

Collective action for tackling “wicked” social problems: a system dynamics model for corporate community involvement*

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Abstract

Although corporations have been often accused of exacerbating social and environmental conditions in developing world regions where they operate, there are companies that sincerely engage in community development initiatives and aim for the delivery of public goods in poor regions. Still there is disquiet on how these companies go about undertaking community development initiatives spawning various forms of criticisms regarding negative side-effects of corporate social action. By means of system dynamics, and based on the longitudinal case study of Tata Chemicals Magadi (Kenya), this paper develops a model of collective action for development. Thereby it sheds light on the variables and mechanisms that are crucial for making community involvement projects an overall success for all actors involved while benefitting the initiating company. The model highlights in particular the importance of “we-feeling” between all relevant stakeholders and of participatory community development capacity. The results indicate that collaborative networks actively including local communities may foster communities’ self-help capacity, while creating a positive feed-back loop to company performance. This study allows exploring new forms of social responsibility that leave behind corporate-focussed models for the sake of inclusive and participatory forms of shared responsibility, which is of relevance on both the academic and practical side, and may also be transferred to an industrialized world context.

Keywords

Community involvement; participation; corporate responsibility; inclusion; longitudinal case study; system dynamics.

1. Introduction

Corporations have been accused of exacerbating social and environmental conditions in developing world regions where they operate, for example by aggravating poverty and social displacement, backing authoritarian regimes, exploiting workforce and polluting the environment. Corporations attempt to tackle these intractable ‘wicked’ social problems in their local communities mostly through their ‘community development’ initiatives (Banks, et al., 2016) driven either under their corporate community involvement (CCI) or corporate social responsibility (CSR) programmes (Muthuri, 2008a; Chapple and Moon, 2005). A quick review of community-focused CSR practice reveals the popular usage of ‘community investment’ term among CSR practitioners compared to that of ‘community development’. Community investment is instrumental in nature and yet for companies to address the grand challenge of ‘poverty’, a community development perspective offers an opportunity for companies to: firstly, engage in creating conditions for social, economic and cultural progress for the communities in which they are located (Muthuri et al., 2012) and secondly, support other actors to take collective action to tackle problems that many individuals may be experiencing but might lack the resources, capacity, infrastructure and leadership to accomplish a shared goal with wider public benefits (Gilchrist and Taylor, 2016).

Community development is a powerful concept to help corporations re-think their role in addressing poverty, a ‘wicked’ problem that is complex and multi-dimensional in nature (Head and Alford, 2015; Banks, et al., 2016). Unfortunately, corporate engagement in community development tend to be philanthropically orientated with companies treating communities as “objects of development as opposed to agents of their own development” (Muthuri et al., 2012, p.364). CSR practitioners often adopt a linear as opposed to a dynamic approach to articulate community development; additionally, the instrumental and transactional approach to CCI is considered insufficient to address development in local communities particularly those in developing economies that face deep poverty (Zhu et al., 2016; McEwan et al., 2017). The engagement of corporations in community development is not new but there is a lack of a systems approach to be able to understand the dynamic dependencies (e.g., modification of the dependencies based on the maturity of the CCI) and to identify unanticipated side effects. Therefore, the objective of this research is to develop a system dynamics model to understand CCI on a systemic level and to support respective decision-making, thereby overcoming the aforementioned CCI shortcomings.

Corporations in developing countries are known to participate in the delivery of the public goods through CCI and in doing so sometimes undertake roles and responsibilities which they are neither equipped nor appropriate (Valente and Crane, 2010; Muthuri et al., 2012). Corporations take responsibility for not only the immediate effects of their business operations but also for the benefits in the wider social, economic and political context in which they operate. Although they may do so for good business reasons and in good faith, there is often some disquiet on how they go about undertaking community development initiatives with criticisms of CCI encouraging dependency culture, co-optation, or even criticism over their selective choices of communities impacting on the distribution of resources and development in a particular locale (Muthuri, 2008b; Baur and Schmitz, 2012; Amaeshi et al., 2016). This is because CSR practitioners often adopt an instrumental CCI strategy that provide short-term business benefits as opposed to taking a more long-term value-creation development for both the company and the communities. Furthermore, "what constitutes 'community development'

to a business is typically different from how governments, or NGOs [non-governmental organizations], might constitute this" (Banks, et al., 2016, p.6). Therefore, there is need to continue interrogating the current CCI practice and question its sustainability credentials as well as the extent to which CCI builds the capacity of communities to act as partners in development.

This paper critiques the effectiveness of traditional corporate-driven CSR that responds reactively rather than proactively to wicked social problems among deprived local communities (Littlewood, 2014), and advocates a collaboratively driven model of community development. Such model shows how corporate-centric social responsibility activities—i.e. traditional CSR—can be transformed into “participatory” and “inclusive” CSR / community development models that create sustainable (mid- and long-term) development through establishing appropriate governance and accountability mechanisms, backed by comprehensive stakeholder engagement (Blowfield and Frynas, 2005; McEwan et al., 2017). In “participatory” and “inclusive” social responsibility models, the company is often the initiating actor, playing a convenor role and then deliberately steps back and acts as one partner among a group of equal partners in development. It is particularly this phase of participatory community development that is of outstanding interest to investigate and model.

One may ask which parameters are crucial for turning community development into a self-governed perpetuated system that serves the development and service needs of the entire community. In this way, the paper contributes towards developing a new inclusive perspective on CSR and sustainable community development that deliberately empowers communities and other stakeholders. The paper also makes suggestions on how corporations can promote and build sustainable communities to achieve the global sustainable development goals (SDGs). The research context of the extant study is the marginalised communities in a developing country. Due to the large population ratio, inclusive social responsibility in the developing world has a huge potential impact on living conditions of humanity, improves future prospects and might allow useful inferences to the developed world as well (De Paiva Duarte and Imbun, 2016; McCarthy and Muthuri, 2016). Specifically, the paper asks the following research question: How corporate-initiated community involvement models may effectively cater for the development and service needs of the local community?

