science and in bridging the breach between the academic and non-academic world. The production of knowledge needs to grow beyond the ‘Ivory Tower’ and the academic driven school of thought needs to incorporate new methodologies of generating knowledge (Leitner and Sheppard, 2003). This translates into innovative ways of doing research ‘with’ instead of ‘on’ the researched, and it stimulates new forms of creation, transmission and diffusion of information and knowledge. The tool can be used in many ways from the researcher conducting the filming process to participants using the camera and performing the capturing of images to developing final products (Odotola, 2003). Nevertheless its risks and limitations also need to be recognized. Odotola alerts to the fact that . . . *in front of a camera people often tend to “overreact” or get intimidated by the technology* and further highlights . . . *there is the danger of researchers sliding into a storytelling mode instead of maintaining an objective stance and recording the reports* (Odotola, 2003, p. 3).

1.2. Participatory action research for social transformation

Participatory approaches recognize the knowledge and experience of the locals. Their voices reveal community assets and hindrances, particularly important in the process of formulating consistent policy frameworks. Furthermore, participants can be empowered by the ability of voicing concerns and actively contributing to the

generation of new knowledge. Participatory research is widely used where communities face problems with social relations, lack of basic infrastructure and services, or political disenfranchisement (Park, 1999). It brings community members and other stakeholders together to deal with the problem, resulting in collaborative research procedures that address the, specific situation.

Bottom-up, participatory approaches are driven by practical outcomes. They constitute a paradigm shift in epistemological understanding, which traditionally focuses primarily on representational knowledge. Park (1999) points towards the enquiry: *What is valuable knowledge?* This leads me to ask: *What is the purpose of the knowledge generating process? What do we want to achieve with our research?* In the context of Human Geography, where action research is well placed, Pain and Francis (2003) acknowledges that participatory research is a quest for more relevant, morally aware and non-hierarchical practices.

Action research begins with the identification of the problem and the stakeholders. It involves methods like interviewing and group discussions in the definition of an action plan for change (Annison, 2002). A decisive outcome of this approach is the strengthening of this particular segment of the population, which has historically been ‘outside’ or excluded from the process of generating wealth and formal knowledge. It means recognizing their political power as agent of transformation of unjust social and economic relations. Participation throughout the research process allows for a sense of ownership, and participants become an integral piece within the process of improving the social conditions (Park, 1999). These approaches are increasingly recognized as central to policy making, such as participatory budgeting for example (Raco, 2000).

Participatory action methodologies have been very successful in bringing positive change to marginal groups (Hall, 1992; Power, 2002). Nevertheless, there is a risk for bias. Some authors argue that if the researcher is unaware close links and the level of intimacy created in participatory research can influence the results (Pain and Francis, 2003).

2. Resource recovery from an integrated perspective

An integrated cradle to grave view on waste management provides the opportunity to address problems that arise from fragmented, technocratic management and from disintegrated governance. The ecosystems approach is widely applied in natural resource management and also in community development and planning

(Roseland, 1992). With the urban metabolism model the ecosystems concept tackles the urban context (Pacione, 2001). It enables a comprehensive overview of the complexity of resources flows and a better understanding of the social and environmental implications for urban environments. As a systemic approach it focuses on material and energy flows aiming at greater efficiency in the use of the resources and the reduction of waste and emission outputs. Human systems are part of the ecosystem and hence add a focus on the social-economic and cultural interfaces. It further helps identify the various players involved in urban development and management. A systemic approach underlines the need for communication and collaboration across institutions and contributes to a more efficient use of the resources that are wasted due to segmented and overly bureaucratic management.

The fragmented nature of government with multiple institutional levels is frequently a hindrance for efficient and economic resource management. Lack of communication between agencies, excessively complex structures, overly extensive bureaucratic procedures, prone to rivalry, corruption and inefficiencies can be major institutional barriers. Structural changes and fundamental mentality shifts are necessary. Methods to effectively communicate and reiterate key messages that challenge the existing social, economic, and political conditions need to be in place to achieve increased eco-health; hence the potential for video documenting.

Another pre-requisite for this paradigm shift is an innovative perception on waste management. Engineering solutions capture only certain facets of the picture that usually exclude social perspectives, and only partially solve the problems. Although still widespread and perpetuated, landfilling and incineration are not acceptable solid waste management answers, since valuable resources are wasted and new environmental, social and economic predicaments are created.

2.1. Increasing mountains of waste

Statistics Canada defines waste as all material that is unwanted by the generator and the European Council understood it as any substance or object, which the holder discards or is required to discard. There is no value attached to it. These definitions see waste as a ‘state of mind’ rather than a definable entity. The generation of waste implies in internalized management costs, but also in environmental and health costs that are usually externalized.

Who has to pay for the costs of ‘managing’ our waste? How do we treat our waste? Who benefits from the business of waste management? Who gets involved in

the recovery of the resources? Can informal recycling contribute to diminishing loss and waste of resources? Is there a chance for redistributing income? These enquiries suggest a close relation between social and environmental justice issues and waste.

