Civil society response to industrial contamination of groundwater in Durban, South Africa

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ABSTRACT   This paper seeks to map the extent to which civil society actors champion environmental justice in an industrial risk society. It examines the role of civil society actors in Durban, KwaZulu-Natal, in being able to perceive industrial risk and push local concerns in development processes. The paper draws on qualitative and empirical research for a local case study in Merebank, South Durban, to explore how civil society engaged to organize and respond to local groundwater contamination caused by the German multinational Bayer, and also influence construction of knowledge around risk. It examines civil society networking to organize collectively and subsequent responses to government and industry during the risk assessment and remediation process. The final section engages in a discussion of findings and draws some conclusions.

KEYWORDS   civil society / environmental justice / leadership / mobilization / participation / protest / resources / social capital / social networking

I. INTRODUCTION

This paper conceives of South African society as a risk society, a term that refers to the creation of risks in society by industrial and technological practices that are physically reconstituting the environment in ways that escape their control.[1] Under apartheid government, civil society had limited or no power to advocate local concerns against a risk society on the environmental and pollution problems that affected them, with black South Africans sharing their neighbourhoods with polluting developments.[2] Under the new democratic government, little may have changed. Government has chosen to engage in a macroeconomic model that has concentrated on expanding industrial modes of production.[3] The logic of wealth production has dominated the logic of risk production, contributing to increased industrial risks in society. The unequal distribution of these risks has affected mainly citizens who are situated close to polluting industries and who lack the financial security to alleviate risks by moving away from risky sites. Government's engagement in macroeconomics has also created an enormous structural gap in wealth, with poverty in urban areas being amplified[4] and the poor mostly burdened with industrial pollution issues.[5]

It is understood that the scope of what civil society includes is widely contested, with various interpretations on the subject.[6] However, it is not the intention here to engage in these complex definitional debates. In this paper, civil society is a society that undertakes activities for the benefit of the public good. It includes a rich array of mixed civil elements made up of trade unions, foundations, faith-based and religious groups, community-based organizations (CBOs), non-governmental organizations (NGOs), social movements and ordinary citizens active in the public sphere.[7] Civil society essentially comprises non class-based forms of collective action.[8] Thus, it is the organized expression of various interests or values operating in the space between the family, the state and the market.[9] However, it is understood that civil society, although in tension with the state (and industry) institutions that may constrict or enable their activities, may also be in tension with each other despite shared interests.[10]

Two conceptual frameworks for civil society are used in this paper, namely local civil society (i.e. local residents, CBOs and community leaders/representatives) living in the affected region, and external civil society (i.e. NGOs, academics, development consultants, the media) who do not necessarily live in the affected area but provide support to local civil society actors.[11] Before proceeding, it would be useful to highlight social actor definitions used in this paper. Local residents are those local actors directly affected by a problem. They are heterogeneous, but for this paper are seen to share common concerns about a particular issue related to the area where they live.[12] CBOs represent formal organizations of the local residents. They are formal in that they provide structure to local campaigning programmes, providing a channel through which local concerns can be gathered and projected to external civil society, government and industry. They form in response to a particular development problem in the community. An important characteristic is their desire to engage in self-help activities. However, people must elect any local leadership of the CBO, with leaders projecting the will of constituencies.[13] NGOs have a formal existence with a democratic and representative structure. They are democratic in that they empower communities through genuine consultation and help address local concerns, possibly providing solutions for consideration. They have diverse objectives and forms and include different entities (e.g. charities, non-profit corporations and trade unions). An ideal form of NGO is established privately and free from government influence. Any profits earned are used in the pursuit of its objectives.[14] However, NGOs must provide any support mechanisms, including representation of communities, on local terms and conditions, with NGO representation being authorized by communities.[15]

This paper draws on empirical evidence from Merebank, South Durban, an industrial hub in Durban, KwaZulu-Natal that comprises a mixed use of residential areas juxtaposed with heavy industries, in order to explore how civil society engaged to organize and respond to local groundwater contamination caused by the German multinational Bayer. In November 2004, Bayer announced the contamination of the local groundwater supply in Merebank with hexavalent chromium. This is a carcinogen consisting of oxidizing agents capable of directly inducing tissue damage.[16] The groundwater contamination was the result of an historical on-site plume that had leaked from the Bayer premises and had spread under 34 surrounding houses. The local Department of Water and Sanitation made the discovery while replacing a water meter outside

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the Bayer factory and informed the local government municipality, eThekwini Health. The municipality advised Bayer to set up a task team comprising local and external civil society, local and provincial government, and industry to assess the extent of the contamination and embark on remediation; eThekwini Health would initially serve as chair of the task team. This paper examines civil society networking to organize collectively and subsequent responses to local government and Bayer during the risk assessment and remediation process, in order to influence construction of knowledge around risk.

