

Integrative Negotiation & Socialization of CP for SMEs

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Abstract

Small and Medium Enterprises (SMEs) 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. Those SMEs in Colombia are literally “left behind”. They represent deep social, economical and environmental challenges which are too complex for formal institutions to handle.

The aim of this work is to contribute to the Integrated Water Resources Management. The objective of this study is to do action research on the design of a strategy that gives the tanneries in developing countries the opportunity to improve their environmental status, fitting the interests of the environmental authority, and to reach also economic sustainability respecting their legitimate interests. This strategy would result in a major reduction in the discharge of pollutants resulting in a major improvement in water management.

On the basis of integrating Managed Learning Processes, Conflict Resolution Methodologies and Integrative Negotiation, the research aims at building trust by strengthening the role of the academia as an Agent of Change providing advisory services, developing support services and essential feedback to government ministries, SMEs, local political and environmental agencies. Two Colombian tannery approaches were 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”.

The experimental site was the tannery community of Villapinzón. At only 6 km from the source of the Bogotá River, in the village of Villapinzón, some 150 artisan and obsolete tanneries (SMEs), whose owners have a native Indian background and just primary education, offer employment to a quarter of the population and discharge raw wastewater into that river. For over 20 years, different measures to improve the environmental situation had been enforced by the authority but without success.

The results of this work suggest that integrating a community into the formal economy implies a coordinated effort from the concerned institutions in developing countries. Common elements were found with successful related case studies. The tanners became associated, chose a leader and became actively involved in finding solutions for their environmental problems. The stakeholders involved became aware of the needs of the community and accepted CP as a way to make tanneries cleaner. The action research showed that a pivotal role might have been played by the researcher as the “Agent of Change”, becoming an intermediate between the conflicting parties and leading the learning process.

Keywords

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

Introduction and Background

SMEs in Colombia represent 95% of the enterprises and offer 65% of the national employment. 37.7% 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). Often times, some of the industrial 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 (El Tiempo, 2004c).

Aim and objective

The aim of this research is to contribute to the Integrated Water Resources Management (IWRM), to the governance of the river management through a “new managed learning experience” for both communities and institutions. The potential role of Cleaner Production will be investigated as a major tool for bringing the conflicting parties to the negotiation table. This latter strategy is called the “Socialization of Cleaner Production” (SCP). This approach is congruent with what some authors perceive as the challenge in CP, *i.e.* the design of a strategy on how to complete a “diffusion” phase based on wide implementation of CP, fulfilling the integral needs of the industries, targeting, especially, SMEs (Barreto, 2001). The role of the formal institutions towards environmental conflicts dealing with informality will be also studied. The latter will be compared with Guio’s results (2004) stating that in Colombia, the institutions help creating water problems.

The objective of this study is to do Action Research on the design of a strategy that fits the interests of the SMEs and of the environmental authority in order to give the tanneries, the opportunity to improve their environmental status, to reach economic sustainability and to integrate into the formal economy (regular structure) of the region. This strategy would result in a major reduction in the discharge of pollutants resulting in a major improvement in water management.

Analytical framework

Case study

Introduction

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).

The tanning process entails today two basic processes that impact upon the environment: The classical dehairing process with sodium sulfate and the tanning process itself using chromium sulfate. Natural tanning agents were used until the Authority la CAR, being a Development Agency in the eighties, taught the use of synthetic tanning agents (CAR, 1994). The effluents of these industries are discharged into the Bogotá river, with disastrous consequences for river water quality.

Official figures report a monthly dumping of 32 tons of sodium sulfate (Na_2SO_4), 105 tons of Chromium Sulfate ($\text{Cr}_2(\text{SO}_4)_3$), 74 tons of salt (NaCl), 10 tons of organic waste and 20 tons of fat into the river (El Tiempo, 2004a, 2005b; Ojeda, 2004). Research from the University of Los Andes, found that by leaving Villapinzón, the river has a COD of 102 mg/l and 0.3 mg/l of Chromium Sulfate ($\text{Cr}_2(\text{SO}_4)_3$), the latter representing three times the limit for agricultural and domestic use (UNIANDES, 2002).