When looking at global and local trends consumption is on the rise almost everywhere (UNEP, 2002; Gutberlet, 2003, 2005). The OECD projects a continuous rise in domestic waste; despite increased access to information and environmental education. In addition the environmental health costs of waste are not recognized and concerns arise only when human health is directly affected on a large scale (Boadi and Kuitunen, 2005). Several dichotomies in terms of values and life style become evident when focusing on waste and wasteful attitudes and behaviours:

- increase in packaging over the last decades,
- decrease in durability of products,
- consumption dictated by style and fashion,
- global origin of discarded products,
- less careful and less thoughtful consumption patterns.

The day-to-day problems in consequence of consumption and waste generation contaminate drinking water, cause floods or landslides, and generate toxic gas emissions. In summary human health is at stake (Cointreau, 2005). The ecological gain related to recycling, is seldom recognized as a social win strategy and rarely do governments address them with the necessary actions and policies, often due to lack of resources or lack of institutional integration.

Unregulated collection of recyclable material from household waste by individuals is considered an *informal activity* (Medina, 2003, p. 3). This population frequently suffers from prejudice and social discrimination. The activity is not recognized as resource recovery and the wider public usually does not see the benefits and contributions to environmental health and global sustainability. Waste is considered an end of the line product, a left over, with no use, which is discarded and preferably made invisible. On the other end there are large-scale multinational corporations with a vested interest in exploring these markets. They are paid by tonnage of waste collected and deposited or incinerated and they

usually have no interest in waste reduction or recycling. Municipalities concede long-term contracts solutions, locking themselves into unsustainable waste management (Ahmed and Ali, 2004; Davies, 2002; Medina, 2000). Sometimes these contracts are for more than 20 years, as in the case of the city of São Paulo (Industry Canada, 2003).

2.2. Social and economic facets of collecting recyclables

Informal recycling is a centuries old activity (Medina, 2003). What has changed is the scope and the level of dependency of the people involved. Today even women, children and elderly people are working in this sector (Beall, 1997). In poor countries it has always been a livelihood strategy for the most impoverished and excluded in the absence of a social security system (Berthier, 2003), and nowadays it is the prime activity of the socially excluded. Ali (1999) notes that informal recycling is likely to increase in periods of economic crisis with high unemployment and poverty. It is an adaptive response to the local scarcity of financial resources.

Since it is an unregulated and mostly unrecorded activity no reliable data exists on the current number of individuals engaged in informal recycling. Studies (Gaetz and O'Grady, 2002) confirm that this flexible and often variable source of income is a survival strategy that individuals with no or very little income depend on. The social networks and ease of entry into the informal economy has been stressed as being an advantage, generating positive effects on employment opportunities and the distribution of income (Gerxhani, 2004). Some researchers have noted the benefits of engaging in informal employment for the individual, notably the direct cash income, and flexibility. These are however, side benefits of constrained work choices and not necessarily factors that would lead someone to pursue informal employment (Snyder, 2004).

Organized recycling co-operatives can render services to cities, such as street sweeping, public and private cleaning services, door-to-door collection of recyclables and other environmental services (Gutberlet, 2005; Medina, 1997). Particularly in low-income neighbourhoods without basic public services the contribution to the urban environment by collecting what would otherwise contaminate roads, parks, beaches, and other public spaces is significant (Kaseva and Gupta, 1996; Ackerman and Sumreen, 2001). We do not know how much is being diverted from the waste stream through

informal recycling. However, the potential for recovery of recyclables is far from being fully exploited. The example of organized recycling in the city of Londrina, in the south of Brazil shows that one group (on average 18 members) collects between 2 and 4 tonnes of mixed material per day, working 8 h a day; all 26 groups collect approximately 90 tonnes/day or 2400 tonnes/month (Besen, 2006, p. 117). In 2005, the average income per member was R\$ 400 (US\$ 164), above the minimum salary of R\$ 300 (Besen, 2006, p. 117).

Everywhere informal recyclers experience strong prejudices and often humiliating or disrespectful treatment when collecting material in the street. They become associated with dirt and disease or are perceived as nuisance, or even criminals (Medina, 1997). This negative image is influenced by the dispute in the street between carts and cars. The conceptual association with waste reinforces the low social rank (Sicular, 1992), which can deter them from getting up the social ladder (Nas and Jaffe, 2004). Video documenting can contribute to change these views. It can show how successful inclusion of this sector into municipal programs is dependent on a collaborative relationship between these individuals and the wider community. There are also issues of property rights and access to recyclable materials that sometimes cause conflicts (Powell, 1995). Again, video can raise awareness and educate people towards inclusive waste management.

2.3. Why not recycling co-operatives?

Although the organization of informal recycling into co-operatives and community-based programs has gained considerable attention in the literature (Berthier, 2003; Bolaane and Ali, 2005) the prevailing attitude of local governments is still to exclude this activity from the recovery process. Authorities view this sector with suspicion and often refuse to admit its role in resource recovery (Bartone, 1990). Non-governmental organizations can help organize informal recyclers and contribute with capacity building. Inclusive recycling programs are a means to provide a better standard of living for its members. They can dignify their occupation, and provide a link between government and community (Baud et al., 2001; Nas and Jaffe, 2004). Beall points towards the role these organizations play "... [they] have been recognized as important urban partners, reaching where governments and international agencies cannot reach ... effectively addressing urban poverty and representing the urban poor" (2000, p. 850).