The authors proceed with a short discussion of the literature on network society and social capital as a framework for examining how civil society engaged to organize and respond to local groundwater contamination. The methodology is then outlined and the case study is presented. Subsequently, we assess civil society engagement in organizing to provide an understanding of civil society response to industrial risk.

II. SOCIAL NETWORKS, SOCIAL CAPITAL AND COLLECTIVE ACTION

Theoretically, this paper draws from globalization thinkers such as Castells[17] who describe political interaction in terms of a networked society – a society in which policy and development processes are increasingly being shaped not only by government but also by other interest groups who are "in the network" (i.e. industry, civil society interests). This paper explores to what extent local and external civil society actors have been able to engage to organize themselves to respond to risk and have influence in this network society.

There are also inequalities within the network society, with the South African government excluding local residents or affected groups from fully integrating into decision-making networks. In this case, power operates in South Africa by exclusion and inclusion. Hallowes and Butler[18] refer to industrial processes in South Africa (and Africa generally) as being institutions of the market, which remove decision-making power from civil society and exclude people from wealth, while local residents carry the externalized costs of production (i.e. industrial risks) through contamination of the environment and health effects. However, local residential concerns with industrial risks can become flexibly decentralized by linking up with other civil society actors (i.e. local CBOs and leaders/or external civil society) to advance local concerns (or vice versa).

Engagement between CBOs, local leaders and external civil society and local residents can take place in various ways. Within local communities themselves, it may be questionable whether CBOs/local leaders consult with and fully reflect local residents' concerns regarding industrial risks during policy and development processes.[19] At the same time, local residents may engage with other organized external civil society actors to form mixed relationships and advance local concerns. Here again, disparities in power and influence shape agendas for change. NGOs may push for alternative donor agendas as opposed to those of local residents.[20] The interaction between academics and local residents may result in a domination of campaigning processes or a lack of interaction due to resource constraints. Local residents may also form links with the media, but may be challenged by the funding of media enterprises by

corporations.[21] Nevertheless, the interaction between all of these actors in civil society can be spontaneous and wide-ranging in supporting the rights and needs of the marginalized and poor.

Local and external civil society might engage with the state and industry within a network society in many ways. External civil society can form a bridge between the locally affected groups, the state and industry via advocacy (i.e. conducting activities to influence policy such as public demonstrations), lobbying (i.e. asking policy makers to take a specific position on a specific piece of legislation) and providing much-needed communication resources. On another level, local residents can mobilize collective identities and engage in direct protest action against government and industrial targets. These identities combined may also form movements. These groups may thus serve as a counter-power to the state and industry by engaging in actions outside the boundaries of government and party politics (the realm of Castell's (and Beck's) sub-politics). Thus, local residents may engage in formal politics, sub-politics or a combination of both.

Social capital is useful in explaining how networks link various social actors to engage, organize and respond to industrial risks by promoting social cohesion, trust, cooperation and openness. Hence, it provides a powerful construct for looking at the consequences or outcomes of the interrelationships between social actors, since local action for social change also embodies social capital and trust.[22] Scholars analyzing collective interaction and activism increasingly emphasize the quality of the relationship between the actors, particularly those directly affected by the outcome of a process. This has resulted in increased interest in social capital in social networks and the level of trust between actors.[23]

Although definitions and types of social capital remain contentious,[24] the aim of this paper is not to cover this literature extensively but, rather, to examine the basic premises of social capital relationships in order to understand civil society's engagement in organizing and responding to industrial risk. Social capital in a community or neighbourhood has been understood as networks of shared obligations, flows of information and enforceable shared norms.[25] It is investment in social relations in a social network, with expected benefits.[26] Social capital is formed out of repeated social interactions between individuals and groups, which develop trust, social norms and strengthened cooperation and reciprocity[27] and can assist communities in reaching mutual goals and in responding to crises. [28] This suggests that the strength of social capital depends on the quality and extent of interaction between individuals and groups to develop trust and common norms in order to strengthen cooperation for collective action. The intensity and direction of social relationships described by social capital are captured in the terms "bonding" (e.g. encompassing people with shared values) and "bridging" (bringing citizens together from a cross-section of society).[29] A sub-category of bridging ties (i.e. "linking ties") describes group relationships that cross group boundaries in a vertical direction (e.g. between social classes).[30] However, there are also the negative consequences of bridging social capital, which can lead to the exclusion of certain groups. This suggests that social capital can be inclusive or exclusive[31] depending on a social actor's socioeconomic status, capacities, opportunities and strategies for networking to engage, organize and respond to industrial risk.