History of the conflict

For over 20 years, the regional environmental authority la CAR (Corporación Ambiental de Cundinamarca) has tried to solve the environmental problems of the community of Villapinzón. However, 67 potential solution proposals remain still today on the shelves of la CAR as such (CAR, 1998). Since the institution has always had a focus on end-of-pipe solutions, only one of the presented proposals was directed towards the prevention of the polluting flow (Cleaner Production). In 2000, la CAR attempted without success, to create an industrial park. The park was going to be ruled by the big tanner in the area. The tanners were expected to sell their lands and move to the new place. The tanners from the river bank were not allowed to sell theirs because they were believed to be invaders without legal property rights (El Tiempo, 2004e). Strong opposition was the result.

As a result of the stalemate, the environmental authority la CAR and the tanning community have, for years, been virtually at war. This has not benefited the economic livelihood of the tanneries, whose owners all have been sued by the authority. 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, 2004b).

As of March 2004, realizing that no environmental rehabilitation project was being implemented, in February 2005, the environmental authority la CAR closed 58 tanneries (El Tiempo, 2005c).

This research project started in March 2004, focusing on resolving the conflict between the tanning community and the environmental authority la CAR and on zooming in on the application of low-cost pollution prevention technologies.

In order to follow the proposed objective, the next step is to define the analytical framework that led the research. This chapter will define the key concepts and their implications in this work.

Nature of water-related conflicts

It can be acknowledged that water by itself tends to build asymmetrical relationships, simply by the fact that it flows downhill and people downstream get affected by the upstream uses people give it (Van der Zaag 2005). Stated this way, conflicts related to water seem inevitable more over when even scientists are not always sure about the effectiveness of the available solutions in a complex and globalized world (Godard and Laurans 2004). In developing countries, SMEs may be confronted by even more difficult situations because of the inequities and limited access to opportunities, and because IWRM is not a common practice yet.

Governance

Coping with this problem implied facilitating coherent, adequate action. The latter statement meant searching good governance. According to UNDP, 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*”. This definition brings the debate towards the possibility of aiming that manner in which power is exerted towards different development models from state-led to decentralization processes and neo-liberal reforms such as trade liberalization and privatization, and those issues are in many developing countries at the heart of the economic debates (Van der Zaag and Bolding 2005). The 20 year’s problem in Villapinzón showed lack of it.

Through this research, the methodology proposed in order to disentangle the conflict, looked into innovative approaches based on conflict resolution and low-cost prevention technical aspects.

Conflict resolution methodologies

When focusing on big groups (130 active tanners) as the selected targets, the process should work at building common grounds on those groups as well as respecting the individuals. Using conflict resolution methodologies 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 a Whole System Change, engaging people from all levels of a system and increasing their capacity to achieve what is more important, 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 aspect that is working 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, 2004).

Negotiation

In order to increase “the capacity to achieve what is more important, individually and collectively”, groups and individuals have to meet their own needs and interests. The latter is expressed through Integrative Negotiation Theory. This 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 (Fisher, 1991). When direct negotiation is being difficult, a third and objective party helps stakeholders. This form of negotiation is called Mediation. When a negotiation has multiple issues to be settled and/or more than two stakeholders involved, the negotiation is a multilateral one (Tandem, 2005). The case in Villapinzón could then be considered a “multilateral mediation”. A systematic approach in basic mediation (Jansenson, 2004) is based on the following steps: 1. Preparation, 2. Trust building, 3. Sharing information, 4. Redefinition of the problem, 5. Creation of options, and 6. Agreements.