Nas and Jaffe (2004) describe an interesting case of co-management in Jamaica, where the informal

recycling system has been integrated into the formal waste management plan. Similarly, after recognizing the benefits of informal recycling in the waste management system of Mexican cities, governments have started to actively support this activity through policy changes, and by encouraging the formation of co-operatives (Medina, 2000, 1997). The integration of informal recycling into community-based programs and co-operatives can also provide other benefits: opportunities for education, improved living and working conditions, loans and scholarships, or life and accident insurance (Medina, 2003).

In the metropolitan region of São Paulo many of the recyclers – *catadores* and *catadoras*, *carrinheiros*, *carroceiros*, or *recuperadores* as they are called in Brazil – are organized in community initiatives and co-operatives providing employment, improved working conditions, and increased environmental education (Gutberlet, 2003). Diadema is the first municipality in Brazil, to pay for the amount of recyclable material selectively collected. On December 23rd of 2005 the local government signed a Partnership Memorandum between the recyclers' association *Pacto Ambiental* (Environmental Pact) guaranteeing the payment of its members for the service of waste diversion into the recycling stream. This association unites 5 co-operatives and 62 recyclers. As of 2006, they receive R\$ 38 per tonne of recyclable material, the same amount that would be paid to the landfill operator (Gutberlet, 2005).

In most cities in Brazil large numbers of unorganized and disenfranchised informal workers do selective waste collection. They are dependent on middlemen and waste dealers since they cannot provide the volume and quality level required by the recycling industry. However, there are extreme fluctuations in the prices based on volume paid by small merchants, large merchants and the industry in different countries. The prices were eighteen times higher in India, five times in Columbia and four times in Mexico between selling to the industry instead of to middlemen (Medina, 2000, p. 54). Informal recyclers in Brazil earn on average 1/3 to 1/5 of what the industry pays to waste dealers.

Organized selective waste collection programs are an opportunity to enhance environmental awareness with the recyclers performing the role of environmental agents that assist in achieving a better quality of waste separation at the source (Bolaane and Ali, 2005). This has become evident in a long ago established experience in Cairo, where recyclers are recognized environmental agents (Fahmi, 2005). There is a potential for recyclers to also become environmental stewards.

3. Informal recycling in Brazil

Most recyclers in Brazil are still informal. According to a countrywide survey conducted in the early 2000s by the network *Lixo e Cidadania*, 37% of the municipalities in Brazil acknowledged having informal recyclers separating on the landfill, particularly in cities over 50,000 inhabitants (*Programa Nacional Lixo e Cidadania*, n.d.). 67% of the capital cities confirmed and only 11% denied the presence of informal recyclers in the street. The study identified a minimum of 45,000 informal recyclers on landfills and 30,000 in the streets. In 2000, CEMPRE conducted a census of informal recyclers in the state of São Paulo and counted 3686 recyclers, of which 448 were children (SBPC, 2002). Estimates also exist for various other cities: 5000 recyclers in Belo Horizonte, 3000 in Porto Alegre, 2000 in Recife, 2000 in Rio de Janeiro, and 376 recyclers in the ABC municipalities in the metropolitan region of São Paulo (Romani, 2004). Most probably these numbers are larger, since a comprehensive census has not yet been conducted. It is a volatile sector, closely dependent on the performance of the economy, and the number of people involved in the activity fluctuates significantly.

Urban concentration of poverty is growing on a global scale (Hjorth, 2003), resulting in an increasing number of people that are excluded from the formal economy (Beall, 2000). Selective collection of waste can be an indicator for urban poverty, and is in many cases the first point of entry into a working situation as well as last resort for generating an income.

3.1. Escaping social exclusion and disempowerment

According to Sen (1999) empowerment means the enhancement of human freedom. It is an indicator of and a motivating force behind social development. Similarly Giddens (1991) defines empowerment as ‘*the power of human beings to alter the material world and transform the conditions of their own actions*’ (Simon, 2003, p. 5).

Organized recycling provides a chance to escape social and economic exclusion. As an organized collective there is a larger bargaining power to receive better prices and to improve working conditions, in addition to the opportunity for personal growth (Medina, 2000). Social development work with recycling co-operatives strengthens the members’ identity and awareness and helps build their self-esteem.

Furthermore shared work provides a greater ability to meet the needs of the industry for clean, sorted, crushed and baled material in terms of quality and quantity. Co-operatives and associations can commercialize

collectively and do not need to sell to middlemen, who are known for exploiting autonomous recyclers. In that case, prices are better and the standard of living of the recyclers can improve.

