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BEYOND BENEFIT-SHARING AGREEMENTS: BIOPROSPECTING FOR THE POOR?

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Abstract

Benefit-sharing between the users and the providers of biological resources and the knowledge associated with them has been a topic of intense, increasing concern in bioprospecting in recent years. This is due to the large amount of genetic resources that have commercial viability in a number of formal sectors, including pharmaceuticals in both industrialised and development countries .

Bioprospecting activities have been characterised by a dichotomic vision of the local communities, seen either as victims of “biopiracy” or as potential beneficiaries of benefit-sharing agreements which often have proved to be ineffective in promoting development and equity at local level.

The aim of this paper is to investigate whether novel benefit-sharing arrangements might give rise to a new form of bioprospecting activity. It intends to develop this understanding through the examination of what appears to be a new model of bioprospecting, represented by the community-based enterprise Gram Mooligai Company Limited (GMCL). GMCL is active in herbal sector in India, it sells raw herbs and commercialises medicines using the local ethnomedicine knowledge.

The paper aims to analyse the structure and functioning mechanisms of this community organization and shows how an alternative representation of bioprospecting “from below” can be an instrument to enhance the local livelihoods of communities and promote their empowerment and capacity building.

Key words: *bioprospecting, benefit-sharing, ethnomedicine, empowerment, India*

Introduction

The debate around bioprospecting thus far has been centred around whether communities have legal and financial access to the benefits arising from their traditional medicines, which can be defined as ‘*health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well being*’ (WHO, 2003). Those studies which have been carried out analyse technical conditions of benefit sharing arrangements and the process by which they are executed, relations between communities and outsiders, and the institutional frameworks they inhabit. However, research undertaken so far has not addressed how benefit sharing agreements affect access to resources inside the community and on community development in general. One of the problems facing traditional knowledge systems is the lack of an institutional mechanism to ‘protect the knowledge’ in terms of maintaining the connection between the traditional holders and newer forms of commercialisation.

This paper explores a form of bioprospecting in India (States of Karnataka and Tamil Nadu) that appears to be quite original. It concerns the use and commercialization of medicines produced by a community enterprise, which is called GMCL (Gram Mooligai Limited Company), using local ethnomedicine knowledge. This bioprospecting experience carried out by the local communities is designed to bring important development outcomes in terms of income, health conditions and social system at local level and it does so in ways that integrates recipient communities into the aspects of protection and use of their traditional knowledge through a process of enhancement of their capacity building.

What is especially interesting with GMCL case study is that it seems to have broken with the conventional experiences of bioprospecting carried out up to now, which is mainly based on benefit-sharing (BS) agreements. These latter implicitly see the local communities just as beneficiaries of a use of traditional knowledge carried out mainly by outsiders.

GMCL, the main focus of the paper, is an example of a new form of bioprospecting, which we could call participative, where the communities play a central role and whose outcomes are centered upon the enhancement of a local socio-economic development. It shows how it is possible to implement bioprospecting in quite a different way. We believe that the elements of the type of approach that it espouses are long overdue in the mainstream of bioprospecting actions. The research of new drugs from plants is now an important part of the pharmaceutical industry and it is increasingly growing; this makes the investigation of the question of the role of indigenous communities in the bioprospecting arena especially crucial. Indeed, the question of which bioprospecting models would be the most effective in harmonizing equity, socio-economic development of the different shareholders and their participation in the process is still an open question which needs to be answered.

The remainder of this paper is in four parts. The section following this one provides a conceptual account of some literature dealing with bioprospecting activities, discussing the current benefit sharing agreements, their outcomes and the unresolved issues from a conceptual and operational point of view. The second part is focussed on the case study of GMCL. It charts its history from inception in 2001 to the present day, analyzing its structure, its functioning mechanisms and its outcomes.

The third section provides a discussion of GMCL and its effectiveness as an alternative bioprospecting and development model. The fieldwork for this account was conducted in June-September 2007 in Southern India. It included interviews with 20 households and sales representatives in six villages Karnataka and Tamil Nadu and extensive discussions with the the main stakeholders of the NGOs involved, the top management of pharmaceutical enterprises, with medicinal shop owners in physicians in the city of Bangalore. In order to triangulate the data, the author of this study also attempted two focus groups discussions in the rural area where GMCL operates.

The discussion in the third section points out that positive outcomes of this new form of participative bioprospecting activity are apparent but that challenges remain. Like any institutional innovation, initial steps are bound to be imperfect and adaptive behaviour need to take place.