After confronting this case with the mediation theory, the role of the mediator, needing to be always objective (Tandem, 2005), did not seem to fit quite accurately in the case of Villapinzón because of the evident social and economic asymmetries. If this research were to build a sustainable solution in the area, it turned to be 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 steps. Digging into Change Theory unveiled the appropriate role that this research should assume: the versatile role of an “Agent of Change”. Being that agent implied to face some challenges exposed on the Change Theory.

Change theory

Change theory states that social studies should be based on empirical reality (Action Research) and considered that one cannot understand an organization until you try to change it (Lewin, 1946). The latter statement implied not to separate the notion of diagnosis from the notion of intervention. Lewin 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 process.

An Agent of Change, in order to be helpful, had to learn enough about a system to understand where it needed help and this required 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 was what is called “process consultation” (Schein 1968, 1987, 1988). The concept of process consultation becomes a strategic step when the agents of change have to operate without formal position power. When this is the case, they should present themselves at the beginning, as internal process agents who would have to develop some kind of access and a constructive relationship with their selected change targets. This was the case in Villapinzón, where the researcher did not represent any formal power. The power would have to come from a constructive relationship with the community and from assuming the responsibility of becoming their psychological safety. The tanners were living a crisis which meant living disconfirmation and survival anxiety.

Leading the tanners and la CAR through this experience entailed leading a change process which implied at the end, leading a learning process (Schein, 1992; Barreto, 2001). Dealing with a systematic approach to conflict led then, into a management of planned change or a learning process management (Schein, 1992). The Agent of Change should then be an expert on how to be helpful on the change process.

Technological change

A learning process, at the end, implied an endogenous and not an exogenous process (Barreto, 2001); it implied internalizing new issues. As an endogenous phenomenon, 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” 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. This statement seemed useful for SMEs.

Approach

In order to handle the conflict at the tannery region of Villapinzón, there was a need to analyze first the overall situation in Colombia and to work on the possibilities to have the most important tannery cases of San Benito and El Cerrito not only for academic purposes in order to structure the work but also to open possibilities of strategic alliances and even learning alliances for the Action Research. A matrix (Table 1) was elaborated from the analysis from official documents and interviews based on the key concepts already presented. The results showed success on wide implementation of CP in El Cerrito after 4 years of constant work on CP from their CP branch. In San Benito, the outcomes showed some isolated successful results for the same number of years. Both cases had a similar legal framework and authorities less oriented towards command and control and end-of-pipe approach. The difference between them was the nature of the approach: San Benito was led by a consultant job (objective and distant); El Cerrito was led by a process inspired by learning and participatory theories where the key aspects in this work were identified.

Table 1. Key aspects in comparative cases

<i>Key aspects</i>	<i>San Benito</i>	<i>El Cerrito</i>
Social & Economic inequities	X	X
Complexity (Land & Water problems)	X	X
Poor Governance	X	X
Participatory process	X	X
Integrative Negotiation		X
Process Consultation		X
Agent of Change		X
Technological Change (trial & error)		X
Consultant job	X	
Results		CP

In order to fulfill the objective, the steps followed at the experimental work in Villapinzón were based on the steps recommended in the process of “Mediation” (Jansenson, 2004) but adapted for big groups conflict resolution (Holman, 2004) and even, for big groups learning processes (Schein, 1992):

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, and 10. Implementation.

