

Integrative Negotiation & Socialization of CP for Small and Medium Size Enterprises

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Abstract

Small and Medium Enterprises (SMEs)¹ are the backbone of many societies, contributing to economic activity and providing significant employment. At the same time, small-scale industries oftentimes employ obsolete processes which impact heavily upon the environment. This kind of SMEs in Colombia seems to be literally socially excluded. They represent deep social, economical and environmental challenges which are too complex for formal institutions to handle.

The experimental site of this research is the tannery community of Villapinzón, some 6 km from the source of the Bogotá River. Here some 150 artisan and obsolete tanneries (SMEs) offer employment to some 1000 village residents and discharged raw wastewater into the river. For over 20 years, different measures, especially including the ones from the adjudicatory² system, to improve the environmental situation had been enforced by the authority but without success.

The aim of this work is to contribute to the Integrated Water Resources Management of the river Bogotá. The objective of this study is to design and implement a strategy that gives the tanneries the opportunity to improve their environmental status, fitting the interests of the environmental authority, to help the tanneries reaching economic sustainability and to have their legitimate interests respected.

On the basis of integrating participative approaches³ such as Managed Learning Processes, Conflict Resolution Methodologies and Integrative Negotiation on one side and on technical expertise on the other, this study brings government ministries, SMEs, and local political and environmental agencies to a mutual learning process. Related Colombian and international case studies are taken to inspire this work, the potential role of Cleaner Production (CP) is investigated as a major tool for bringing the conflicting parties to negotiate, a strategy called: "The socialization of Cleaner Production".

Preliminary results of this work suggest that integrating a community into the formal economy implies a coordinated effort from the tanners' community and the concerned authorities. The tanners became associated, chose a leader and became actively involved in finding solutions for their environmental problems. The concerned authorities became aware of the needs of the community and accepted CP as a way to make tanneries cleaner. A pivotal role was played by the researcher as the Agent of Change, an intermediate between the conflicting parties, leading the change or even the learning process. The above learning process was accompanied by an engineering approach to the environmental problems. Through six CP pilot projects the EU project SWITCH is developing the best technical options for the local needs. Moreover, the regional authority is reopening the tanneries.

Keywords

Waste, river water quality, SMEs, Agent of Change, socialization of cleaner production, governance, conflict resolution, Action Research, social exclusion

¹ SMEs are referred as small enterprises from either the industrial, commercial or service sector such as financing. This research deals with industrial SMEs.

² Referring to the judicial system

1 Introduction

SMEs (UNIDO, 2005) in Colombia represent 95% of the enterprises and offer 65% of the national employment. 37% of the national industrial production comes from SMEs (El Tiempo, 2005a). These enterprises are strongly related to the informal (outside the regular structure) economy in Colombia (Portafolio, 2005). Oftentimes SMEs employ obsolete processes which impact heavily upon the environment. This fact results increasingly in law suits against the polluters and the environmental authority for non-action. This is the case of the court order of the Bogotá River (2004) (El Tiempo, 2004b). This kind of SMEs in Colombia seems to be literally socially excluded. They represent deep social, economical and environmental challenges, too complex for formal institutions to handle.

The experimental site of this research is the tannery community of Villapinzón, some 6 km from the source of the Bogotá River. The recovery of this river is considered a national priority (CONPES, 2005). Here some 150 artisan and obsolete tanneries (SMEs) offer employment to some 1000 village residents and discharged raw wastewater into the river. Their association did not have support from the community and their leader was a lawyer that stimulated fights and disputes without problem solving orientation. Lawyers, chemical products salesmen and end-of-pipe technologies salesmen had made a living of the conflict. For over 20 years, different measures, especially including the ones from the adjudicatory⁴ system, to improve the environmental situation had been enforced by the authority but without success.

Although the involvement of stakeholders is recommended to face complex environmental problems, stakeholder participation does not assure problem solving, nor respect for the interests of disadvantaged groups such as these SMEs.

1.1 Aim and Objectives

The aim of this research is to contribute to the Integrated Water Resources Management (IWRM) of the Bogotá river, *i.e.* to the governance of the institutional management of the river.

The questions that arise here are whether and how would a strategy based on a systematic participative approach work for SMEs that seem to have no chance of solving their water problems through the formal institutions?