The last section briefly concludes discussions of the paper.

Before exploring the GMCL approach in more detail, we shall first locate its underpinned philosophy in contemporary debates about bioprospecting and benefit sharing agreements.

1. Background of the study: the role of communities in bioprospecting, benefit sharing agreements and unresolved issues

The GMCL is an attempt to embed the traditional knowledge in ethnomedicine in a broader set of relationships with the aim to link advances and applications in bioprospecting to rural development and social outcomes for local communities. We therefore locate the analysis of GMCL within a perspective of a new form of bioprospecting activity, for the reason that this approach seems to redraw conventional approaches of bioprospecting, such as the one promoted by benefit sharing agreements. The need of defining a new approach in this respect, stems from the challenge of the conventional model of bioprospecting which is based on the view of a division between “knowledge users” and “knowledge producers”.

The ongoing emphasis on bioprospecting has contributed to a growing international interest in potential applications around the knowledge that indigenous peoples have developed. Much of the traditional medicine (TM) forms an important contribution to research and development, particularly in areas such as pharmaceuticals and agricultural products (Farnsworth et al 1985; Elisabetsky & Castilhos 1990; Schultes & Raffauf 1990; Nijar, 1996; King, 1997; Greene, 2001).

TM is conceptualised in many ways—from its role as a livelihood strategy in poor tribal communities (Gupta 1999) to management implications for contemporary natural resource management (Berkes 1999). According to authors like Warren et al. (1991) and Berkes (2000) traditional medicine systems are based on the shared experiences, customs, values, traditions, lifestyles, social interactions, ideological orientations and spiritual beliefs specific to local communities. The richness and complexity of TM systems stem principally from the fact that traditional knowledge is more than the sum of its parts. These parts articulate or merge to form unique, dynamic and evolving systems of local knowledge (Gadgil et al. 1993; Johnson 1992).

The current system of access to and use of biodiversity, is characterised by a lack of cohesive and exhaustive regulations at national and international level. This paucity includes the rules and conditions that should apply to users and providers of TM, the protection of TM and the benefit-sharing issuing from the TM.

In the bioprospecting arena, the position of indigenous communities in relation to their TM, has been typified by two characteristics:

- a) the communities are perceived as the victims of “biopiracy”, evidenced by the breaches of contractual agreement on the access to and the use of TK without the consent of the local communities or appropriate compensation (Shiva et al. 1997; Mooney, 1998; Barsh, 2001).
- b) the communities have been seen as potential beneficiaries of *benefit-sharing* agreements, i.e. some form of compensation for the use of their TK which can differ in nature (*monetary* or *non-monetary*) and in time (*short-term* or *long-term*) and involve stakeholders at different levels (ex. *between* nations, or *within* nations) (Gupta, 1999; Barrett and Lybbert, 2000).

In these two contexts, it is implicitly accepted that, since the TK generates value, its role deserves to be recognised and rewarded. If this is not the case, there is a form of misappropriation (“biopiracy”).

Although the issues of access to TM and BS assume an increasing importance in the bioprospecting debate the current literature on these issues contains little reference to sociological analysis, being more focused on juridical considerations.

Although the issue of how bioprospecting activities can affect the conservation of biodiversity has been analysed in general terms¹ (Barrett and Lybbert, 2000), we are unaware of any specific study that examines in more depth how the access to TM affects the community conservation and the sustainable use of local natural resources. None of the studies available addresses how the access to TM and the BS agreement can affect the access to resources inside the community. The debate on the equitable sharing of benefits has so far remained an issue of equity in the distribution between the community and outsiders.

It has to be said that BS in reference to TM is a complex and problematic issue and its practical implementation still holds challenges (Shuklenk and Ashcroft, 2002). Although it is agreed in principle by many, from the literature it seems that there are several issues still open to debate, including how communities are defined, who 'owns' knowledge, and how 'ownership' is perceived.

Among these is the difficulty of determining how the benefits should be shared because the definition of 'community' presents conceptual and practical difficulties (Gupta, 2002). Which criteria should be followed to define a community? The criteria of culture, language, custom or even genetics could be selected.