Other interesting examples of recycling co-operatives are described by Medina (2000). According to the author the National Recycling Program in Columbia is the most advanced initiative, with regional marketing associations and social development initiatives for the members. In Mexico progress has been made in terms of legalizing the informal and organized recycling activities, encouraging the formation of co-operatives and micro-enterprises as well as awarding concessions to waste management in particular parts of cities (Medina, 2003).

In Brazil, recycling co-operatives and associations are growing in numbers and in level of organization, from local to regional and national social movements, such as the *Movimento Nacional dos Catadores* or the *Fórum Nacional Lixo e Cidadania*. In São Paulo the recycling forum (*Fórum Recicla São Paulo*) agglomerates 29 groups (co-operatives, associations and other grass-roots recycling initiatives) (Gutberlet, 2003). Logistics and strategies for collective commercialization as well as access to micro-financing are current contentious topics. Some of the strongest co-operatives are already organized in secondary regional networks. For smaller and less structured groups bureaucratic hurdles with the legalization of co-operatives or associations remain the major impediment to this development.

4. Action research: the experience of recycling citizenship

Participatory research incorporates concerns of the researched community, often the disadvantaged and disempowered, and includes their voices during the research process. According to Tenório (1997), social participation means providing individuals with the right to democratically construct their present and future, which implies empowering particularly those who are considered socially excluded. To put this into practice involves collective organization, enabling the participants to enter discussion spaces within and outside community boundaries, and it means defining priorities and action strategies. Fleury (2003) points out the potential for social innovation, transforming governmental structures and policies permitting the inclusion of citizens who were excluded before.

The present case study was conducted in Ribeirão Pires, a city of approximately 116,000 inhabitants, located at the fringe of the mega-city São Paulo. Over the past years I have regularly visited this place and

have accompanied the political changes in waste management. I have witnessed the rise and fall of the first NGO recycling initiative, in 1992 and the creation of the co-operative *CooperPires*, in 2004. With the government change at the beginning of 2005 the official support to the co-op was suspended. The government agents involved in the program were fired thus putting in jeopardy the social structures and networks built between business people, government, local community and recyclers. With *Ana Maria Marins*, one of the agents of the previous government, we conducted action-oriented research to register this experience of the co-operative. We used video documented interviews to identify assets and barriers in the process. The purpose of the research was to empower the co-operative and to draw the government's attention to the issue and hence re-initiate the dialogue among the stakeholders involved in this cause.

The research received prior approval from the Human Research Ethics Board of the University of Victoria (Uvic) and followed the *Guiding Ethical Principles of the Tri-Council Policy Statement* at Uvic. By nature participatory action research can never be fully predetermined and requires some flexibility to adapt the research process to local circumstances. *Ana Maria Marins*, was the main protagonist for the creation of the recyclers' co-operative under the previous government. We held weekly meetings and interviews with stakeholders from the recycling co-operative, the business community, and the local government. Initially, we contacted the newly elected mayor of the city in order to get permission to conduct the proposed research project. It was a challenging step to establish the dialogue since *Ana Maria* had worked under the opposition government before. The fact that the research was linked to a foreign University and that, despite the local politics, her work was well recognized in the local community had contributed to opening the doors to the current administration. Once the formalities were cleared we began with the interviewing and the filming process, following the prior elaborated semi-structured interview guidelines. During the months of January to March 2005 we spent 1 day every week in *Ribeirão Pires* for the fieldwork. Each interview took between 20 and 40 min.

All interviews with government and business representatives and with the recyclers while collecting or separating were videotaped. Both, the municipal secretary for economic development and the environmental secretary were asked to outline the current official waste management program and policy. They were invited to comment on the level of governmental support for inclusive waste management and were encouraged to describe the prevailing perceptions of informal and organized

recycling activities in their city. They were also asked to comment on whether under their mandate they would support the inclusion of organized recyclers in a selective waste collection program. The head of the local business association (ACIARP) as well as three of the directors from local businesses that had provided significant support to *CooperPires* (such as providing uniforms, material to build tables to separate the recyclable material and carts) were also interviewed. Not only did the business people donate material but they also acted as lobby for the recyclers, requesting the government to support this initiative with transportation, infrastructure and social services.

Once the fieldwork was concluded a public seminar was held to disseminate the findings, to gather feedback from the various stakeholders and to continue to provoke the debate between different stakeholders—including government officials from the current and the previous legislation period. After the video *Recycling Citizenship* had been edited in Portuguese another seminar was held in March 2006, presenting the findings to the wider public. Local politicians including the mayor and the secretary for environment and infrastructure, the business community, representatives from *CooperPires* and from the recyclers' movement in *São Paulo* and the general public were invited to this event. The overall theme for the discussion was the need for partnerships in recycling programs.

CooperPires was created in 2004, when the municipal government initiated the process of organizing local, autonomous recyclers, proposing the formation of a co-operative. Initially 22 recyclers participated in the meetings and capacity building activities. The training covered the quality and efficiency of different aspects of door-to-door collection and separation of recyclables, health and risk protection, financial administration and group organization. As part of the support (*incubação*) provided during the formation phase until December 2004, the municipal administration accompanied the weekly meetings of the group, helping them with administrative issues, conflict management and transportation logistics. The municipality maintained several recycling collection points and guaranteed the transportation of the members to the recycling station. Since then the number of members fluctuated between 18 and 24. During the peak of the crisis the number went down to 12. Until today, 50% of the founding members still continuing in the co-operative.