Following are the objectives of the study: Objectives 1 and 2 are mainly policy-oriented and 3 and 4 are methodology-oriented.

1. To design and implement a strategy that fits the interests of the SMEs and of the environmental authority in order to give the tanneries the

Case study

At only 6 km from the source of the Bogotá river, which is used for the water supply of Bogotá and for crop irrigation, lies a community of 150 tanners with a native Indian background. The community has just primary education, lives on subsistence economy and uses obsolete technology. The industries have existed for decades, spread over an area of 7 km along the river and south of the village of Villapinzón. 51 of these tanneries are within the 30m of the river bank, an area that is considered since 1977, "for preservation and protection use only" (INDERENA, Decreto 1449, 1977).

Natural tanning agents were used until 1984 when the Regional Authority (not yet Environmental), taught the use of synthetic tanning agents and was absent for more than 10 years (CAR, 1994). Today, tanning entails two basic processes that impact upon the environment: the classical dehairing with sodium sulfate and the tanning process itself using chromium sulfate.

The effluents of these industries are discharged into the Bogotá river with disastrous consequences for river water quality. According to Regional Authority (CAR) Ruling 043 of 2006, these values exceed water quality parameter limits of the Bogotá River, for the year 2020, *i.e.* 7 mg/L for BOD and 10 mg/L for TSS.

For over 20 years, the Regional Environmental Authority has tried to solve the environmental problems of the community of Villapinzón. However, 67 potential solution proposals remain still today on the shelves (CAR, 1998). Since the agency has always had a focus on end-of-pipe solutions without a CP branch, only one of the presented proposals was directed towards the prevention of the polluting flow (Cleaner Production). Interrelated land issues had made the tanners virtually at war with the authority as the industrial area had not been formally recognized and the tanners from the river bank were considered invaders without property rights (El Tiempo 2004c). This has not benefited the economic livelihood of the tanneries, whose owners all have been sued by the authority, banned from credits and face fines that they are unable to pay. As a result, all tanners are literally joining the growing group of Colombian residents living below the poverty line of 52% as national average (El Tiempo, 2004a). Realizing that no environmental rehabilitation project was being implemented, in February 2005 the Regional Environmental Authority closed 58 tanneries (El Tiempo, 2005b).

³ Coordination, co-production and mutual learning are the highest degrees of participation in which the stakeholders in mutual interaction and deliberation determine the outcomes of a process (Van de Kerkhof, 2004).

⁴ Referring to the judicial system

opportunity to improve their environmental status, to reach economic sustainability and to integrate into the formal economy.

2. To investigate the role of the formal authorities and institutions towards participation and environmental conflicts dealing with informality in Colombia.
3. To investigate the potential role of Cleaner Production as a major tool for bringing the conflicting parties to the negotiation table.
4. To improve the effectiveness of stakeholder participation through a systematic approach based on conflict resolution, managed learning and integrative negotiation for SMEs in Colombia.

2 Theoretical background

Environmental complexity and the rationale of a systematic participative approach

Many of the environmental problems the world faces today are unstructured or complex. These problems are typified by scientific uncertainties, conflicting interests, urgency to formulate policy, interdependency between actors and strongly linked to other problems (Van de Kerkhof, 2004 in Mason and Mitroff 1981).

Due to the high complexity, the boundaries between science⁵, policy and society are fuzzy. Many authors consider that in order to prevent the abuse and games of power to which science is exposed, there is a need to build the social robustness of knowledge by actively involving stakeholders (Van der Zaag, 2005; Godard and Laurans, 2004; Fiorino, 1990; Pateman 1970). This statement is anchored in the constructivist approach that does not see the domains of science, policy and society as isolated entities (Fisher, 2000; Wynne, B. 1994). Scientific practices like action research, (Argyris *et al*, 1985;; Whyte 1991), or “postnormal science” (Ravetz, 1999), of which the driving force is stakeholder participation, are becoming more and more attractive in order to face the complexity of contemporary environmental problems (Van de Kerkhof, 2004).

Although stakeholder participation is recommended, it does not mean that it is by itself a guarantee for successful problem solving (Karl, 2000; Berk *et al* , 1999; FAO, 1995; Grimble *et al*, 1995; Fiorino 1990,) and that, in this specific case about SMEs, their interests will be respected. A structured process based on a high degree of participation could be successful in reaching long term agreements. The process could be inspired by a basic participatory principle of conflict resolution theory that states that people support initiatives that they help create (Holman, 2004).