Few communities form distinct, easily definable groups, as is evident in the case of the Sam tribe in South-Africa (Chennells, 2003; Shuklenk and Ashcroft, 2002). This compounds the difficulties of reaching an agreement in BS negotiations. Anil Gupta (2002), in the study he carried out for WIPO-UNEP, states that one of the problems in reaching a BS agreement was the fact that there was no uniformity in the Kanis perceptions of BS, due to the fact that they are no longer a single cohesive community.

Moreover, in many instances, the same knowledge may be held by more than one community, and an issue of geographical or historical priority arises (for instance the use of *neem* derivatives throughout South and South East Asia). There is also the difficulty of meeting the required criteria of "novelty" and "inventive step", particularly in cases where the TK has been in existence over a long period of time.

The cultural idiosyncrasies of different communities, which are reflected in their traditional customary rights law, could make the negotiation process for the acquisition of TK (a pre-condition of BS) particularly complex (Barsh, 2001). Anthropological literature reveals that the classification of knowledge, proper procedures for acquiring and sharing knowledge, and the nature of the rights and responsibilities that are attached to possessing knowledge, can differ greatly in traditional societies.

In cases where there is common possession of knowledge (Drahos, 1997) complex issues of entitlement to any intellectual property rights also arise, since Western IPRs systems do not provide for the granting of rights to communities as such. There is not sufficient evidence that the system of Trust fund has helped solving this problem.

¹ In the available literature, the issue of access to TK and BS is generally incorporated in the current system of intellectual property regulatory framework (Correa, 2000). The debate between the authors is focused on the ways in which the existing IPR systems provide mechanisms for defining ownership and pattern of access to TK. The question of whether the existing IPRs are adequate to assure an equitable BS in relation to biological resources is also explored.

The issue of access to TK and BS in bioprospecting activity is also analysed in the context of the international regulatory system. The analysis which has been carried out looks also at the main legal provisions issued from the CBD and the TRIPs agreements and their implications for BS (Sampath, P.G, 2005).

The system of BS is unlikely to be an effective instrument for local communities as IPRs registration is a lengthy and expensive task (Shuklenk and Ashcroft, 2002). Local communities rarely have the expertise and the financial means to do this.

The way the BS agreements have been implemented are questionable as they appear to be ineffective in promoting participation during the decision making process and significant socio-economic benefits in the communities concerned.

The BS carried out to date raises doubts on the element of transparency and the degree of participation of the local communities during the negotiation process. The monographic studies of bioprospecting in Nigeria which involves the Shaman Pharmaceuticals (Iwu, 1996), the Kanis tribe in India (WIPO-UNEP, 2002; Anuradha, 2001) and the Maya communities in Mexico (Schuklenk and Ashcroft, 2002), have demonstrated the difficulty of obtaining effective participation by the communities and their representatives when the system of trust funds was adopted in BS. The lack of active involvement has been shown by the Saramaka tribe, in the ICBG program carried out in Suriname (Tobin, 2001).

The practices of BS regarding the TM of indigenous communities are potentially divisive and can lead to unfair distributions of benefits: one of the most controversial aspects of the Peru ICBG bioprospecting program was the fact that not all the relevant stakeholders in the community were party to the agreements (Tobin, 2001).

Often the economic returns of BS to the local communities are relatively modest and unlikely to produce significant changes in their living conditions (Schuklenk and Ashcroft, 2002, Dutfield, 2000; Barrett and Lybbert, 2000) In the short-term benefits may do more harm than good to the community unless a long term sustainability is built into the BS framework (WIPO-UNEP, 2002).

Some scholars have joined the call for "alternative" or multiple IPR systems and "collective intellectual property rights" or comprehensive resource rights for local and indigenous communities.

These systems may present difficulties in term of financial costs and expertise for the local communities (Tobin, 2001).

An argument could be propounded that the actual BS agreement system lacks effectiveness in its performance. However, there is an insufficient amount of studies to support this conclusion. There have been very few benefit-sharing experiences documented, and the only easily accessible, public information at present is the compilation of case studies made available by the Secretariat on the Convention on Biological Diversity (CBD) website. There may be more experiences in the field, but there has been a lack of systematic efforts at putting them into one accessible venue for closer study and scrutiny.

The question about which models are most effective and capable of harmonising objectives such as equity, socio-economic development of the local communities and ecological sustainability is still to be resolved.