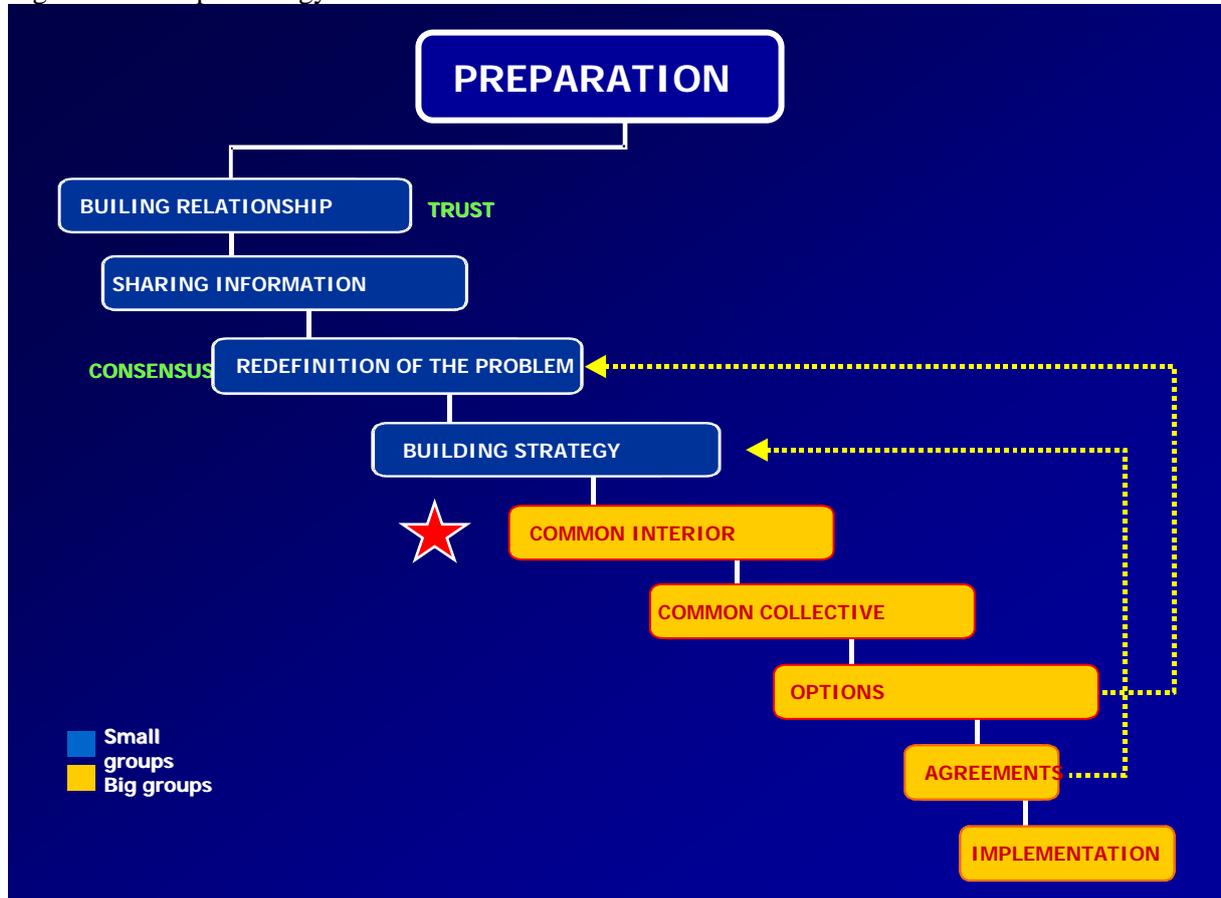
To the Mediation process, steps 5, 6 and 7 were added, step 8 became also a follow-up of commitments and step 10 was also included since the process was now seen as a change process.

Following the steps implied a dynamic process that entailed permanent feed-backs and follow-ups. Steps 4, 5, 6 7, and 8 were constantly being adapted before getting to agreements (9) and implementation (10). The steps were inspired by a basic participatory principle of Whole Scale conflict resolution theory that states that people support initiatives that they help create (Holman, 2004).

The approach proposed is presented in Figure 1. The first 5 steps were done in small groups and took 3 months. A new leader was chosen; CP was identified as their technical option. The process from step 6 to 10 needed constant feed-back and needed to be worked in big groups in order to build common grounds. Reaching to step 9 (agreements) took 2.5 years. At the end: The tanners financed 15% of their legalization process. The reopening of the tanneries was accepted by the authority based on recycling sodium sulfate and chromium sulfate. The tanning area is finally being recognized. The

SWITCH project represents the work opportunity on a pilot industry for the tanners from the river bank not allowed to work.