Different degrees of participation

Three different degrees of participation are distinguished and in different domains (Van de Kerkhof, 2004, and inspired by Arnstein, 1969 and Mayer 1997): High, moderate and low and these can take place in the science or policy domain. Coordination, co-production and mutual learning are the highest degrees of participation in which the stakeholders, in mutual interaction and deliberation, determine the outcomes of a process (Van de Kerkhof, 2004). The lowest degree of participation is information and manipulation while consultation and anticipation refer to a moderate degree of participation.

Nature of water-related relationships

It can be acknowledged that water by itself tends to build asymmetrical⁶ relationships, simply by the fact that it flows downhill and people downstream get affected by the upstream users people give it

⁵ In this study, the term “science” refers to the mainland European use, which also includes economics and the social sciences rather than the Anglo-saxon tradition of only referring to natural sciences.

⁶ Term broadly used by the economics and social sciences to imply uneven or unequal situations.

(Van der Zaag, 2005). Stated this way, conflicts related to water seem inevitable. In developing countries, SMEs somehow related to water, may be confronted with even more complex situations because of the inequities and limited access to opportunities (UNIDO, 2005; Ocampo, 2002).

Governance

Governance is “the exercise of economic, political and administrative authority to manage a country’s affair at all levels. It comprises the mechanisms, processes and institutions through which citizens and groups articulate their interest, exercise their legal rights, meet their obligations and mediate their differences” (Rogers, 2003). The World Bank defines governance as: “*The manner in which power is exercised in the management of a country’s economic and social resources for development*”. Although different researchers give different meanings to the word governance, they all ground the ideas of interdependence and interaction between various authorities at various levels (Van de Kerkhof, 2004). As such, for reasons of multiple interests, the privilege of decision-making can be extended to the stakeholder domain. Therefore, coping with the conflict in Villapinzón could imply facilitating coherent adequate interaction among all the actors.

3 Methodological background and an integrated analytical framework

Through this research, the methodology proposed in order to disentangle the conflict looked into innovation with a high degree of participative approaches and low-cost pollution prevention technical aspects as a strategic alternative to the formal and classical approach where all legal terms had expired. This document concentrates on the high degree of participative approaches.

Conflict resolution methodologies

When conflicts arise, there are interests, values, perceptions or even preferences opposed to each other. Today it is fairly known what is needed in order to bring the right parties to the negotiation table. It takes above all, the preparation of a conflict assessment by a neutral party or facilitator (Susskind, 1996; Ury *et al.*, 1993; Bacow and Wheeler, 1987).

Conflicts can be resolved classically in the legal system, through shared vision development, fact finding, mediation, conciliation, arbitration and litigation. When focusing on big groups (130 active tanners) as the selected targets, conflict resolution should work at building common grounds on those groups as well as at respecting the individuals (Holman *et al.*, 1999). Using conflict resolution methodologies based on integrative negotiation (see section below) for big groups, such as Appreciative Inquiry (AI), Open Space Technology (OST), and Dialogue, could prove to be effective in this conflict. Either methodologies aim at engaging people from all levels of a system and increasing their capacity to achieve what is more important for them, individually and collectively (Holman, 2004). They all work making circles and use “talking sticks”, meaning respect towards other’s opinions.

AI is a process, focusing on starting the analysis on any possible and positive aspect and on aspirations for the future. It is used to create a positive revolution. OST is a process enabling high levels of group interaction and productivity, providing a basis for enhanced organizational function over time. Dialogue is used to open communication channels, building trust and fostering cultures of collaboration (Holman *et al.*, 1999).

Negotiation

Negotiation refers to a process of communication in which the parties aim at influencing each other’s decisions. A negotiator’s ability to exert influence depends upon a combined total of a variety of

factors. These include: 1. Knowing and determining the people and the interests involved; 2. Having a good working relationship; and 3. Having a good alternative to a negotiated settlement (Fisher *et al.*, 1991).