The remainder of the paper is structured as follows. First, a literature review describes how CSR and corporate community involvement have been applied in developing and emerging countries, before highlighting the dearth of approaches that take a genuine participatory and inclusive stance to the problem of poverty, low standards of living, and lagging development. Subsequently, the methodology of system dynamics modelling is presented. After explaining the model of participatory and inclusive community development, the simulation results are presented along the lines of various scenarios. For the exploratory systems dynamics analysis, the empirical case study on sustainable community involvement in Magadi region in Kajiado county (Kenya) is used to provide the motivation as well as empirical data for the presented research as well as for model validation. Amongst others, the paper identifies “we-feeling” as highly important parameter for perpetuating the system of community development, as it mobilizes all actors within the network, and allows the emergence of a common vision, common language and trustful collaboration. The paper further discusses the implications of the findings, in particular against the objective of establishing progressive forms of CSR and corporate-driven sustainability strategies that cater to the needs of resource-poor regions in emerging and developing countries. The paper concludes by discussing the limits of the approach taken and pointing towards promising avenues for future research.

2. Background

This section first presents the relevance of CSR in a developing country context, and then specifically introduces the concepts of corporate community involvement and development.

2.1 Corporate Social Responsibility in developing countries

Corporate Social Responsibility as an academic discourse and business practice has become popular since the 1990s (Carroll, 1991). In a broad sense, CSR acknowledges that companies have obligations beyond their quest for shareholder profitability and legal compliance (Friedman, 1970). These obligations in particular arise from their interaction with their stakeholders, thereby connecting to stakeholder theory (Freeman, 1984), and their embeddedness in the political system as corporate citizens. As corporate citizens, companies may assume roles of participators in societal governance, engaged actors getting involved with all stakeholders, and enablers of fair and free societal deliberation (Moon et al., 2005). While the context specificity of CSR as business concept has been largely acknowledged, as shown by the popular distinction between implicit and explicit CSR by Matten and Moon (2008), CSR is still a concept that is largely tied to the conditions of the industrialized world where functioning government and markets as well as strong civil society enforce responsible business practice. While there is evidence that firms still pursue and enact responsible business practices in challenging and non-enabling institutional setting as shown by the case study of Fidelity Bank in Nigeria (Amaeshi et al., 2016), there are other voices who see a sharp contradiction between CSR rhetoric and corporate action in a developing country context (Slack, 2012). It seems that the voluntary, philanthropic, and often instrumental stance of CSR—as for example claimed by the much-cited article by Porter and Kramer (2002)—tempts companies to take advantage of institutional weaknesses and is generally at odds with basic tenets of human rights (Rodhouse and Vanclay, 2016) and development. Even if companies aim at pursuing responsible businesses practice, for example by shielding themselves from adverse institutional influence (Amaeshi et al., 2016), it remains unclear how exactly companies may generate the best possible impact on various stakeholder groups and society at large in resource poor environments. In order to have real impact on the ground, localized approaches have been found to be necessary (Gold et al., 2013), which brings local communities into the focus of attention for any CSR action.

2.2 Corporate Community Involvement and Development

Corporate community involvement has had a long tradition and has developed from industrial paternalism and corporate philanthropy to more interactive and collaborative forms such as employee volunteering, tri-sector partnerships and social investment (Muthuri, 2008a). In business practice and most of empirical research, community involvement often suffers an instrumentality bias, meaning that communities receive attention by managers according to their “salience” (Mitchell et al., 1997). More importantly, CCI has been criticized of falling short of its main objectives of actual engaging local people and better their standards of living (Sharmin et al., 2014). Muthuri (2008b) criticizes models of community involvement in developing countries in particular for their corporate-centric stance that conceives corporations as key agents of development who take advantage of “institutional voids” (Silvestre, 2015a, b) in order to expand their influence without providing transparent governance and accountability towards affected stakeholders (Lauwo et al., 2016).

The central argument here is that corporate-driven community development endeavours—even if motivated by the best intentions—may keep communities in dependency, rather than empowering them through capacity-building and real participation. This argument resembles somewhat the foreign aid debate that underlines (for example in the case of the transition of South Korea) that the key factor of successful development was internal political processes that minimized negative side-effects of development aid, rather than direct external interventions in state-building (Kim, 2015). In the case of community involvement in a developing country context, it seems of outstanding importance to adopt a “community centred approach” (Misener and Mason, 2010) where communities have the power and control over decision-making and governance processes so to avoid currently widespread “hollow participation” (McCarthy and Muthuri, 2016; Mellahi and Wood, 2003) and allow for emancipation of the communities from corporate tutelage (McEwan et al., 2017).

Furthermore, as Muthuri et al. (2012, p.14) argue, “the institutionalization of CCI practices in developing countries continues to stress the business case and companies often rationalize their CCI from an instrumental perspective”. The extent to which CCI contributes to addressing structural poverty and underdevelopment, and complex collective action problems may require a shift from current practice where corporate-community interaction is “linear” and “transactional” in nature (Seitanidi and Ryan, 2007) and towards an “integrated and relational” approach to CCI (Muthuri et al., 2012). The transactional approach conceives communities as beneficiaries and corporations as benefactors. CCI initiatives are concerned with outputs (e.g. build a school) to address a specific problem that the beneficiary is faced with (in this case, lack of infrastructure). Such an approach fails to address the root cause of poverty and underdevelopment and, more critically, it fails to reflect communities as complex systems. Whereas the integrated relational approach requires the consideration of corporate-community interaction and sustainable community development from a systems approach where actors are interlinked and together they engage in action that improves the socio-economic, ecological, human, political and cultural capitals of these communities of place. Herein, corporate-community interaction is not a ‘benefaction’ arrangement but the community is an agent of development just like the corporation and other collaborating actors operating in an open governance arena or system. CCI embraces a macro perspective that views a community as a holistic system with system components interlinked.

This study exactly looks into the question how corporately-initiated community involvement may lead to long-term community development. It also addresses the core problem of collective action as proposed by Olson (1971), i.e. the lack of assistance by rational, self-interested actors for the interest of a large group as represented by communities embracing a range of different actors, if there are no proper incentives or compulsion. The paper argues that corporations can play a key role in addressing complex societal problems unrelated to their core business and that they can thereby improve their own business environment by adopting a collective action approach to community development in their locales rather than a corporate-centric approach that might have negative consequences for the corporation (e.g. high transaction costs) and to the community (e.g. dependency, powerlessness).