GMCL suggests a shift within ideas of BS from traditional medicine to community capacity building and empowerment. It articulates a different vision of the community, incorporating community agency within the bioprospecting process. In contrast to traditional BS, which we argue involves a process of reification of the social dynamics between communities and companies, the GMCL approach suggests the incorporation of both process (capacity building) and output (traditional medicine). It treats traditional medicine knowledge as both dynamic and multidimensional, embodying notions of

institutional reflexivity, which are rooted in constructionist ideas of the ways in which beliefs and practices give rise to social institutions.

We shall now more specifically interrogate the core components of the GMCL with regards to its internal mechanisms and organisational structures. Lately, we shall analyse the effects of GMCL activity on the socio-economic development of local communities, in particular on marginalised groups in relation to resource access, social status, levels of income, empowerment and capacity building.

2. GMCL (Gram Mooligai Company Limited): an alternative model of bioprospecting?

The *Gram Mooligai Company Ltd.* (GMCL) was established in the year 2000 by several Indian NGOs.

In particular, FRLHT (Foundation for the Revitalization of Local Health Traditions) and CCD (Covenant Centre for Development) have played a relevant role in the set up of this women's enterprise. FRLHT is a think-tank that is focused on education and has a technical expertise in botanics, while CCD is an Indian NGO mostly concerned with rural development.

The shareholding of the company is represented by the cultivators and gatherers of medicinal plants. The latter, who are organised into groups called *Sanghas*, supply directly to GMCL. The Board of the company, which decides the company policy and its periodic reviews, is drawn from these groups.

GMCL supplies medicinal herbs to pharmaceutical enterprises (Himalaya Drug Company, Natural Remedies, Ompharma etc.) playing an intermediary role between these companies and the local farmers and commercialises ayurvedic medicines produced by local communities under the brand of "*Village Herbs*".

The commercialisation of the ayurvedic medicines is made in both rural and urban areas. In the rural areas the commercialisation is entrusted to local sales representatives. These latter are generally selected from villages' organizations called *Kalasams*. At urban areas the GMCL products are sold through physicians and medical shops.

Although GMCL has not been active for a long time, this initiative seems to have potential from a financial point of view: GMCL had a turnover of \$140,000 in 2005-2006 and a turnover of \$180,000 in 2007; while it is still financially small, it contributes an average of \$90 annually to the livelihoods of some 1300 families in Karnataka and Tamil Nadu. GMCL also emphasizes partnerships with other stakeholders through a national local health network, including a wide range of groups and organizations (NGOs, research centers, community leaders etc.). Its mission is to train local communities to evaluate their own resources and their knowledge and to empower them.

2.1 Methodology

The methodological framework of this research employs a qualitative approach. The study combines the theoretical strengths of the interactionist perspective with the empirical strengths of ethnography and the analytical ones of the grounded theory. Using a symbolic interactionist perspective, data have been collected in ways that capture and preserve indigenous meanings as well as the details of interaction processes through which the community members create and sustain specific, local, social realities (Holbrook and Jackson, 1996). While other theoretical perspectives

such as critical social theory, structuration theory and actor network theory could have also been appropriate in shaping the ethnography method adopted in our research, we decide to focus on symbolic interactionism because of increasing interest in the role of symbolism within organisations (Charmaz and Mitchell, 2001).

Following the ethnography approach, our research has been conducted in a naturalistic field setting. This permitted us to have access to multiple viewpoints in the situation through prolonged *immersion* (Charmaz and Mitchell, 2001). The ethnography approach orients the research towards a "*thick description*" (connotational significance of the findings) (Glaser and Strauss, 1967) in a forceful way.

Data come from individual and group interviews as well as from participative observation and informal interviewing. The integration of participant observation as a methodological instrument in our research is congruent with the ethnographic approach and the sociological interactionist perspective we decided to follow. The participant observation method is used to complement the data collected through the interview process. The "incompleteness" and the limits of the use of interview in qualitative research are emphasised in the literature (Katz, 1983) and suggestions are made to combine interviews with other research methods.

Data have been gathered via a multi-method approach, as well as from various stakeholders. The field study has been carried out in the two Indian states of Karnataka and Tami Nadu.

The villages have been selected following consultation with the local NGOs involved, looking in particular at variables relating to status/degree of traditional knowledge, equity, and social stratification.

A sample of 20 households of *Sanghas* farmers and of sales representatives has been interviewed in six villages. These have been selected on the base of parameters such as age, ethnic group, caste, and economic conditions. The interviews have consisted of structured and semi-structured components. Structured questions have aimed to collect quantitative data, semi-structured questions have been used for qualitative information and to assess the point of view and the evaluation of the interviewees about specific issues. Information on income opportunities, household budgets, and change through time after the GMCL intervention have been collected. Interviews concerning empowerment and capacity building have also been carried out.