Basically, for big groups, the first factor can be obtained through stakeholder participation and analysis; the second and the third are not necessarily assured unless there is a systematic approach aiming at win-win situations, at decision-making, and at establishing long term commitments. Leading that approach entails constant facilitation. Negotiation occurs when the parties find that this fact brings more benefits than not negotiating and that they believe they can work towards a mutual convenience zone.

The integrative negotiation theory states that bringing negotiation based on interests and not on positions will open the possibilities towards creative outcomes that generate better results for all stakeholders involved (Raiffa, 2002; Fisher, 1991). When a negotiation has multiple issues to be settled and/or when more than two stakeholders are involved, the negotiation can be called a multilateral or complex one (Thompson, 2006; Tandem, 2005⁷). The case of Villapinzón could then be considered as such. As stated above, water-related processes being so prone to conflicts of interests should belong to the kind of complex negotiations. Complex negotiations must be successful in integrating valuable data and designing solutions. For water-related conflicts and in general for environmental conflicts “there is a need to integrate topics, basically for decision-making” (Van der Zaag, 2005).

A systematic approach in negotiation (Saner, 2000; Tandem, 2005) is based on the following steps: 1. Preparation, 2. Trust building, 3. Sharing information, 4. Redefinition of the problem, 5. Creation of options, 6. Agreements and 7. Implementation.

Change theory

In the case of Villapinzón, because of the evidence of social and economic asymmetries, the role of the classical facilitator could be useless since, as a neutral party, it could not assure that the interests of the excluded people would be respected. Thus, the solution of the problem could be misleading. If this research were to build a sustainable solution in the area, it became evident that the tanner's community needed to be helped, empowered and led through a technological change. The role of the researcher could not be seen as an objective one, at least in the initial phase when the tanners' distrust was big and they were lacking the right information and there was no position of power from her. The Change Theory unveiled the position this research should assume: the versatile role of an “Agent of Change”, defined by the change theory of Lewin (1946). This theory states that social studies should be based on empirical reality (action research) and considers that one cannot understand an organization until one tries to change it. The latter statement implies not to separate the notion of diagnosis from the notion of intervention. Lewin (1946) discovered that human systems cannot be treated with that level of objectivity and that their normal operating devices can easily be affected by just doing the first diagnosis.

An Agent of Change, in order to be helpful, has to learn enough about the system to understand where it needs help and this requires a period of very low key inquiry-oriented diagnostic interventions at first instance, designed to have a minimal impact on the processes inquired about. This first period is known as “process consultation” where the Agent of Change learns to be an expert on how to be helpful (Schein 1968, 1987, 1988). Leading the tanners and the Regional Environmental Authority through this experience entailed leading a change process which implied at the end leading a learning process (Schein, 1992; Barreto, 2001). As communities living through crisis, they are vulnerably looking for psychological support (Schein, 1992).

⁷ Besides the literature on negotiation, this program from the Faculty of Business from the Universidad de Los Andes is also based in the negotiation practice on case studies such as the Free Trade Agreement in Colombia 2005. EXXON-MOBIL negotiation 2006 and HP Billington 2007 were also studied.

Technological change

The tanners needed to go through a technological change, since their tanneries were obsolete and the industrial processes highly polluting. They needed to learn and foster sustainable behavior.

A learning process, at the end, implies an endogenous and not an exogenous process (Barreto, 2001) as it implies internalizing new issues. Technological change has been shown to be more effective if congruent with the local culture and if gradual changes are implemented instead of drastic ones (Barreto, 2001). For change to be stable, it must be “refrozen”⁸ and this happens only if the new concepts coincide with the local culture and more effectively if they are “internalized” not by adopting “role models” but by scanning or experiencing them through a trial and error learning process (Schein, 1992). For change to last, the barriers to the new knowledge should be fought (Mckenzie-Mohr and Smith, 2006).

4 Towards a Systematic Approach

Following the previous analysis, a systematic approach was designed in ten steps. It was mainly based on the steps from the process of negotiation (Saner, 2000; Tandem, 2005) but adapted for big groups conflict resolution (Holman, 2004) processes and even for learning processes (Schein, 1992) as those were the high degree participative processes chosen in this study that could be effective leading to the implementation of CP by SMEs somehow related to water.