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Community leaders play an important role in influencing social capital relationships for social change, especially within local communities. Social capital consists of trust relationships between a community and its leaders. The degree of social capital accumulated also determines how leadership itself progresses. Leaders are those who place themselves at key points in the networks that channel information to or build the local community networks up around themselves and increase social capital. Community leaders thus engage in accumulating communal social capital in their transaction with their own community for social change by encouraging collaboration. Communal social capital entails the development of trust between partners and the extension of relationships of trust more widely in the neighbourhood.[32]

However, it is now commonplace to distinguish network "individual approaches" (i.e. emphasizing "individual pay-offs" for the social actors integrated in networks) and "attitudinal approaches" (i.e. attitudes generated by the networks, which are assumed to benefit society as a whole) in the study of social capital. There is no real reason why one should not study the advantages individuals derive from their participation in networks (e.g. community leaders attaining political office) as well as the collective and social benefits from such networks, since they do not exclude one another.[33] When social relations are driven by competition, contracts and self-interest, the nature of trust and intimacy becomes compromised.[34] Thus, social capital essentially entails features of social life networks, norms and trust that enable participants to act together more effectively in pursuing shared objectives that benefit society as a whole.[35] Thus, attitudinal leadership approaches in social networks are more effective in engaging an entire local community to address industrial risks.

The balance between social networks and bonding, bridging, linking ties and associated mobilization structures (i.e. community leaders and external NGO influences that pool individual interests) can help to understand civil service engagement in organizing and responding to industrial risk. Community-oriented networks seek to facilitate information dissemination, discussion and joint activity pertaining to community issues. Citizens thus need background information about proposed projects and issues to build consensus and make informed decisions. These civic activities prepare citizens to engage in collective action as needed (i.e. shared orientation, resource coordination, facilitation of information transmission for timely action towards targets).[36]

Local communities with high levels of social capital organize and mobilize effectively for collective action because they have high levels of social trust, dense social networks and well-established norms of mutuality.[37] With limited community resources, collective action (e.g. via protests) is even more necessary to effect social change. However, without mobilizing structures that find ways of motivating people to participate within risk society, and who may not recognize their common plight, collective action may often fail to materialize. Industry and the state are also social institutions in networks with varying levels of openness to outside interest groups. Collective action is therefore necessary to respond to risks, to create social change by influencing institutional behaviours to take citizens' concerns into account in a meaningful way.[38]

III. METHODOLOGY AND OUTLINE

In 2007, civil society networking and organizing in response to contamination of the local groundwater supply caused by the German multinational Bayer was examined over several months as part of a larger study in Durban, in order to explore local social action and interaction with extra local actors, in particular civil society. The larger study generally examined civil society in Durban and its ability to engage in strategic (i.e. planned) and/or spontaneous (i.e. protests) actions against industrial risk to achieve environmental justice, by addressing local concerns with local and provincial government and industry. The Bayer case examined in this paper is one of three local case studies in the larger study that explored civil society engagement in organizing and responding to government and industry to address specific industrial risks. The other cases included the proposed development of an incinerator by Mondi Paper in South Durban, and the extension and redevelopment of the Bisasar landfill located in Clare Estate in relation to a World Bank carbon-trading project.[39]

For the research on Bayer specifically, semi-structured interviews were used to collect data from local civil society (i.e. CBOs and community leaders), external civil society (i.e. NGOs, academics, independent civil society consultants and the national media), local government and Bayer. Eleven interviews were conducted with key social actors (Table 1), with the case study being analyzed by the lead author. The study did not necessarily aim to gather locally affected residents' views but, rather, the views of key social actors in this specific event. An interview with a local CBO (the Merebank Residents Association – MRA)[40] did not take place because of the murder of the former leader while in the field and the lack of response from the newly appointed leader despite several requests.

For the data analysis, grounded theory and open coding were used to identify various themes. Six selected themes (leadership, social networking, resources, mobilization/protests, trust/transparency and participation), running across the various relationships of civil society engagement were identified and are examined below. Relational aspects of the campaign are examined, from the announcement of the contamination in 2004 until the end of fieldwork in August 2007.