The data obtained from the interviews have been complemented and validity has been checked by group interviews) (Zeigler et al. 1996). Interviews have also been held with other main stakeholders such as FRLHT, CCD, the top-management of pharmaceutical enterprises, with medicinal shops owners and with physicians in Bangalore.

The group interviews have consisted of between 6-10 participants. The villagers involved in the group interviews were be farmers and collectors who belong to the *Sanghas* and members of sale groups. One concern of some researchers involved in data gathering is that because of the relatively small number of participants in group interviews the findings are not applicable to a wider population. Spending a substantial amount of time in some of the villages, combining group interviews with participant observation during GMCL meetings and informal conversations with the community members and field workers of CCD, has helped us to address this issue. In accordance with the grounded theory, sampling is not determined to begin with, but is directed by the *emerging theory* (theoretical sampling) (Glaser, 1978).

Theoretical sampling has been chosen as it provides a sample selection most likely to highlight the patterns, concepts, categories, properties and dimensions of issues under study (Strauss and Corbin, 1998). This provides a clearer picture for a model of the phenomena to be developed.

Three methods of data collection have been used, each of which views the interaction from differing perspectives and requires different sampling strategies.

The *first stage* has involved the use of the anthropological techniques of key informant interviews and participant observation.

These discussions have been held with key informants (GMCL and FRLHT and CCD members, local leaders of *Sanghas* etc.). This first stage has been coupled with participant observation that has been held at the different levels in GMCL structure (*Sanghas*, Sales Groups, Federation...).

The *second stage* has involved in-depth interviews with a selected number of villagers (use of snow-ball technique). To reduce the pitfalls commonly associated with this kind of sampling method (Klatz, 1993), we have matched it with a sample of randomly selected households in the villages. The third stage of the study has involved group interviews to consolidate and compare the data collected as well as to collect the different level of data produced by personal interaction.

2.2. GMCL structure

Community assemblies have been one of the most important mechanisms available for community planning, for dealing with power imbalances and conflict, for achieving accountability, and for strengthening local organization (Peredo, 2001).

In the GMCL approach, the *Sanghas* are village organizations composed of maximum 20 members. The size of the *Sanghas* varies according to different villages. On average, the number of members is between 10 and 15. This limited number of members has been established with the aim of facilitating the interaction between the members and the functioning mechanisms. Several *Sanghas* can be present in a single village, according to the number of villagers who are willing to be involved in the initiative.

According to the definition of Erikson and Mikkelsen (1996), the social capital is “*the willingness of individuals within a given organisation to contribute unselfishly, loyally and non-opportunistically to the attainment of joint objectives*”

As it is well known, the more extensive and wide-ranging the network of contacts and degree of communication between the individuals, the easier the building of competences as knowledge is shared and created. The social capital is therefore a key element to enhance the performance of GMCL at the present and in the future. Because of the importance of social capital, smaller communities are more likely to achieve solidarity in terms of their subjective assessments of the initial endowments needed to form their own groups. Since the number of potential relationships in a social network increases with the addition of each new person into the community, very large communities will have extremely complex and fragmented social networks.

The members of the *Sanghas* are constituted by herbs gatherers and collectors. These two categories of stakeholders have been regrouped in two distinct types of *Sanghas*. One of the strengths of the model is that the *Sanghas* have been formed with the aim to regroup members of the community who have the same socio-economic and caste background.

This attention in the homogeneity of the members belonging to the *Sanghas* aims to facilitate the decision making processes and the reduction of conflicts.

The *Sanghas* members are exclusively women. This target has been selected as the activity of gathering is predominantly undertaken by women. Moreover, the women are more vulnerable in village community. The herb gatherers and farmers involved with GMCL belong mainly to *scheduled castes* or *scheduled tribes* such as *Servar*, *Konar*, *Rettiyar* and *Naiyakkar*. These tribal communities are predominantly landless. Only a marginal part of these household possess small parcels (with an average size which

varies between 2 and 5 acres). Among the families who possess land, the marginal holdings predominate. Only a small percentage of these households possess land parcels that exceed 5 acres.

Every Sangha elects two members: the President and the Treasurer. These members are commonly designed as “representatives”.