Figure 1. 10 Steps Strategy



Discussions

- The preliminary results on the experimental work in Villapinzón and the analysis of the case studies on El Cerrito and San Benito constitute a first step in reaching the objective of this work. The next step in the approach will be to compare those results with tannery cases at international level.
- It would be interesting to look into not only wide implementation of CP in order to measure the success but to also investigate upon the level of satisfaction from the tanners after that implementation.
- The results of the experimental work done on SMEs in deep crisis and challenged to join the formal economy, were congruent with the findings presented in the Introduction, on the literature for Conflict Resolution and Change:
 - The process consultation phase (Schein, 1992) showed a vulnerable system eager to be helped. 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 these negative cycles. (lawyers, chemical products salesmen and individual sewage system plants salesmen)

- Since the “agent of change” (Schein, 1992) did not have a formal position of power, it turned out to be essential to work on building access to and on a trust relationship with the community at the very beginning: Through all the difficult moments in the process, the “agent of change” always found support from them. The agent became almost like a “natural” actor that the formal stakeholders had to give recognition.
- The three OSTs applied showed long lasting commitments. In none of these three cases, negative actors simply could not exert influence as it was observed before the whole process started. The results were even found without being able to make OSTs last the two classical days (Holman, 2004). In Villapinzón, they could only last 5-6 hours for practical reasons. Besides, issues could not be discussed in small groups because everybody wanted to be involved in all of them.
- Using future search scenarios at the OSTs (Holman, 2004) helped in building some consensus right at the beginning.
- 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. A proposed solution direction has focused on solving the conflict associated with the river pollution. The previous experience was taken necessarily as a historic control.
- More over, a parallel process was also facilitated through this research on a comprehensive judicial action and has not given any results until December 2006. The latter is congruent with Guio’s results (2004), where stated that the institutions in Colombia have a low solving capacity on the water problems.
- 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 (Frondel et al, 2005).

Conclusions

Within the boundary conditions of this study, the following conclusions can be drawn:

- The integration of a community that has been breaking the rules for decades is the responsibility of the concerned institutions rather than just the responsibility of the community itself.
- In water problems, the development of conflict resolution mechanisms in the formal institutions can be a useful feature to be integrated into the Colombian Constitution.
- Building the strategy is a dynamic process needing constant feed-back.
- CP initially, fitted the needs and interests of the SMEs.
- CP did not fit initially the end-of –pipe approach from la CAR. Only in a later stage, a mixture between CP and end-of-pipe became acceptable to the institution.

Reference

- Barreto, L., March, 2001. Technological learning in Energy Optimization Models and Deployment of Emerging Technologies .*Swiss Federal Institute of Technology*. Zurich. Ph.D Thesis, 2001.
- CAR, 1994 Tannery courses, 1984-1994.
- CAR, 1998 Revisión documentos curtiembres 1982-1996 *Centro de documentación CAR*.
- CAR, 2004 Términos de referencia para la presentación del Plan de Manejo Ambiental dirigido a la Industria del cuero, October 2004.
- CRPML, 2003. Documentos oficiales CVC. Corporación Autónoma Valle del Cauca.
- CRPML, 2005. Documentos oficiales CVC. Corporación Autónoma Valle del Cauca
- DAMA, 2005. Ventanilla ambiental curtiembres. Departamento Administrativo Medio Ambiente distrito de Bogotá.
- EL TIEMPO, 2004a. El río sigue siendo una alcantarilla. March 24, 2004