IV. RESULTS

a. Leadership

Local civil society leaders generally did not work collectively to address the Bayer[41] risk assessment and remediation process. Most leaders took individual positions on these and failed to develop collective action and consensus among themselves. Individual actions among some leaders were due to the fact that they used the remediation process for political gain (to secure votes during local elections). Rico Euripidou, research manager of groundWork (gW), a national NGO, said: "*...there are people [leaders] who might have a political agenda…and the Bayer issue …to an extent might have facilitated...[their] election into office.*" Those community leaders who sought financial gain also undermined how local leaders engaged with Bayer, which limited meaningful engagement between local leaders to respond collectively to the company. Desmond D'Sa, leader of SDCEA, said:

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40. MRA is the oldest civil society organization in South Durban, having come into being to fight issues related to the creation of "Merebank village" as a racial township in the 1950s and 1960s.

TABLE 1
Interviewees during Bayer fieldwork

Organization	Position of interviewee within the respective organization
Local civil society	
South Durban Community Environmental Alliance – SDCEA[1] (environmental justice CBO)	Desmond D'Sa – SDCEA and local community leader
SDCEA	Shirley Scullard – organizational steering committee member
External civil society	
groundWork – gW[2] (environmental justice NGO)	Rico Euripido – research manager
Centre for Aids Development and Relations (CADRE)[3]	Mark Colvin – manager
Department of Geography, University of KwaZulu-Natal (UKZN), Pietermaritzburg	Brij Maharaj – head of department
The Mercury (provincial media press)	Tony Carnie – environmental journalist
Local government	
eThekweni Municipality Health Department	Selva Mudaly – deputy head, south district
eThekweni Municipality Health Department	Rajesh Hooblall – senior environmental officer
Industry	
Bayer	Michael Krancher – managing director
Bayer	Tony Smith – project manager, Merebank remediation
Bayer	Kas Moodley – environmental manager

[1] The SDCEA is a local environmental justice CBO based in South Durban. Formed in 1996, it is made up of 14 local affiliate organizations representing local residents via a steering committee.
[2] gW is a non-profit environmental justice organization working primarily in South Africa but increasingly in Southern Africa. Formed in mid-1999, gW seeks to improve the quality of life of vulnerable people through assisting civil society to have a greater impact on environmental governance. gW places particular emphasis on assisting vulnerable and previously disadvantaged people who are most affected by environmental injustices.
[3] CADRE is a South African NGO working in the area of HIV/AIDS research, programme development and communication. It also consults on health risk impacts of various development processes.

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41. Although Bayer changed its name to Lanxess in 1991, the lead author refers to Lanxess by its previous name Bayer, as it was Bayer operations that caused the contamination. All civil society and government informants interviewed referred to the company as Bayer.

"...people [leaders] have different opinions. They go into a meeting with a company like Bayer and they come and think we can get some money...like [a local leader and health physician] thought he would... get the health contract. When he realized he would never get the contract, he never came back."

Besides the external intervention of the NGO gW, only the local leadership of SDCEA were consistent attendees at Bayer meetings. Unfortunately, different motivations for attending task team meetings, which comprised local and external civil society, local and provincial government and industry and were to assess the extent of the contamination and embark on the remediation process, formed barriers to effective communication and cooperation between leaders. Local leadership engagement with local government during the task team meetings was also uncoordinated and inconsistent, and resulted in limited pressure on government to address local groundwater contamination. This contributed to a loss of momentum in addressing the risk assessment and remediation process.

Raj Hooblall, senior environmental officer at eThekwini Health, and the main appointed local government official during the Bayer risk assessment and remediation process, revealed:

> "[There was a] failure in the system of continuity [by local leaders]… if we had an issue that [was] interrogated, discussed and put to bed previously, three meetings from now we go over the exact same debate for twice the amount of time…A dual appraisal of the issues caused more debate than resolving the issue…"

b. Social networking

A lack of sequential networking between CBOs and local residents undermined communication for social change (i.e. collective decision-making, action planning, collective action and implementation). CBOs did not transfer risk and remediation information from task team meetings to local residents, and gW was the only external NGO networking with the local community (i.e. community leaders linked to local residents). However, leaders failed to communicate with residents, with the result that gW's strategy failed. Referring to local leaders who attended task team meetings but who did not report back to the local residents, Tony Smith, project manager at Bayer said: "…*it is abundantly apparent that those groups [leaders] don't report back to the constituency that puts them there.*" In working with local community leaders, gW tried to maintain trust through providing support (i.e. technical, research, external civil society contacts) to all, regardless of political or personal position. Community leaders and gW also networked with external civil society academics and scientists to strengthen local responses at task team meetings. As Rico Euripidou, research manager of gW, said:

> "Civil society response meant that…all of these external non-city scientists and specialists were drawn into this process in order to try and understand health, risk, [and] community risk in a better way… and proceed on a system of remediation."