1. Preparation,
2. Trust building,
3. Sharing Information,
4. Redefinition of the problem,
5. Defining the strategy,
6. Seeking common grounds among members of targeted group,
7. Seeking common grounds among all stakeholders,
8. Creation of options & follow-up of commitments,
9. Agreements,
10. Implementation & evaluation.

To the negotiation process, steps 5, 6 and 7 were added from conflict resolution for big groups, step 8 became also a follow-up of commitments and step 10 became also an evaluation since the process was considered a managed learning process.

Steps 1 to 5 would be followed basically in small groups and steps 6 to 10 in big groups in order to assure that people work on what is important for them individually and collectively (Holman, 2004) and that the inclusive process should invite all the stakeholders in order to assure legitimacy and fairness on the decision-making process for those disadvantaged groups. Written invitations that are appealing to all stakeholders in the sense that all interests are considered but that also set the limits and targets of the exercise based on methodologies such as OST and AI (see section 1.3) should be elaborated.

Some of the steps need to be defined as they are not self-explanatory:

- All authors working in negotiation (Saner, 2000; Thompson 2006) and conflict resolution (Holman, 2004; Ury *et al.*, 2003, Fisher *et al.*, 1991) agree, that step 1, considered as pre-negotiation by many authors, constitutes a definitive stage of the process. Step 1 should include: data collection

⁸ Term adopted by Edgar Schein, emeritus professor at MIT School of Management, to imply the third action of the change model based on: Unfreezing, changing and refreezing and serving as the theoretical foundation of change theory.

from related cases, a stakeholder analysis with identification of as many actors as possible in the process and their different interests, positions and alternatives, data collection on as much related information on related cases, public documents, interviews and observations on the real and actual social interactions and games of power entailed, the long-term relationships and the different problem definitions perceived by the actors in order to set the possible strategic alliances in the process and understand the complexity involved. As stated by the change theory and the nature of action research, this step should be a very low key inquiry-oriented diagnostic intervention at first instance, designed to have a minimal impact on the processes inquired about.

- Step 2 should concentrate on helping the SMEs finding psychological support on the most emotional matters by opening new communication channels and possibilities to express their needs and facilitating sound information to all the actors (Schein, 1992).
- Step 4 should aim at building consensus about the causes of the problem and at the end work out a single definition of the problem.

5 Results

The preliminary results on the experimental work in Villapinzón and the initial analysis of the tannery cases of El Cerrito and San Benito constitute a first step in reaching the objective of this research. In order to make a comprehensive approach to the small tanners' situation, an analysis of the SMEs in the tannery sector in Colombia will be done and two case studies by Yin in the tannery communities in Colombia are also targeted.

The preliminary results regarding the main policy-oriented objective #1 are as follows:

- **The first 5 steps** were followed in small groups and took 3 months. A new leader was chosen and the association became strong; CP was identified as their technical option, the magistrate responsible for the court order on the Bogotá River (see introduction) supported it. The property rights of the tanners from the river bank were respected. Individuals were eager to participate.
- Step 1 - preparation - identified the interests at stake and **three** main problem definitions. In fact at the beginning, the authorities considered that the cause of the problem was that the tanners had rejected any solution offered to them. The leader at that time considered that the problem was that the tanners did not have the money to implement the end-of-pipe solution. The tanners said that the authorities never listened to them and that they wanted to clean the river while keeping their identity. By the end of step 4 -redefinition of the problem-, one problem definition allowed to build some consensus: The past solutions never took into account the small tanners' interests. (Sanz, 2007a).
- Initial observations *in situ* in step 1, opened interviews and official data collection from two other tanneries in Colombia (El Cerrito and San Benito) supported the theoretical rationale of a systematic high degree participative approach. In fact, at El Cerrito a comprehensive approach, based on high degree of participation, was found successful for CP implementation (Sanz, 2007a). Such initial analysis identified the key concepts presented in section 3 that represent big implications in this work and that are summarized in the next matrix in red. In contrast, at San Benito, the outcomes showed some isolated successful results after the same number of years. Both cases had a similar legal framework⁹ and authorities less oriented towards command and control and end-of-pipe approach than the authority dealing with Villapinzón. The difference between the El Cerrito and the San Benito case was the nature of the approach: San Benito was led by a consultant job (objective and distant) with moderate degree of participation.

⁹ Based on the subsidiary principle, regions can set stronger policies than the national ones based on the specific needs.