Marcelo Lioche, one of the local government agents engaged in supporting the co-operative explains that: "... due to the change in government at the beginning of this year, there was a discontinuity in the contacts

with the community and the support for the co-operative. So now we have to start to regain that support, which was good, well accepted and quite positive. We have to re-stimulate and provide continuity for participation". Maria a member of the co-operative directly shows how the discontinuity in the public policies threatens the recyclers' livelihoods: "... the salary is always going down and down, and most of the men who worked in the co-operative, who were the strongest have already left because the salary was so low ... If the salary continues to go down we cannot afford to stay in the co-operative".

As a strategy to overcome this situation Marcelo Lioche further understands that: "in principle we need to re-establish the contacts, consult with the stakeholders, perceive and evaluate the current necessities of the co-operative in order to be able to support and train them so that they will be empowered and have autonomy. Autonomy is the key. More than recycling material, more than improving the environment, it is about recycling the hope of people".

"Other enterprises could also participate in this program because they could donate materials that would otherwise be discarded, and these materials could be used for other purposes, for example to build carts or shelves or desks. This would be a good way to participate in the program", is the opinion of the head of the business community, Manuel Mendes (ACIARP). He indicates "... today's business needs to meet certain social and environmental standards. It's more than just about clean production. Enterprises benefit from incorporating environmental sustainability and from social equity. The business gains by providing its employees with environmental education and awareness. It also reflects on the marketing of their products". The secretary for economic development, Marcelo Menato, underlines the fact that "... the environmental cause should not be treated as a marketing exercise but rather followed up with real actions. Selective collection of waste is crucial for the city and for the world. As we are situated in a protected water catchment area, the importance and responsibility is even greater".

Rosa Reiser, a businesswoman, emphasizes "... without participation effective recycling programs are difficult to achieve. This depends on an educational process wherein society as a whole is involved". Furthermore she explains: "We entered this project because we believe that it is about recovering citizenship of people that were socially excluded. We need to have more government participation in providing education for everyone".

Government participation and responsibility is not only about providing formal education. It requires

real commitment to social inclusion and to recovering citizenship. Recycling co-operatives are particularly vulnerable during the initial phase of their creation, in particular when the municipal selective waste collection programs are also new. Informal recyclers are marginalised by the rest of society and often suffer from lifelong exclusion. Sometimes they have gone through disappointing experiences with the government making promises that are never fulfilled. This and other negative experiences have made them suspicious. Consequently many avoid collective working schemes (Dias, 2006) and building trustful relationships becomes a time intense endeavour.

In some cases co-operatives are created as a result of internal leadership, and more often as a result of government or non-governmental initiatives. Long-term support and strengthening of the recycling groups is necessary, covering different areas, from health and hygiene, building self-confidence, conflict resolution, to expanding knowledge on commercialization and other technical aspects of the recycling process.

According to Sr. José, one of the recyclers: "the video will help disseminate our cause ... it shows our battle and it reinforces our struggle ... it shows our work. ... The video provides us with a chance to improve our environment, to improve our situation just a little bit, ... because we are currently kind of down and the video has provided us with a lift in our spirit, which is very important". He and other recyclers suggested the production of another video to instruct new co-op members on how to efficiently collect and separate the recyclables and to create awareness on the household level.

The video production has facilitated the dialogue between the co-operative and the new government. Filming the participants while conducting the interviews has probably put some pressure on the government to support the co-operative. They had given and maintained their consent for using their responses in the production of a documentary and they wanted to be portrayed as positive as possible. The response from the business people was also supportive to the recycling co-op. ASCIARP has always played a major role in maintaining the dialogue with the local government alive and in helping with the formalization of the co-operative.

This experience underlines the fact that videodocumenting can also impact positively on the interviewees. In their life experience the recyclers have rarely been treated as knowledgeable and the environmental contribution of their work is hardly recognized. Providing the opportunity to speak out, to have their work portrayed and to have them give suggestions is a form of

empowerment. The recyclers recognize the use of video as powerful in exposing their struggle.

For the members of *CooperPires* salaries were far below the poverty rate, almost four times less than the official minimum value. The economic uncertainty of the co-op's future is a constant stress factor. Individual interviews further revealed problems and barriers related to the wellbeing and the health of co-op members. The lack of minimum sanitary infrastructure influences the health and the comfort level of the workers. The collection and the separation of waste imply many occupational risks from contamination of the material or through the sharpness of objects (glass, metal). Educating the consumers on how to safely dispose recyclables was suggested and video was mentioned as appropriate educational tool to reach the households. Most of the new members who had not participated in the training did not wear gloves, showing the need for capacity building and training. Finally, *CooperPires* has not yet finalized the time consuming and costly process of becoming a co-operative and the lack of formalization means restrictions regarding social benefits, access to micro-credit and commercialization.