Local leaders and external civil society communicated with local government via task team meetings. Civil society demanded that local government conduct a literature review on chromium groundwater contamination worldwide and an historical assessment of Bayer operations to inform the risk assessment and remediation process. Local government itself had limited resources to engage with civil society requests and did not respond promptly to these requests. Raj Hooblall, of eThekwini Health, said:

> "Civil society claim that we [local government] took too long to do these issues [literature review and historical review] but…it was extremely ambitious for civil society to expect everything to be done…they gave additional work [to local government]…which actually retarded the process…we [local government] lost focus."

However, civil society also lobbied local government to conduct tests on local fruit and vegetable samples to determine the extent of the groundwater contamination and provide an indication of health impacts. This testing resulted in effective partnerships between civil society and

local government to assess risks posed by Bayer. As Raj Hooblall, of eThekwini Health, said:

> "…local government can accept that [the] fruit and vegetable analysis called for by civil society will give you a credible indication of the health impacts…The initial stages…the city paid for…those results…We've [local and external civil society and local government] interrogated every single thing that Bayer has actually put forward to us as a group and that is a success of our democracy and change that has occurred."

Communication between local leaders and external civil society and Bayer was influenced by behaviour on the task team. Bayer stated that there was no local health risk and that local leaders and external civil society had not demonstrated any risks. Michael Krancher, managing director of Bayer, said:

> "…there is no risk, provided that they [local residents] don't get into contact with the groundwater…We [Bayer] put the facts [down]…Now somebody says…you must look at it differently…this is not happening."

However, Bayer was accused of hiding effective civil society communications to make the local groundwater contamination seem less serious. Many informants from local and external civil society and local government noted the value of civil society networking, organizing and communicating with Bayer to place pressure on the company to address the groundwater contamination effectively. Bayer initially failed to incorporate social concerns into their scientific methodology. The company explored limited exposure pathways (i.e. weak methodological diversity) of contamination from the groundwater that could affect residents. Bayer's scientific risk experts did not engage with alternative expertise grounded within the community (i.e. local residents) regarding risk. However, civil society forced Bayer to expand their terms of reference and explore alternative risk exposure pathways. As Raj Hooblall, of eThekwini Health, said:

> "Democracy prevailed…they [civil society] wanted fruit and vegetable samples to be analyzed. The methodology was off. Bayer wasn't looking at that…and they [civil society] kept on fighting it."

c. Resources

Local and external civil society had limited financial and material resources to engage collectively. Although SDCEA engaged informally with local residents (through organizational newsletters and the local media), local leaders did not formally convene with residents by holding local community workshops and meetings nor did they engage in sequential networking. Local residents had limited input over decisions made by local leaders at task team meetings regarding the risk assessment and remediation process. Raj Hooblall, of eThekwini Health, said:

> "…had they [local and external civil society] been more proactive, had they set up their own information centre…and dished out facts to people [local residents], you would have had a different response."

However, local leaders and external civil society used human and technical expertise to educate local government on the effects of chromium and prevented Bayer's experts from imposing their definition of risk on others. Desmond D'Sa, of SDCEA, said:

> "The city has no expertise on Chrome six, and if it wasn't for us [local leaders and external civil society]…giving them advice and knowledge, the city would have been lost…A lot of decisions have been taken by the city through the intervention of…our expertise."