3. Methodology: system dynamics

In order to gain insights into the crucial features that help perpetuate models of community development, the time-dependent, dynamic dependencies between all players involved need to be modelled. Since these models involve a multitude of actors and their interactions over time,

the research methods have to handle these high levels of complexity in a reasonable way. Therefore, the system dynamics modelling is applied (Forrester, 1961) that is able to treat multiple non-linear relationships between many variables. According to Sterman (2000), this exploratory, quantitative, and empirical research method is “powerful [...] to gain useful insights into situations of dynamic complexity” (p.39). It is predicated on the principles of feedback loops (positive and negative) based on cause-effect links, time delays, and accumulations of stocks (Sterman, 2000). More generally, Hjorth and Bagheri (2006, p.79) advocate that the solution of today’s (sustainability) problems requires a systems approach: “In order to understand the source and the solutions to modern problems, linear and mechanistic thinking must give way to non-linear and organic thinking, more commonly referred to as systems thinking—a way of thinking where the primacy of the whole is acknowledged.”

System dynamics modelling has recently been used in similar research settings, namely for the dynamic analysis of multiple performance objectives of a localized multi-actor Base-of-the-Pyramid social business model (Reiner et al., 2015). Kuai et al. (2015) have developed a system dynamics model for evaluating different planning alternatives for guiding green industrial transformation of a Chinese city. Based on historical data, Vafa-Arani et al. (2014) have developed a system dynamics model of the effects of urban transportation and polluting industries on air pollution in Tehran (Iran), while proposing most effective policy measures for tackling the problem. Teekasap (2014) investigates under which circumstances foreign direct investment will increase or decrease income inequality in developing countries. More generally, system dynamics simulation models may crucially help in understanding and evaluating complex socio-ecological systems and their transition toward sustainability, in particular if leveraged together with qualitative methods and if applied in a qualitative and reflective manner (Nabavi, et al., 2017).

However, this method has not been used yet for analysing community involvement and CSR approaches in a resource-poor developing country context, despite its high suitability for the analysis of these approaches that feature multiple actors, complex interactions, and non-linear developments over time. The software Vensim (www.vensim.com) is used to analyse the formal formulation of the model that is presented in the next section.

4. The model

Using the case study of Tata Chemicals Magadi, Kenya (formerly Magadi Soda Company), this paper develops a model of collective action for development. The formal development and description of the model is supported by quotes gathered during the case study research to demonstrate the link between the qualitative research and the model development. The case study research is longitudinal and data was gathered in two phases between 2006-2008 and 2012-2014. The research design was inductive adopting a grounded theory methodology. The research employed a variety of research techniques in flexible ways as advocated by Balogun et al. (2003): namely, document archival analysis, interviews, three focus group discussions with community members, and participant observation in 13 corporate community meetings. The interview technique was the primary source of data; semi-structured interviews conducted with different stakeholders (see Table 1) were guided by different sets of interview schedules, which allowed for exploration of unfolding issues and in-depth responses from interviewees. The model’s key inputs have been obtained by means of discussions with 80 respondents including community stakeholders, development experts, and decision makers in the field. This collective governance approach embraces the local community, local/regional governments and civil society as development actors and engages them in delivering health services, water

provision, schooling, management of natural resources and capacity building. For the follow-up data collection period between 2012-2014, only the interview method was employed to examine the changing corporate-community interaction and the role of different stakeholders in advancing corporate community development in the region. The research approach adopted allowed us to capture both retrospective and real-time analysis of the phenomenon (Pettigrew, 1997).

Types of Respondents	2006-2008	2012-2014
Company representatives	18	6
Community leaders	13	5
Civil Society representatives	20	4
Governmental representatives	9	2
Others	3	0
Total	63	17

Table 1. Total number of interviews

Tata Chemicals Magadi (TCM) is Africa’s largest soda ash manufacturer and the second largest in the world. TCM is located in the Magadi region, one of the administrative districts of Kajiado County. The company is situated about 120 kms South West of Nairobi. According to the 2012 Kenya National census, the population of Kajiado County was about 808,070 people and it is estimated to reach about 1 million by 2017. Kajiado County is vast and primarily semi-arid. It is inhabited mainly by the Maasai community although other communities have since occupied the area mostly due to business and employment opportunities with government, non-governmental organization (such as AMREF and ActionAid) and the only big corporation in Magadi—Tata Chemicals Magadi. Although Kajiado County is endowed with natural resources exploited by big corporations like the Portland Cement, Tata Chemicals Magadi, and Amboseli National Park, the majority of people live in abject poverty. Notably, despite the presence of Tata Chemicals Magadi, Kajiado West is one of the regions in Kenya with high levels of poverty, illiteracy and related persistent social and environmental problems which may be labelled as “wicked problems” (Rittel and Webber, 1973). For example, the state of healthcare, infrastructure, and education in rural Kajiado is deplorable. Therefore, the company forms an “important part of the socio-economic fabric of the Lake Magadi region” (www.tatachemicals.com). The inhabitants of Kajiado West have traditionally depended on Tata Chemicals Magadi to provide access to public goods including water and employment but under some special arrangements with the national government like captured in the excerpts below which is no longer the case.

“Nobody has ever asked how much more we are owned by the national government. [...] So in the process somebody may say, this used to be done and it has continued to be done. Yes, we have continued doing these things but these things have been transferred directly to the company as a responsibility. We appreciate the fact that this has to be done. That is why we have continued doing that. So in as much as the community might think that this is part of the lease agreement, the lease didn’t say what needs to be done. The lease just says, the interest must be taken care of, they should be allowed access, and we have allowed them access.” (Manufacturing Director, TCM)

“When we were doing the PRA [Participatory Rural Appraisal] we were drawing the VENN diagrams, we’d ask, ‘where is the government?’ and they’ll say ‘we’ve never seen the government here, we see the chiefs’. The projects are Magadi Soda’s, African Conservation Centre, AMREF, etc unlike other places where you see the government has done this and that, but for Magadi division it is dismal.” (Project Field Coordinator, Practical Action, a local NGO)

“Magadi Soda is the only source of many things, for example, the only reliable water from Ngurumani escarpment, talk of transport or the railways, the roads, even telephones and communication wise - all is as a result of Magadi Soda. [...] If you look at the government offices they are at Okramatian, which is about 30 kms from here to Kajiado.” (Senior Chief, Magadi region)