- EL TIEMPO, 2004b. Los grandes costos de la pobreza. August 8, 2004.
- EL TIEMPO, 2004c. Curtiembres, a cumplir la norma. March 12, 2004.
- EL TIEMPO, 2004d. Inminente cierre de mataderos y curtiembres. April 27, 2004.
- EL TIEMPO, 2004e. Hora cero para curtiembres y mataderos. May 15, 2004
- EL TIEMPO, 2004f. Revelan cruda radiografía social. Julio1, 2004
- EL TIEMPO, 2005a. *Mipymes*. August 17, 2005
- EL TIEMPO, 2005b. *Carta Ambiental*. Edition 10, August-November 2005.
- EL TIEMPO, 2005c. Cierran 59 “ fábricas” de cuero. January 28 2005.
- Fisher, R., Ury, W., Patton, B., 1991. Getting to Yes: Negotiation Agreement without giving in. 2nd Ed .*Penguin Books*. New York, 1991.
- Frondel, M., Horbach, J., Rennings, K., 2005. End-of pipe or Cleaner Production? An Empirical comparison of Environmental Innovation Decisions across OECD countries .*Discussion paper #04-82 . ZEW. Center for European Economic research*.
- Godard O. and Laurans Y., 2004. Evaluating environmental issues. Valuation as coordination in a pluralistic world. *Ecole Polytechnique. International Journal of Environment and Pollution (IJEP)*. 37p.
- Guio, D., 2004, Water resources Management in Colombia: An institutional Analysis *MSc Thesis UNESCO-IHE*, September 2004.
- Holman, P., 2004. Emerging in Appreciative Space. *AI Practitioner. The International Journal of AI best practice*. November, 2004, **48p**.
- INDERENA, Decreto 1449, 1977.
- Jansenson, D., 2004. Mediation Workshop. *Curso de Alta Dirección en Negociación. Desarrollo Gerencial*. October 2004.
- Lewin, K., 1946. Action Research and minority problems. *Journal of Social Issues*, 2, **34-46**.
- Ojeda, D., 2004. *Diagnóstico Ambiental por vertimientos de residuos de curtiembres al río Bogotá en el corredor industrial Villapinzón- Chocontá. Cuenca Alta del río Bogotá. Universidad Nacional de Colombia. Facultad de ciencias humanas Departamento de Geografía. Informe de pasantía para grado de Geógrafo*. October, 2004.
- PORTAFOLIO. El 59 por ciento de los trabajadores del país son informales. *Portafolio, año 12, # 2179. Periódico El Tiempo*. September 2, 2005.
- Rogers, P., Hall, A.W., 2003. Effective Water Governance. *Global Water Partnership Technical Committee* [Online] <http://gwforum.org/gwp/library/TEC%207.pdf> [2004, May 5]
- Schein, E., 1968. Personal change through Interpersonal Relationships. *In Bennis, W.G.*
- Schein, E., 1987. Process consultation. Vol 2. *Reading, MA.: Addison-Wesley*.
- Schein, E., 1988. Process consultation. Vol 1. *Rev. Ed. Reading, Ma: Addison-Wesley*
- Schein, E., 1992. Organizational Culture and Leadership .2nd Edition. *San Francisco, Jossey-Bass Inc*, 1992.
- TANDEM, 2005. Curso de Alta Dirección en Negociación. *Universidad de los Andes, Desarrollo Gerencial*. April 2004- March 2005.
- UNIANDES, 2002. Campañas calidad del río Bogotá. *Universidad de los Andes. Facultad de Ingeniería*.
- Vander Zaag, P., 2005. Integrated Water Resources Management : relevant concept or irrelevant buzzword? A capacity building and research agenda for Southern Africa. *Physics and Chemistry of the Earth* 30(2005) **867-871**. Elsevier publications.
- Van der Zaag, P. and Bolding, A., 2005. Water governance in the Pungwe river basin: institutional limits to the upscaling of hydraulic infrastructure. Paper prepared for the session “*Transboundary water governance: lessons learned in Southern Africa*” of the 6th Open Meeting of the Human Dimensions of Global Environmental Change Research Community, 12 October. University of Bonn, Bonn. **12p**.