The task team was expanded to include technical specialists trusted by civil society (i.e. academics and scientists), which contributed to how Bayer managed the risk assessment and remediation process. Bayer was pressurized into acting meaningfully and reaching the remediation stage successfully. Raj Hooblall, of eThekwini Health, said:

> "Bayer will refuse to admit it, but the only reason why they have proceeded to undertake all of these studies and assessments and give a commitment to the remediation…is that…it was backed up by a credible fighting force…There were [external and local] experts that were brought in from time to time [by local leaders and external civil society]…and became a credible part of the process."

d. Mobilization/protests

There was limited local mobilization in response to groundwater contamination. Community leaders did not effectively engage with local residents, and a lack of resources and the absence of any sustained community outreach and education contributed to this. This resulted in limited mobilization and protests against local (and provincial) government and Bayer. The only protest that took place was at the local Alipore primary school when Bayer dug up the school grounds as part of the remediation process. This involved installing a cut-off wall as a precaution to prevent further spread of the underground plume. Bayer's lack of communication with residents, parents and teachers about remediation resulted in panic in the area when some schoolchildren complained of itchy skin conditions. Parents and teachers assumed that the skin irritations were related to the chromium contamination and remediation works. The mobilization was not coordinated by community leaders but was a spontaneous expression of concern over the school's temporary closure and any potential health effects. Brij Maharaj, head of the Geography Department at UKZN Pietermaritzburg campus, said:

> "If you look at Bayer…the school was closed for a week…straightaway parents were involved…the moment the school closed it mobilized more parents and it put Bayer under pressure."

e. Trust/transparency

Mistrust undermined local collective action. As noted, some community leaders attended task team meetings for personal gain, thus creating mistrust between community leaders and between leaders and local residents. Those local residents who knew of the local groundwater

contamination trusted certain community leaders based on their judgements of the genuineness of these leaders in helping to protect them against any potential risks caused by the contamination. Rico Euripidou, of gW, said:

> "…whether the residents trusted Des [SDCEA leader], I suppose they did because he was not really in it for anything other that their well-being. Whether the residents trusted…Raja Naidoo [previous MRA leader], perhaps less so."

Although local government formulated a task team inclusive of local and external civil society, civil society still viewed government with mistrust. This was due to local government inefficiency in responding to civil society requests to undertake literature and historical reviews promptly (see above). Mistrust was also due to local government historical decisions and inaction in containing industrial risk from the Bayer premises. As Rico Euripidou, of gW, further revealed:

> "…local government historical records of 1947 showed that authorities found extensive on-site and off-site contamination of chromium. During the 1980s and early 1990s, further cases of off-site contamination occurred, but were deemed not to pose a health threat by government and were only monitored."

There was also much mistrust of Bayer by local CBOs and external civil society. This was due to Bayer's poor historical record on environment, health and safety. Waste chromium generated at the plant has been dumped in a number of sites in South Durban over the past six decades, and one of the sites is known to have leaked chromium. Court action was also initiated against Bayer over allegations of worker deaths and environmental abuse. Mark Colvin, manager of CADRE, who conducted medical tests on past Bayer workers and who testified in a previous court case against Bayer's health impacts on workers said:

> "…they [Bayer] have a horrific record…there's quite a lot of historical pollution…[and] now the chrome water table, it's just difficult…a real case of profits before people…workers were going home sick and they were dying."

During the risk assessment and remediation process, there was also mistrust over the choice of risk assessment used by the Bayer experts (i.e. taking water samples to test the water and conducting the health risk assessment). Trust was compromised as these experts were paid by Bayer and were viewed by local and external civil society as being biased. This resulted in local leaders bringing in additional external civil society expertise into the process. Rico Euripidou, of gW, said:

> "…There was civil society mistrust around the consultants…that Bayer brought in…their [civil society] interpretation is Bayer has just hired this guy to say…and] do an assessment…Will that guy say no there is…concern? Why would he, because Bayer is paying him."

However, neither did Bayer accept the independence of the civil society technical expertise brought in by local and external civil society. This was especially so during the health risk assessment of children conducted by an external civil society epidemiologist when the Alipore primary school

was closed (see above). Michael Krancher, managing director of Bayer, said:

> "…in that school incident, I think you just have to read the final [health risk] assessment of Mark Colvin [external civil society CADRE epidemiologist], who is not suspected of being too industry friendly."

However, there was also mistrust by local government, who did not trust the credibility of consultants brought in by Bayer. As Selva Mudaly, deputy head at eThekwini Health, said:

> "…we [local government] are questioning this Bayer issue, whether… those consultants that gave those opinions are now credible. Because if the plume has moved…and you [Bayer's experts] say it's not moving…and now we find the plume somewhere else, then what do we do with the scientist?"

f. Participation

Local residents' participation was undermined by a lack of representation on the task team and exacerbated by a failure of both local CBOs and external NGOs (i.e. gW) to engage in actions outside the formal task team meetings (via local community workshops and meetings). However, while local government (eThekwini Health) did succeed in building some partnership with local leaders and external civil society (via the task team), provincial government (i.e. Department of Water Affairs and Forestry – DWAF) did not. Raj Hooblall, of eThekwini Health, said that the head of DWAF:

> "…doesn't come for [task team] meetings and his two staff…don't speak…DWAF are supposed to be the custodians of the groundwater."