The high stakeholder expectations for Tata Chemicals Magadi to address the wicked problems in Kajiado West have historically remained unrealistic due to limited resource capacities of the previous centralised governments. This exposed the company to high transactional costs and risks associated with its traditional CSR practices. Indeed, wicked problems in Magadi seemed to have “no definitive formulation and no conclusively ‘best’ solutions” (Hjorth and Bagheri, 2006, p.78). Furthermore, the various economic, social and ecological problems in Magadi seemed to constantly shift, and the overdependence on the company to provide the public goods to the local communities necessitated the rethinking of its traditional CSR support. Additionally, the company realised social problems are a societal issue and not the company’s sole responsibility as aptly captured,

“So we then realised also that there was growing dependency by the community to the company. Every problem happens it is the company they even don’t look at the government. The first point of reference will be MSC, and we are saying that is not good for the community in the long-run.” (Human Resources Director, TCM)

“I also think Magadi Soda has realised that it is not the government of Magadi, NGOs have a role, the government has its role and that should continue to be emphasised on the way forward. MSC has played the role of the government it must involve other stakeholders. The demands have been growing and that is why it has brought in other NGOs and government. Government must be pushed to play its rightful role. The government has gotten away with pushing too many things to the company and that is not too healthy.” (Board Member, TCM)

Therefore, the company convened and mobilised state and non-state actors to contribute their resources, capabilities and competencies to address specific issues in the community. In order to achieve some degree of sustainable community development, the community had to become a key partner in development. Unlike the transactional approach to CCI where communities are not actively engaged in the governance of community development, their new role as partners in development created opportunities for them to take leadership and to participate in community development initiatives together with the company. The case evidence mainly based on the 2006-2008 data has been previously criticized for its merely qualitative approach and its lack of modelling capabilities (see Muthuri, 2008a) whilst this paper explicitly embraces

modelling as a research tool and complements the 2006-2008 data with follow-on data gathered between 2012-2014 by the second author.

In this paper, a model is built for the corporate CSR state ($CCSR_t$) based on the characteristics of community development initiatives in Magadi and the work of Bossel (1994). A detailed formal description of the model will be provided below. The main dependencies (see Figure 1) and assumptions will be described. The dependencies between variables (stocks and flows) is inspired by the work of Bossel (1994) about dependency and evaluated by the researchers of this study, referencing the qualitative data of Tata Chemicals Magadi,

Commented [SG1]: Or rather : researchers ?

“In our world full of organisms, people, and organizations individual “actors” can never be completely autonomous and independent. To a lesser or larger degree they are dependent not only on their own actions, but also on those of others. This becomes a problem if the dependency of an actor on others reaches the point where he can no longer determine his own destiny autonomously. Examples can be found, in development aid, and in the dependence of individuals, communities or entire branches of the economy on state aid.” (Bossel, 1994)

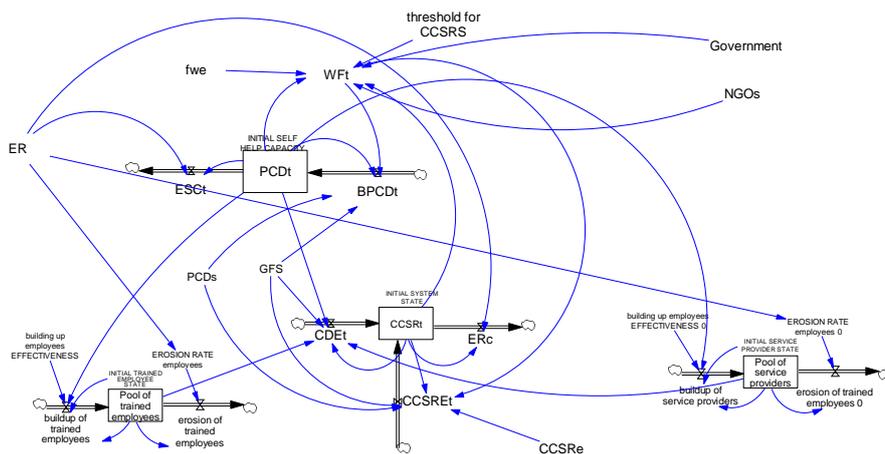


Figure 1. Basic system dynamics model of community development by Tata Chemicals Magadi

The participatory community development capacity (PCD_t) is a core element of the presented model. PCD_t is increased by build-up of PCD capacity ($BPCD_t$) for example, through training and awareness creation, and decreased by the erosion of self-help capacity (ESC_t). $BPCD_t$ is mainly influenced by the $PCD_{t-\Delta t}$, the PCD share (PCD_s) and the we-feeling (WF_t). To achieve this, TCM initializes and invests into building up the participatory community development capacity, eventually transforming their role to a convenor of stakeholders for development in Magadi. The benefits of PCD_t are immense. In addition to the community becoming more empowered, the company gets various benefits back including a pool of trained employees (PTE_t) and a pool of service providers (PSP_t), for example for suppliers and cleaning services:

“When we went there [to implement projects], we found the community had a dependency syndrome. They said that the money was given to the donor, so why do you want us to contribute. We told them that the donor demands that they’ve got to contribute something. We started the concept of a shilling-to-shilling - we said do your work for your own self, be paid and at the end of the day you are the ones getting the skills and the pay.” (Project Field Coordinator, Practical Action, a local NGO)

“The benefits are that for many years we have been in development arena for close to 12 years the call by NGOs and development practitioners is that we need to hear the voices of the people. We need to hear people’s contribution to development programmes that are targeted to improve their living standards and their livelihood. The [community engagement forum] SWOT had delivered that and they are able to sell the communities feelings and proposals, what people in Murantawua [name of a village] or Musenke [name of a sub-location] want, you get it from the SWOT because they have consultations at community levels then they bring it to SWOT. That is why I said it is a working group. It is very easy to do things in Magadi as long as you are clear and open on what your contribution in the division will be. So for the community there is a huge benefit in the sense that they are involved, their voices are heard and incorporated, and they participate in planning.” (Programme Coordinator, Red Cross Kajiado Branch, a local NGO)