Table 1. Key aspects in comparative cases

Key aspects	San Benito	El Cerrito
Social & Economic inequities	X	X
Complexity (Land & Water problems)	X	X
Poor Governance	X	X
Participatory process*	X m	X h
Integrative Negotiation		X
Process Consultation		X
Agent of Change		X
Tech Change (trial & error)		X
Consultant job	X	
Results		CP

* Degrees of participation: l: low m:moderate h:high

- **The process from step 6 to 10** needed constant feed-back and needed to be worked on in big groups in order to build common grounds. Reaching step 9 (agreements) took 2.5 years. Three AI and OST methodologies were implemented. At the end: The CP branch from El Cerrito got involved in the process as ally. Powerful stakeholders as the Presidency and the Ministry of Environment became strategic allies. The tanners financed 15% of their environmental legalization process by presenting the legal document stating the technological solution to the discharge pollution problems known as PMA, (CAR, 2004) asking for discharge permits and organizing themselves in 7 collective water associations. The reopening of the tanneries was accepted by the Regional Environmental Authority based on recycling sodium sulfate and chromium sulfate and it created a CP branch. (Sanz, 2007b)
- At the actual stage of implementation (10), the SWITCH project represents the opportunity for the implementation of CP in six pilot industries. For the first time in Colombian history, the judicial system is considering compensatory work on environmental matters instead of the fines the tanners cannot pay, based on an initiative from the tanners and supported by all the authorities. The latter is an example of participative policy-making. Their industrial area is being recognized. In the political arena, at the elections of October 2007, they supported a candidate that won the elections. In the water policy domain the association is participating actively at the monthly national tannery committee that discusses, at the Ministry of Environment, the policies and strategies of this industrial sector.

6 Concluding remarks

Within the limitations of this study, the following concluding remarks can be made:

For the main objective #1

- By offering participation, The SMEs showed to be knowledgeable regarding the topics and willingness to change. The SMEs fully supported the process.

- The legal actions taken as a sole strategy to solve the pollution problem of the Bogotá River at the tanneries, has proven to be ineffective for the past 20 years. The strategy from the formal institutions was taken necessarily as a historic control to be compared with the strategy resulting from this study.

For objective #2

- The reintegration of a community that has been breaking the rules for decades is a joint responsibility of the community and the concerned institutions, not just the responsibility of the community itself as it was stated in step 1.

For objective #3

- CP was seen by the tanners as a key to solve their problems. The Authority la CAR was reluctant initially, possibly because they did not have the right control instruments for it. This statement is congruent with the findings from Frondel *et al.* (2005).

For objective #4

- The next step in the approach will be to evaluate it. Through this participative and systematic approach, legitimacy, accountability, fairness and transparency should arise at the end of the process as results from the evaluation by the actors. In fact, these concepts are at the base of the concerns from these socially excluded groups and were part of the findings in step1 (preparation) (Sanz, 2007a).
- The results of the experimental work carried out on SMEs in deep crisis and challenged to join the formal economy, were congruent with the findings presented in the literature on Conflict Resolution and Change as presented below:
 - The process consultation phase or step 1 (Schein, 1992) showed a vulnerable system eager to be helped (see section 3). Announcements of drastic measures had made the tanners go many times through similar processes of anxiety, and negative agents had taken advantage and had even made a living at the expense of these negative cycles. (lawyers, chemical products salesmen and individual sewage plants salesmen)
 - The “agent of change” (Schein, 1992) did not have a formal position of power. This very fact turned out to be essential in order to obtain access and to build a relationship of trust with the community at the very beginning: At breaking points, the “agent of change” always found support from the SMEs. The agent became almost like a “natural” actor, a fact that the formal stakeholders had to give recognition.
 - The three OSTs applied showed great participation and long lasting commitments. In these three cases, negative actors simply could not exert influence as it was previously observed. In Villapinzón, the OSTs could only last 5-6 hours for practical reasons. Nevertheless the results were positive in spite of the fact that the classical OST is to last 2 days (Holman, 2004). Besides, issues could not be discussed in small groups because everybody wanted to be involved in all of them.
 - Using future search scenarios borrowed from AI (see section 3) at the OSTs (Holman, 2004), helped in building some consensus right at the beginning.

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