Bayer claimed that local residents and local leaders rarely commented on risk assessment reports. However, Bayer also failed to distribute summarized information of technical reports to local residents regularly, hindering local involvement. Even some external civil society experts could not understand Bayer's technical reports. Mark Colvin, manager of CADRE, said:

> "…they [local civil society] couldn't interpret a lot of these reports [from Bayer]. A lot of the chrome stuff [was] really dreadful reports. I can't understand them. Units of boreholes, measurements…they didn't produce…user friendly information."

Although Bayer argued that they presented summaries of risk reports to local residents at public meetings, this happened roughly every six months, hardly an effective communications strategy to inform local residents about risk assessment and remediation developments, considering the extensive remediation required. However, eThekwini Health did also note a failure on their part in formulating a social committee alongside the technical committee at task team meetings to address local residents' concerns, which may have improved local residents' participation at meetings.

According to Bayer, civil society participation did not markedly affect the way the company would have conducted the exercise initially. However, if civil society had not participated in the task team, Bayer

would not have been under pressure to address the risk assessment and remediation process effectively. Despite the weak participation by local residents, the participation of community leaders and external civil society put pressure on Bayer to expand their narrow scientific methodology. As Raj Hooblall, of eThekwini Health, said:

> "In the absence of apathy and knowledge of community…they [Bayer] have to do what they are doing…They may think that we [local government] did it wrong by inviting the community, I guarantee you…this [groundwater contamination] would have actually lay underground for another 50 years…The effect of having an informed judgement of the issue meant that Bayer had to do it right the first time."

V. DISCUSSION OF FINDINGS

The case study revealed mixed engagement at the local civil society level in networking and organizing effectively in response to industrial groundwater contamination in South Durban's risk society. Limited networking and engagement (i.e. bonding and bridging ties) within the local community resulted in non-collective responses towards government and Bayer. With regard to local civil society leadership, some self-interested leaders engaged in the task team for either political or financial reasons. This resulted in a lack of collaboration between local leaders to accumulate social capital to collectively organize and respond to the Bayer risk. Thus, individual approaches to social capital by some local leaders resulted in ideological differences despite shared identification with broader goals and values (e.g. against groundwater pollution), and resulted in a lack of collective consensus, support and action among themselves to respond to government and Bayer.

Limited collaboration among local leaders further hindered the building of cooperation and social trust between leaders and local residents to network, organize and collectively respond to groundwater contamination. Local CBOs and their leaders did not network or engage with local residents. Leaders failed to achieve communal and attitudinal approaches to social capital with residents by encouraging collaboration. Leaders did not channel information or build the local community network by increasing social capital via sequential networking or conducting community workshops to organize collective actions to respond to government and Bayer. Residents therefore, did not have background information about the risk assessment and remediation process that would allow them to build collective consensus on ways forward with local and external civil society, and inform decisions. However, external civil society actors such as gW were more successful in this regard, showing that CBOs and local leaders are not essential partners for local organizing. Local solidarity would have been greater had CBOs and local leaders led in communicating with and representing local residents' concerns, thus increasing bonding and bridging ties and thereby collectively organizing and responding to local government and Bayer.

While local leaders developed bridging ties with external civil society, they failed to facilitate bridging ties between local residents and external

civil society contacts (i.e. academics, NGOs, development consultants, the media). The Bayer case stands out for having formally organized task team meetings where local leaders and external civil society engaged with government and industry, but that also limited CBOs' and local leaders' (and external civil society's) focus for actions with local residents to influence construction of knowledge of risk and decisions at task team meetings. This resulted in negative social capital for local residents excluded from task team meetings. Although risk assessments conducted by Bayer were overly technical, excluding social values and alienating local actors, external civil society technical support resulted in Bayer expanding its narrow scientific methodology.

Local and external civil society networking, organizing and response actions were undertaken with minimal access to financial, informational and technical resources. However, the intervention of external actors was important in attracting resources to engage with the task team in responding to government and industry. Conversely, limited educational and material resources (i.e. via workshops, information centre) were used to educate local residents and inform them of task team developments to sustain their participation and influence decisions. Collaboration between CBOs and external civil society that was fixated on a formal task team process did not result in resource acquisition for local residents that enabled them to engage and organize collectively against groundwater contamination and respond effectively to government and Bayer.