“... do you know why the company productivity has increased? You see now I don’t miss production days because of disruptions so the direct benefit is improved productivity. We have focused on our core business. Volumes have been going up because the [community] employees have a different attitude, they focus on work and do not feel exploited because whatever he helps produce affects him in one way of another. When productivity improves profitability improves, and that same profitability makes us sustain the contractors, the multipurpose cooperative, it helps us to keep providing water and medicine to the community because the company is helping and everyone is helping.” (Supplies and Purchasing Manager, TCM)

$$PCD_t = (BPCD_t - ESC_t)\Delta t \quad \text{[state]} \quad (1)$$

$$BPCD_t = \max(GFS - PCD_{t-\Delta t}, 0) \times WF_t \times PCD_s \quad \text{[state/month]} \quad (2)$$

$$ESC_t = ER \times PCD_{t-\Delta t} \quad \text{[state/month]} \quad (3)$$

The main effect that is described is how corporate CSR activities get more effective by actively building up capacity of local communities, thus benefitting the overall cause as well as the company itself. The CSR orientation shifts away from ‘*what the company can do for community*’ to ‘*what can all actors do to address the problems and opportunities that face them*’, i.e., the company is shifting to an enabler instead of being a trouble-shooter for the community. Indeed, different actors reap benefits from PCD_t such as the opportunity for peer learning as organizations seek continuous improvement in community development. The network has

enhanced the learning capacities and skills of actors (community, companies, NGOs, Government) as captured below:

“The SWOT [community engagement forum] is also making the community understand the company limitation, obligations and responsibilities, and the communities’ responsibility. The company is not there to replace government for instance they don’t come to replace the government in infrastructure development, which they have been doing in the past, but they come in to supplement or complement what government is doing in other areas.” (Programme Coordinator, Red Cross Kajiado Branch, a local NGO)

“I think we are able to understand which programmes are going on so that we do not have to duplicate these projects [...] as I said before, it makes it easier to meet donors and to tell them what the need of the community is as a team and not as individual organizations. And also you learn ‘oh, this is actually an income generating activity and it was not successful because of A, B, C, D’ so you change tack and try other measures.” (Executive Director, NIDRA, a local NGO)

Therefore, it is assumed that the community development effect (CDE_t) in time interval $(t-\Delta t;t]$ is influenced by PCD_t , PTE_t , PSP_t , and by a comparison of the corporate CSR effect ($CCSR_t$) with the goal for state (GFS). This is based on the basic model of Bossel (1994) saying that the more a community relies on external support, the more its ability for self-help erodes, and its dependence on external help increases. It is also suggested as an option in the model that this negative effect of external help (in particular by companies) might be reduced if the focus will change to enabling (developing) the community instead of trouble-shooting,

“I see the community development process has helped. Apart from them [community stakeholders] owning it, the biggest benefits for us [TCM] should be sustainability of whatever programmes we have in the community. If they are able to sustain these projects, we will have achieved our objectives because we recognise that our duty as a company is not to do community work.” (Human Resources Director, MSC)

“As a company, we are good at producing and selling soda ash but there are certain skills that we don’t have [for community development]. But with the Community Development Plan (CDP) we actually benefit from skills and competencies of organisations that are good on natural resource management for example. I must say that for the short time the CDP has been there, it has been very successful in terms of achieving its intended purposes. One way is to attract more partners because the Danish Embassy has already supported the community which has helped us to hire some staff for the projects. The CDP has bought a project vehicle for the community activities. These are things which we wouldn’t have without the CDP. So I think although it is in its infancy, it has starting to achieve its intended purposes.” (Human Resources Director, TCM)

The corporate CSR State ($CCSR_t$) is specified as follows under consideration of the $CCSRE_t$, the erosion of state (ER), and the CDE_t ,

$$CCSR_t = (CCSR_{e_t} + CDE_t - ER)\Delta t \quad \text{[state]} \quad (4)$$

$$CDE_t = \max(GFS - CCSR_{t-\Delta t}, 0) \times PTE_{t-\Delta t} \times PSP_{t-\Delta t} \times PCD_{t-\Delta t} \quad \text{[state/month]} \quad (5)$$

In the model, the $CCSR_{e_t}$ in time interval $(t-\Delta t; t]$ is influenced by the we-feeling (WF_t), GFS, PCD-share (PCDs), and CCSR-effectiveness ($CCSR_e$).

$$CCSR_{e_t} = \max(GFS - CCSR_{t-\Delta t}, 0) \times (1 - PCD_s) \times \max(CCSR_e - WF_t, 0) \quad \text{[state/month]} \quad (6)$$

An attempt to make this community development (enabling) spirit of all involved actors explicit is the introduction of a special measure, the so-called we-feeling (WF_t). The WF_t is of special interest and is modelled generically to address all relevant factors for collective actions, i.e., to carry out relevant sensitivity analysis. The WF_t is influenced by PCD_t , $CCSR_t$, threshold for CCSR impact (TH_{CCSR}), impact of NGOs (I_{NGO}), the impact of government (I_{GV}) and the factor for we-feeling (f_{WE}). It is assumed that the WF_t is a normalized variable with a minimum value of 0.1. Furthermore, to reach the minimum WF_t it is given that the $CCSR_t \times TH_{CCSR}$ has to be higher than the PCD_t . If the PCD_t is higher than the $CCSR_t \times TH_{CCSR}$ the WF_t depends on the $TH_{CCSR} \times TH_{CCSR}$, i.e., the company is supporting collective action for community development through sharing the same objectives with the other actors. The TH_{CCSR} is a normalized factor with values between 0 and 1. The impact of NGOs (I_{NGO}) and the impact of government (I_{GV}) are represented as normalized factors (0 to 1) to specify to which extend NGOs and the government contribute to the WF_t . Finally, the f_{WE} is a normalized factor as well that can be used to increase or reduce the overall impact on the WF_t .

$$WF_t = \max\left(\frac{PCD_{t-\Delta t} - CCSR_{t-\Delta t} \times TH_{CCSR}}{PCD_{t-\Delta t}} \times I_{NGO} \times I_{GV} \times f_{WE}, 0.1\right) \quad \text{[dimensionless]} \quad (7)$$

It involves the cultivation of a collective intentionality for collaborative action through a shared understanding of the wicked problems, the consensus building on the system's problems and the designing together of a common approach to address societal problems, the sharing of roles and responsibilities for development, and the willingness of different actors to share skills, resources and capabilities to address the societal problems:

“We are developing the community in the context of the government's development plan. The CDP is linked to the sub-DDC which of course is linked to the DDC [District Development Committee] and subsequently to the government plan at the national level so that there is no conflict. (Human Resources Director, TCM)

“We went through the structures as partners for everybody to understand their roles. Every organization was going through their responsibilities and they would say ‘no, we feel our strength as NIDRA is on capacity building, so why don't you offer that to AMREF (African Medical and Research Foundation)’. AMREF would say yes or no.