As of August 2006, the situation has started to improve for the members of the co-operative. The number of participants went up to 22 again. In March 2006 members earned R\$ 130 compared to R\$ 50 in March 2005. They also receive a monthly 'basic food basket', through the federal program *Bolsa Familia*. The municipality has approved the construction of toilets at the recycling centre and provides support with transport. *CooperPires* now also participates in the regional initiative on collective commercialization supported by the *Participatory Sustainable Waste Management Project*.

5. Conclusion: social development and environmental benefits

The case study discussed here reinforces the benefits to environmental health from collective recycling schemes. It underlines the potential of co-operative schemes to improve livelihood conditions of recyclers, providing them with possibilities in human development (citizenship, inclusiveness, social capital) and in income generation. It is important to establish supportive framework conditions for collective recycling activities. The government plays a key role in facilitating these conditions with infrastructure and policy measures. In addition, partnerships with local business and non-governmental groups are also vital in sustaining organized recycling.

The use of video in action research is an effective tool to document, register interviews and make interventions. It provides a voice to the ones who are hardly heard and the process itself already empowers the participants. Video production enables social change as proposed in action research, in general. The researcher becomes "... a facilitator of knowledge creation, assisting stakeholders in discovering their own understanding that will aid them in creating change" (Foster-Fishman et al., 2005, p. 276). Furthermore, video production illustrates vividly the social and political roles recycling plays. This paper addresses assets and barriers of organized recycling showing the example of the recycling co-operative *CooperPires*, in Ribeirão Pires. Especially in the context of developing countries waste management needs to embrace inclusive strategies that favour organized selective waste collection and recycling initiatives over large-scale and high-tech solutions which often represent the interests of large corporations in rich countries.

Recycling is of course not the ultimate environmental solution. It does not tackle the problem of wasting resources at its roots since it does not prevent the drive towards resource intense production and consumption. However, recycling can be an opportunity for generating and redistributing income. Organized recycling embodies the possibility for recovering citizenship. We need solutions that are adequate to the local context: preserving natural resources and contributing to social development, which enhances the quality of life of the local community and which means generating needed employment.

Medina (2003, p. 9) underlines that "...policies supporting *carretoneros*' [recyclers'] activities are humane, environmentally sound, socially desirable, and economically viable". Particularly the support from the local government is important in developing organized door-to-door selective waste collection arrangements. It takes a holistic vision and social responsibility to understand that embracing waste management from an inclusive perspective builds stronger communities and enhances community health.

The case of *CooperPires* confirms the importance of local stakeholder involvement in taking co-responsibility in this social process of recovering resources and citizenship at the same time. To strengthen the institutional, regulatory and human capacity is an important prerequisite for programs like these to flourish. Public policies in waste management need to focus on:

- *Social inclusion*: formatting waste management programs with organized recycling groups (co-operatives, associations, community groups, etc.).

- *Equity*: guaranteeing fair pay and social benefits for the service of resource recovery and assuring gender equity.
- *Eco-health*: addressing all levels of health, from protecting the health of the workers to improving environmental health.
- *Eco-efficiency*: introducing best practice in resource recovery at the source, minimising waste at all production levels, aiming towards zero packaging and product waste and towards co-responsibility of producers and consumers.

Learning from local experiences and finding appropriate technologies tackling current waste predicaments will help overcome the many immediate challenges and needs. Building awareness and constructing a vision that includes the aspects outlined above requires policies and strategies that involve various stakeholders in the community: government, NGOs, business representations, civil society representations as well as individual citizens. One way of achieving these challenges is by implementing environmental education programs addressing consumers and producers in waste reduction and waste recovery. Results are long lasting when the people involved can embrace the cause and actively participate in the transformation course. Only participatory processes that address the issues of power and politics can truly address the complex challenges of changing the existing paradigm (Hickey and Mohan, 2005).

Despite the huge gap between theory and practice and despite the few advances and the many new challenges and hurdles, such as the current trend for privatization of the waste management sector in favour of multinational companies (Fahmi, 2005), we might ask ourselves *how can the struggle for social change be won?* The answer lies in the confidence that collective and participatory processes can promote the widely declared paradigm shift towards equity and sustainability. Hickey and Mohan re-affirm the empowering potential of participation, being a “*catalyst to underpin genuine processes of transformation*” (Hickey and Mohan, 2005, p. 257). The existence of poverty is intolerable for the creation of a better society and needs to be eradicated. Inclusive and fair waste recovery schemes are a viable practice contributing to reaching this request.

Active participation of local stakeholders needs to be a given in policy decision-making. This means that spaces for inter-institutional and multi-stakeholder dialogue need to be created. These are processes that generate empowerment for the participants and that bear

the potential to create a more just and healthy society. Inclusive mechanisms are able to better address local poverty and economic disparities with specific policies directed towards re-distribution. The implementation of resolutions that have emerged out of the local context is always a big challenge for the prevailing top-down power structures. There is an obvious potential for conflicts between the different stakeholders, representing different interests. The method of video-documentation visualizes the ideas away from unsustainable towards co-responsible production and consumption patterns that consider cradle to grave impacts. As the example from *CooperPires* shows the use of video is a substantial tool in action research promoting transparency.