There were few examples of mobilization and protest in response to risk. Leaders did not conduct local meetings nor did they engage in sequential networking to mobilize local residents for protests. Civil society leaders engaged in a formal and technical task team process as opposed to mobilizing local residents for protests. This placed limited pressure on government and industry to effectively address the groundwater contamination and is symptomatic of a wider crisis in post-apartheid civil politics in South Africa. The change in political culture has opened space for civil society to engage in formal participatory processes with government and industry (although at times tokenistic), with the result that the protest culture witnessed during apartheid becoming less significant.[42] However, when it assumed leadership in 1994, the African National Congress and its ruling alliance partners also encouraged a policy of demobilization for the very organizations that, via mass mobilization and protests, helped propel them into power.[43] Campaigning for environmental justice and other progressive goals has also had to respond to a shift in the balance of civic life, which has also focused on securing basic needs and social services.[44] In hindsight, a twin strategy of engaging in the task team together with mobilization of local residents may have been more effective in placing pressure on local and provincial government and Bayer.

Mistrust was a feature between local groups and between CBOs and government and industry. Besides various self-interested local leaders who created distrust between leaders, local leaders also distrusted local government due to historical inaction against Bayer and a failure to respond to civil society requests for information. Neither did local civil society (and local government) trust Bayer's scientific risk assessment experts, which influenced the local CBO's (i.e. SDCEA) and external NGO's (i.e. gW) decision to seek external civil society experts (i.e. academics

42. Seekings, J (1997), "SANCO: strategic dilemmas in a democratic South Africa", *Journal of Transformations* Vol 34, pages 1–30.

43. Bryant, J (2008), "Towards delivery and dignity: community struggle from Kennedy Road", *Journal of Asian and African Studies* Vol 43, No 1, pages 41–61.

44. Bond, P (2004b), *South Africa's Resurgent Urban Social Movements: The Case of Johannesburg, 1984, 1994,* Centre for Civil Society Research Report No 22, University of KwaZulu-Natal, Durban, South Africa.

and scientists) to sit on the task team. In turn, Bayer did not trust the external civil society expertise brought into the task team process. A lack of trust between parties prevented information flow and collaborative action. Where actors have competing aims and an historical legacy of partiality, mistrust is rational, but a lack of trust allowed actors from civil society, government and industry to characterize some evidence and social values as irrelevant or unreliable, and limited social capital (i.e. effective linking ties) for cohesive actions. This fed biased decision-making and further alienated stakeholders. This suggests that mistrust between parties undermined capacity for meaningful partnership in risk management.

VI. CONCLUSIONS

The case study revealed a need for increased social networking within and between civil society groups, in order to better coordinate local residents' concerns for increased networking, organizing and responses towards government and industry to address industrial risk in South Africa's risk society. However, if civil society is to contribute effectively to addressing industrial risks, this will also require government and industry to engage meaningfully with civil society actors to incorporate their views into decision-making. While this study found that local government (eThekwini Health) did engage with civil society and set up an inclusive task team, provincial government (DWAF) did not. Bayer also dogmatically stated that there was no risk to human health from the groundwater contamination (i.e. weak methodological diversity) and that civil society had not contributed meaningfully to task team meetings. Ironically, Bayer also sought to discredit civil society expertise brought in to support local actors. This suggests that civil society networking and organizing to address industrial risk also depends on government and industry acceptance of civil society as important partners for risk alleviation.

Unfortunately, self-interested leadership limited engagement between leaders and between leaders and local residents to organize effectively in response to risk. This paper highlighted how a fixation on formal technical process (i.e. via the task team) by CBOs, local leaders and external civil society resulted in the exclusion of local residents most affected by industrial development. This has implications for the democratic character of formal (and technical) participatory structures, limiting the social capital for local mobilization and participation of affected groups to network, organize and respond to industrial risk. Rather, a dual approach by local CBO leaders and external civil society of community outreach and education to raise awareness about issues and collate local concerns, together with engaging at task team meetings, may have been more effective in responding to groundwater contamination. Consistent dialogue with those directly affected could have resulted in strong consensus among civil society to network, organize and respond collectively to industrial risk vis à vis government and Bayer. Nevertheless, the inclusion of external civil society technical experts at task team meetings resulted in Bayer expanding its narrow scientific methodology to better address the risk assessment and remediation process.

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