So this process was repeated for all partners, and some would say ‘we have our specialty in education, so we offer our services in the education component’.” (Community Relations Manager, TCM).

“... we’ve continued to measure the value we add to the community on an on-going basis – so the CDP [Community Development Plan] is a vehicle to achieve that. We also want to be a global leader in community development initiatives so the community is an integral part of our vision. Our mission as you have seen says that we will create prosperity through responsible use of Magadi’s natural resources. Creating prosperity is not just for the company, we want to create a prosperous Magadi community. You’ll see that our interventions even in the establishment of the CDP is supposed to achieve that. “Responsible” is a key word for us. It means being responsible of the way we manage the natural and social environment - the social environment means the people who live around there.” (Human Resources Director, TCM)

Finally, the validation of the systems dynamics model has been conducted to ensure the validity of the results (Barlas, 1996; Reiner et al., 2009). In accordance with Barlas (1996) the validity of the internal structure (e.g., participatory community development capacity, corporate CSR state, we-feeling) has been corroborated through intensive discussions among the research team that has been building the model based on the qualitative data collection in the field. This means that the presented model is based on the findings from the longitudinal case study of Tata Chemicals Magadi where data was collected in the periods 2006-2008 and 2012-2014. Furthermore, established knowledge was used from Bossel (1994), and the related structural components were integrated. As recommended by Barlas (1996), we carried out unit consistency tests, i.e., checking the right-hand side and left-hand side of each equation for consistency. Based on our modelling approach that is based on normalized variables and parameters, the recommended test of the behavioural accuracy under considerations of empirical historical data is not possible (Reiner et al., 2009). Therefore, the results of the simulation were compared with the “mental database” (Forrester, 1992) that has been developed through the longitudinal case study research.

5. Scenarios and results

Table 2 provides an overview of the relevant input parameters as well as the initial values. Furthermore, the different analysis scenarios are described and the related results are presented. The state variables of the model are PCD_t , PTE_t , and PSP_t . The model is based on with normalized quantities of order of magnitude "1" (Bossel, 1994).

	Input parameters	Initial values
Δt	time interval	1 [month]
$CCSR_t$	corporate CSR state	1 [state]
ER	erosion	0.3 [1/month]
TH_{CCSR}	threshold for CCSR impact	0.5 [dimensionless]
$CCSR_e$	CCSR-effectiveness	0.2 [dimensionless]
GFS	goal for state	2 [state]

I_{NGO}	impact of NGOs	1 [dimensionless]
I_{GV}	impact of government	1 [dimensionless]
f_{WE}	factor we-feeling	1 [dimensionless]
PCD_t	participatory community development capacity	1 [state]
PTE_t	pool of trained employees	1 [state]
PSP_t	pool of service providers	1 [state]

Table 2. Standard input parameters based on available empirical data

In this model PCD-share (PCD_s) and we-feeling (WF) is a very crucial parameter. Therefore, three values for the threshold for CCSR impact (TH_{CCSR}) (0.25, 0.5, 0.75) on WF in combination with a sensitive analysis for PCDs (0, 0.1, ..., 0.9,1) will be carried out (see Figure 2, 3, and 4). Higher values of TH_{CCSR} indicates lower level of synergies between WF (as well as PCD_t) and CCSR.

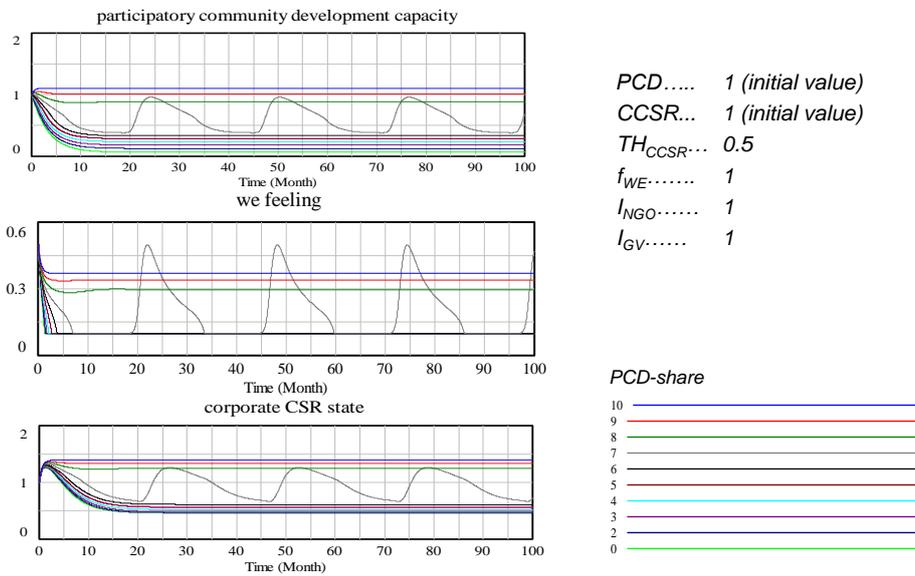


Figure 2. Results for threshold CCSR 0.5

“So we [NIDRA] joined because we thought the CDP initiative would give us a better chance of fundraising. Rather than working alone, the CDP will give us a better chance to implement things as a team. It provides the opportunities to achieve NIDRA’s mandate to use community approaches to improve livelihoods. [...] At least we see Practical Action have different skills including fundraising; they are more exposed, and they are known better to donors. So, because of that credibility, we partner with them so that we also access funds from donors.” (Executive Director, NIDRA, a local NGO)

“You know there is something I find difficult as a development worker. We keep on talking about sustainability, we talk about community ownership of the different ideas that come up, but these don’t work. But I saw a different thing in Magadi because if you have leaders agreeing to come together, if you have the local leaders forming 95% of whatever committee is constituted, then you are doing fine! This is different with what we have here in the district headquarters [county level]. The committees hardly bring on board community representation.” (Programme Coordinator, Kenya Red Cross)

As shown in Figure 2, in case of a medium TH_{CCSR} only high PCD-shares (PCD_s), i.e., corporate investment into participatory community development is high, will lead to a stable $CCSR_t$ as well as PCD_t and a slight decrease of we-feeling (WF_t). A medium level of PCD_s is characterised by a very unstable behaviour of all performance measures, i.e., $CCSR_t$, WF_t , and PCD_t . Finally, low values of PCD_s will lead to a complete erosion of WF_t and interestingly the $CCSR_t$ is reduced as well.