Acknowledgements

Thanks go to all members of *CooperPires*; in particular Dona Joana Darc Pereira Costa, Dona Maria Aparecida Costa, Dona Maria das Dores Moreira da Silva and Sr. José Gomes Aveiro. My gratitude is also extended specially to Ana Maria Marins and to Manuel Mendes from ACIARP, Marcelo Lioche and Marcelo Menato from the municipality of Ribeirão Pires as well as: Roberto Mamoru Utiyama - NHK, Rose Reiser - Industria Carbone Loraine, and Nelson Dias de Freitas - Malharia Neugis. Thanks to Rick Searl and Crystal Tremblay for their fine input in editing the video.

References

- Ackerman F, Sumreen M. Waste in the inner city: asset or assault? *Local Environ* 2001;6(2):113–20.
- Agarwal A, Singhmar A, Kulshrestha M, Mittal AK. Municipal solid waste recycling and associated markets in Delhi, India. *Resour Conserv Recycl* 2005;44:73–90.
- Ahmed SA, Ali M. Partnerships for solid waste management in developing countries: linking theories to realities. *Habitat Int* 2004;28:467–79.
- Ali M. The informal sector: what is it worth? *Waterlines* 1999;17(3):10–2.
- Annisson J. Action research: Reviewing the implementation of a distance-learning degree programme: utilizing communication and information technologies. *Innov Educ Teach Int* 2002;39(2):95–106.
- Bartone CR. Economic and policy issues in resource recovery from municipal solid wastes. *Resour Conserv Recycl* 1990;4:7–23.
- Baud I, Grafakos S, Hordijk M, Post J. Quality of life and alliances in solid waste management. *Cities* 2001;18(1):3–12.
- Beall J. Thoughts on poverty from a South Asian rubbish dump. *Inst Dev Stud* 1997;28(3):73–89.