This leads to the proposition that even in case of high PCD_s under consideration of medium TH_{CCSR} the $CCSR_t$ will be low.

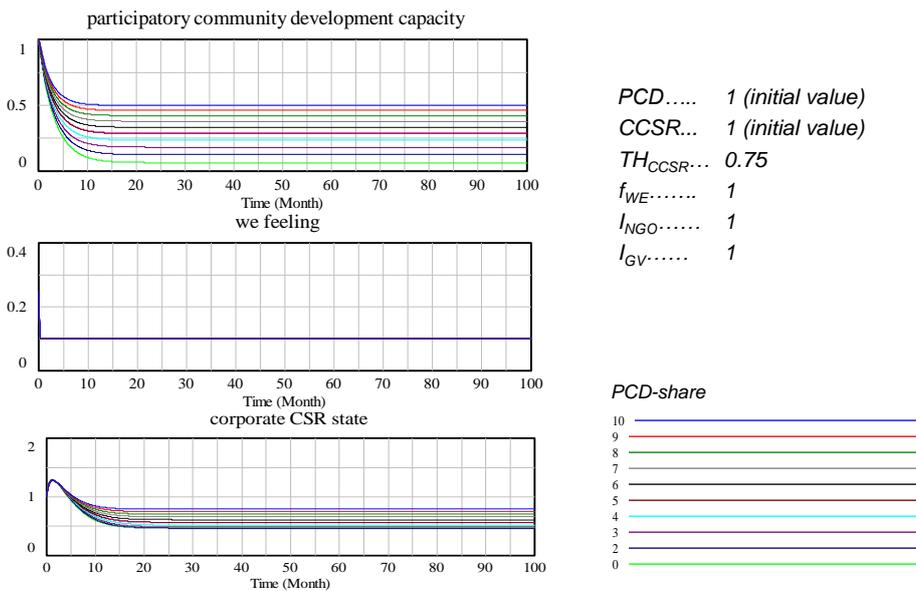


Figure 3. Results for threshold CCSR 0.75

Figure 3 indicates that in case of a high TH_{CCSR} at high PCD-shares (PCD_s), will lead to a complete erosion of WF_t , PCD_t , and $CCSR_t$.

This leads to the proposition that even for the complete range of PCD_s under consideration of high TH_{CCSR} the $CCSR_t$ as well as PCD_t will be low. This case demonstrates lose-lose situation for the community as well as corporate CSR development.

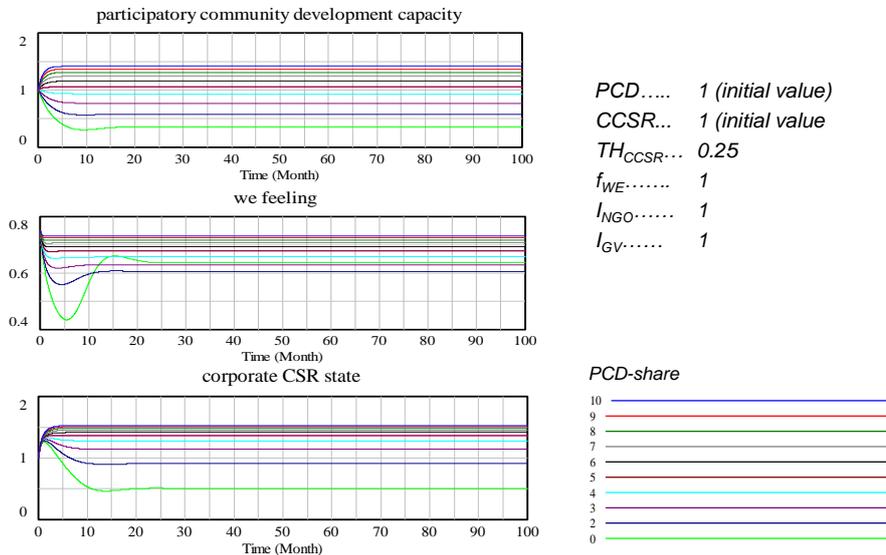


Figure 4. Results for threshold CCSR 0.25

As shown in Figure 4, in case of a low TH_{CCSR} (high synergies between $CCSR_t$ and PCD_t), higher PCD_s will lead to a stable increase of $CCSR_t$ as well as PCD_t and we-feeling (WF_t). Lower values of PCD_s will lead to a slight erosion of PCD_t and $CCSR_t$.

This leads to the proposition that low TH_{CCSR} will lead in combination with medium or high PCD_s to a win-win situation, i.e., stable increase of $CCSR_t$ as well as PCD_t .

6. Discussion

The notion of sustainable community development is not the reserve of communities in developing world. The case study provides lessons for communities in the global world striving to achieve SDG goal 1 aiming “to end poverty in all its forms everywhere”. There is evidence of growing poverty particularly in urban neighbourhoods in developed nations and partnerships and collaborative action is proposed by governments, business and civil society alike as a remedy. In fact, political projects such as Great Britain’s ‘Big Society’ aimed to empower communities and neighbourhoods towards self-development for the common good. The importance of the cultivation of “we-feeling” among actors can galvanise action by all; additionally, the use of systems dynamic modelling suggested in this paper can help societies achieve their intended aim of a systems approach to be able to understand the dynamic dependencies (PCD_t , WF_t , etc.) and to identify unanticipated side effects, e.g., a low PCD_s will lead to a complete erosion of WF_t and interestingly the $CCSR_t$ is reduced as well. The traditional instrumental motives/agenda for company oriented CSR in terms of public relations, image and reputation building could easily erode the we-feeling, i.e., the explicit past self-interest agenda by any stakeholder can destroy the we-feeling. This is in line with Olson’s (1971) theory of collective action underlining the essential importance and difficulty to appropriately incentivise all individual actors to join their forces for the common goal.