- Beall J. From the culture of poverty to inclusive cities: re-framing urban policy and politics. *J Int Dev* 2000;12:843–56.
- Berthier HC. Garbage, work and society. *Resour Conserv Recycl* 2003;39:193–210.
- Besen R. Programa de coleta seletiva de Londrina – caminhos inovadores rumo à sustentabilidade. In: Jacobi P, editor. *Gestão compartilhada dos resíduos sólidos no Brasil*. São Paulo: Anna Blume; 2006. p. 109–28.
- Boadi KO, Kuitunen M. Environmental and health impacts of household solid waste handling and disposal practices in third world cities. *Int Perspect* 2005;68(4):32–6.
- Bolaane B, Ali M. Organized recycling in Gaborone, Botswana. *Eng Sustain* 2005;158(E 54):223–34.
- Cointreau S. Occupational and environmental health issues of solid waste management: special emphasis on middle and lower-income countries. Report. USA: Roxbury; 2005.
- Davies S. Waste management multinationals. Public Services International Research Unit (PSIRU), School of Social Sciences, Cardiff University; 2002.
- Dias SM. Coleta Seletiva e inserção cidadã: a parceria poder público/ASMARE em Belo Horizonte. In: Jacobi P, editor. *Gestão compartilhada dos resíduos sólidos no Brasil*. São Paulo: Anna Blume; 2006. p. 65–86.
- Fahmi WS. The impact of privatization of solid waste management on the Zabaleen garbage collectors of Cairo. *Environ Urban* 2005;17(2):155–70.
- Fleury S. Políticas sociais e democratização do poder local. In: Vergara SC, Correa VL de A, editors. *Propostas para uma gestão pública municipal efetiva*. Rio de Janeiro: Editora da Fundação Getúlio Vargas; 2003.
- Foster-Fishman P, Nowell B, Deacone Z, Nievar MA, McCann P. Using methods that matter: the impact of reflection, dialogue, and voice. *Am J Commun Psychol* 2005;36(3/4):275–91.
- Fórum Nacional Lixo e Cidadania. <http://www.lixoecidadaniapr.org.br/erradicacaoII.html>. Accessed: 11.07.2007.
- Freire P. Pedagogy of the oppressed. London, UK: Penguin Books; 1972.
- Gaetz S, O'Grady B. Making money: exploring the economy of young homeless workers. *Work Employ Soc* 2002;16(3):433–56.
- Gerxhani K. The informal sector in developed and less developed countries: a literature survey. *Public Choice* 2004;120:267–300.
- Giddens A. *Modernity and self-identity*. Cambridge: Polity Press; 1991.
- Gutberlet J. Co-management of urban solid waste resources: experiences and challenges from Sao Paulo, Brazil. In: Ibrahim M, Errafie C, Bounaim N, Chifri H, Mahfoud M, editors. *Impacts environnementaux et socio-économiques des options de valorisation des déchets solides municipaux pour les collectivités de petite et moyenne taille*, Séminaire regional; 2005. p. 92–102.
- Gutberlet J. Cities, consumption, and the generation of waste. *Aviso* 2003;11:12–20.
- Hall B. From margins to centre: the development and purpose of participation research. *Am Soc* 1992;23(4):15–28.
- Hickey S, Mohan G. Relocating participation within radical politics of development. *Dev Change* 2005;26(2):237–62.
- Hjorth P. Knowledge development and management for urban poverty alleviation. *Habitat Int* 2003;27:381–92.
- Industry Canada. Concession Contract for Urban Cleaning Services in the City of Sao Paulo; 2003. <http://strategis.ic.gc.ca/epic/internet/inimr-ri.nsf/en/gr118362e.html>. Accessed: 11.07.2007.
- Kaseva MF, Gupta SK. Recycling—an environmentally friendly and income generating activity towards sustainable solid waste management. Case study: Dar Es Salaam City, Tanzania. *Resour Conserv Recycl* 1996;17(4):299–309.
- Leitner H, Sheppard E. Bounding critical geographic research on cities: the 1990s and beyond. *Urban Geogr* 2003;24(6):510–28.
- Letiche H. Video fractals research as mass media. *J Organ Change Manage* 2002;15(1):63–80.
- Medina M. Serving the unserved: informal refuse collection in Mexican cities. In: CWG Workshop: Solid waste collection that benefits the urban poor. Dar es Salaam, March 2003. Paper No. 17, 10 pp. (Working Paper).
- Medina M. Scavenger co-operatives in Asia and Latin America. *Resour Conserv Recycl* 2000;31:51–69.
- Medina M. Informal recycling and collection of solid wastes in developing countries: issues and opportunities. The United Nations University: Institute of Advanced Studies; 1997.
- Nas P, Jaffe R. Informal waste management: Shifting the focus from problem to potential. *Environ Dev Sustain* 2004;6:337–53.
- Odotola KA. Participatory use of video: a case study of community involvement in story construction. *Global Media J* 2003;2(2) [Article 11. <http://lass.calumet.purdue.edu/cga/gmj/sp03/graduatesp03/gmj-sp03grad-kole.htm>. Accessed at: 11.07.2007].
- Pacione M. The future of the city. *Cities of the future*. *Geography* 2001;86(4):275–86.
- Pain R, Francis P. Reflections on participatory research. *Area* 2003;35(1):46–54.
- Park P. People, knowledge, and change in participatory research. *Manage Learn* 1999;30(2):141–57.
- Power R. Participatory research amongst marginal groups: drug users, homeless people and gay men. *Drugs: Educ Prevent Policy* 2002;9(2):125–30.
- Powell J. Two dozen ways (almost) to reduce scavenging. *Resour Recycl* 1995;14(8):19–21.
- Programa Nacional Lixo e Cidadania. <http://www.rebidia.org.br/novida/reliase2.html> Accessed: 11.07.2007.
- Raco M. Assessing community participation in local economic development—lessons for the new urban policy. *Polit Geogr* 2000;19:573–99.
- Romani AP. O poder público municipal e as organizações de catadores. IBAM/DUMA/Caixa Econômica. Rio de Janeiro 2004.
- Roseland M. *Toward sustainable communities: a resource book for municipal and local governments*. Ottawa: National Round Table on the Environment and the Economy; 1992.
- Sarkar P. Solid waste management in Delhi: a social vulnerability study. In: Martin J, Bunch V, Madha S, Vasantha KT, editors. *Proceedings of the Third International Conference on Environment and Health*. Chennai: Department of Geography, University of Madras and Faculty of Environmental Studies, York University; 2003. p. 451–64.
- SBPC. Lixo é problema ambiental com agravantes sociais. In: *Cidades*. Sociedade Brasileira para o Progresso da Ciencia; 2002. <http://www.comciencia.br/reportagens/cidades/cid10.htm> Accessed 01.09.2006.
- Sen A. *Development as freedom*. Oxford: Oxford University Press; 1999.
- Sicular DT. Scavengers, recyclers, and solutions for solid waste management in Indonesia. Monograph No. 32, International and Area Studies. Berkeley: Center for Southeast Asia Studies, University of California; 1992.
- Simon S. *Sweet and sour: life-worlds of Taipei women entrepreneurs*. Oxford, UK: Rowman and Littlefield Publishers; 2003.

- Snyder KA. Routes to the informal economy in New York's east vil-
lage: crisis, economics, and identity. *Soc Perspect* 2004;47(2):
215–40.
- Tenório FG. Gestão pública e cidadania: metodologias participativas
em ação. *Revista de Administração Pública* 1997;31(4):101–25.
- UNEP. Sustainable consumption and production activities in Africa.
Regional Status Report 2002–2004. United Nations Environment
Programme, Regional office for Africa; 2004.
- UNEP. 2002. Vital Waste Graphics. [http://www.vitalgraphics.net/
waste/](http://www.vitalgraphics.net/waste/) Accessed at: 11.07.2007.