The following quote underlines potentials conflict of interest related to corporate community development,

“If this money is going to the community and we have a capacity to take that money to the community why should we take through another intermediary? Each organization wants to build its own reputation. I am sorry I am just referring to Practical Action but if they do a project, whose project will that be? Are they ready to say this is a CDP project? or will they say this is a Practical Action project with the Royal Danish? So these are some of the issues we see because even if we as Magadi put money into the CDP, we’ll still want to be recognized as that’s our money especially if we want to blow our trumpet. But CDP would also wish to say we got this money from Magadi and we have done abcd as CDP. So those issues need to be refined.” (Community Relations Manager, MSC)

The findings of this paper highlight that reliance on corporate CSR spending that does not foster participatory community development capacity, is largely ineffective for delivering essential services and sustainably raising standards of living of poor communities. At the same time, such corporate-centric CSR represents a considerable financial burden for the company. Therefore, corporations may have an incentive to spur collaborative networks involving communities, governments and civil society to foster self-help capacity through active inclusion of local communities, and enhance the pool of service providers and the pool of trained employees. A positive feed-back loop to company performance may be created, positively affecting in particular employee satisfaction and training as well as supplier and service provider performance. For tapping this potential, nonetheless, the resources of all network actors need to be successfully mobilised, based on a joint problem definition, common language, trust and a common vision, which results in the so called “we-feeling”.

The sensitivity analyses underlined in particular the importance of participatory community development capacity and its dynamic connection to we-feeling between all relevant stakeholders. These crucial parameters refer to a concept that has been previously labelled as distinct “relational approach” to be assumed by companies (Rowe et al., 2014). In this way, the analysis backs those pundits who stress the indispensability of collaborative action for facilitating long-term community development (e.g., Muthuri, 2008b). Indeed, there is a variety of problems that have been reported as persisting in the case of Tata Chemicals Magadi, for example due to differences between individually rational behaviour and collectively rational behaviour. Nonetheless, the case model described and analysed in this paper may serve as a success template for corporate community involvement, thus, complementing other studies that have in particular carved out the shortcomings and limits of current community development efforts in the developing world (e.g., Sharmin et al., 2014).

This study gains its particular relevance from the research design that moves empirical data collection and analysis of sustainability and development issues towards those world regions where most severe sustainability and development problems actually can be found (Seuring and Gold, 2013). Simultaneously, it enlarges the methodological scope of CSR research that has been dominated so far by conceptual, qualitative case based, and survey research. Although there is some research that integrate CSR into multi-agent multi-criteria decision-making problems (e.g., Cruz, 2013a, b), it has been criticized for not grasping adequately the complexities inherent in the social sustainability dimension (Seuring, 2013). At the same time, the approach of dynamic modelling based on empirical case study research responds to the call for modelling-based research that targets the poor in developing countries (e.g., Sodhi and

Tang, 2014), and extends the current scope of research on business at the Base of the Pyramid that has largely been focusing on conceptual and qualitative approaches (Kolk et al., 2014)—for a notable recent exception see Reiner et al. (2015).

The extant paper also adds to recent modelling approaches that shed light on transition paths towards (more) sustainable societies in emerging and developing countries (e.g., Li et al., 2016) by highlighting a model of inclusive and participatory social responsibility that may replace more traditional CSR approaches. Finally, “participatory” and “inclusive” social responsibility initiatives for resource-poor business environments in the developing world may also serve as models for developing more effective community engagement in the industrialized world (e.g., Delannon et al., 2016). In this way, the “inclusive” social responsibility approach investigated in this study may pave the way towards progressive forms of corporate sustainability strategies aiming for both social and ecological targets. In this regard, companies may assume a genuine “sustainable development orientation” that turns these companies into active, value-driven disseminators of sustainability that actively influence their stakeholders based on their understanding of sustainability rather than merely reacting to stakeholder demands (Heikkurinen and Bonnedahl, 2013).

On a practical side, this research suggests that multinational companies may need to adapt their CSR activities to the respective operating environments in various world regions that indeed may vary substantially (Meyer et al., 2011). In rural areas of developing countries for example, corporate action often faces framework conditions characterized by low capacity of communities, lack of governmental structures, turbulent business environments, as well as weak market and legal institutions, all of which leading to high levels of complexity and uncertainties (Silvestre, 2015a, b). Although Surroca et al. (2013) find some evidence that multinational companies tend to transfer socially irresponsible practices to subsidiaries in countries with weak institutional setting, it is assumed here a general proactive orientation of companies towards the implementation of corporate responsibility (Hah and Freeman, 2014). Such proactivity may require novel inclusive approaches tailored to the specific conditions on the ground. This means that corporations cannot run a one-size-fits-all approach regarding CSR but headquarter CSR activities need to be carefully adapted to subsidiaries’ institutional environments and socio-economic situations. Thereby, managers are required to be agents of sense-making and active translators (O’Mahoney, 2016) when transferring headquarter CSR activities to subsidiaries within multinational corporations (Gutierrez-Huerter O et al., 2016).

7. Conclusion

Through the case study of Tata Chemicals Magadi, this paper analyses how and under which conditions community development projects may become successful and benefit all actors in the long-term. In this way, the approach suggested in this paper may be used for assessing the effectiveness of CSR investments on a corporate as well as community (i.e. system) level. While the study allows exploring new forms of social responsibility that leave behind corporate-focussed models for the sake of inclusive and participatory forms of shared responsibility, which is of relevance on both the academic and practical side, the approach has some limitations. In line with general limitations of case study based research, findings from the case study on Tata Chemicals Magadi feature limited generalizability. Nonetheless, the system dynamics model presented in this paper can be adapted to other community development projects—in developing countries and elsewhere—so to explore their constituents, main features, and dynamic interdependencies over time.

While this research highlights the roles of corporation and community, follow-up research could zoom further into the roles of other actors such as NGOs and governmental bodies. At the same time, the conceptual content of the parameter “we-feeling” warrants more detailed and specific investigation through qualitative in-depth case study research. While we-feeling was found crucial for developing communities in the long-term, building up their employability, capacity of service provision and level of development, its emergence and evolution would need further theoretical framing and empirical evidence. Finally, the question might arise how the major constructs in the model (e.g., corporate CSR state, participatory community development capacity, we-feeling) could be measured in reality. In the actual model they are treated as normalized variables in combination with sensitivity analysis that do not request any measurement. However, this measurement issue represents an important and promising future empirical research stream.

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