The representatives of the village *Sanghas* work as group’s activators help in catalyzing discussion and action inside the community. The activities of several *Sanghas* are coordinated by a facilitator who is a local woman trained by Covenant Centre for Development (CCD), a local NGO.

Governance is an institutional structure for which the role is to define a process of adjusting durably a collective action (or strategy) between different entities through the establishment of a 'private order' (Williamson, 1996) and to design mechanisms (either contractual or noncontractual) enabling the assurance, at the lowest cost, that the individual behavior follows the rules for collective action.

One of the characteristics of GMCL model is that there is a *direct representation* of local gatherers in the company’s Board of Directors. The Board of the company, which decides the company policy and its periodic reviews, is directly elected within the *Sanghas*. As a result of the fact that the villager’s representatives are included in the Board of directors and directly elected at grass-root level, the owners of the company (*Sanghas* members) directly control the governance system in GMCL.

In GMCL the structuring of the relationship between the board and the membership, which is created through the design of *direct electoral system*, determines the patronage cohesiveness of governance. This enhances the ability of the board to transmit the patronage concerns of members, ensuring that the agenda of local communities receives constant consideration by the management.

The control mechanisms are designed to “*incite the agents to follow the behavior required, or, on the contrary, to dissuade them from adopting behavior that is opposed to their commitments*” (Bowen et al., 2000). The direct control from the member users at grass root level to the governance structure is very important in order to assure that the member interests are duly taken into account. This enhances the participation at grass root level and democratic processes inside the organisation (Milgrom and Roberts, 1992). The limited number of members and the homogeneity in their background has helped in minimizing conflicts and discriminatory practices and in enhancing the social capital within these local institutions.

In the GMCL model the quantity of shares held by every member is not fixed among the members as it happens in a cooperative society. This number of shares is proportional to the quantity of herbs supplied by each farmer.

It is important to note that not all the *Sanghas* that supply raw material to GMCL are shareholders of the company. Indeed, the number of *Sanghas* that are shareholders of the company is 30 out of 58. This number could possibly increase in the next future. At present, one needs to ponder upon the possible reasons of this phenomenon. The fact that there are two different kind of farmers (those who are shareholders and those you are just suppliers) could undermine the real representation of GMCL at grass-root level and possibly increase the social differences inside the communities.

The issue of the degree of community participation in a community based enterprise needs to be addressed at this point. According to Gartner (1988), the community acts as an entrepreneur when its members, acting as *owners, managers, and employees, collaboratively create or identify a market opportunity, and organize themselves in order to respond to it*. The response combines familiar or new elements—goods or services, methods of production, markets, sources of supply and/or organizational structures.

Building effective and innovative forms of community involvement in decision-making is one of the major challenges of any form of local development. As in any development project, the lack of grassroots participation can threaten the long run sustainability of the enterprise (World Bank, 1996). Conversely, grassroots participation can be one of the strengths of a community based enterprise such as GMCL given its endogenous nature. In the case of GMCL, it can be argued that the participation of local communities is not really substantive, as it does not involve directly the management of the enterprise. Nevertheless, it needs to be stressed upon that the governance structure in GMCL is designed to be participative, not merely representative.

The fact that the members of the *Sanghas* are shareholders of the company does not only represent a positive financial aspect for the villages, which can receive dividends, but has contributed to increase their *sense of ownership* towards the company (Bendick and Egan, 1995). The latter element is particularly important as it can enhance the *participation* of local communities in the GMCL initiatives and foster them in the future.

The villagers are aware of the meaning and implication of being shareholders of the company. In numerous cases they have associated the shareholding of the company with a sense of pride. Being part of an initiative perceived as successful has increased their sense of identity and their empowerment as a community. Some villagers on the other hand have mainly associated the shareholding of the company with the right of receiving the dividends, limiting the several dimensions associated to the ownership to a mere economic consideration.

The question of interorganizational relationships between the different strata of the organization emerges and leads us to talk about the monitoring procedures. The objectives of these mechanisms are to promote desirable behavior and prevent undesirable behavior.

The fieldworkers of CCD liaise regularly with the villagers. Links are maintained between *Sanghas* and GMCL through an annual meeting where all the *Sanghas* are invited to participate to the general assembly. During this assembly, the results of the past year and the plans for the forthcoming year are discussed. Emphasis is given to the difficulties and challenges faced during the annual activity by the *Sanghas* and solutions are formulated on collective basis. This contributes to filling the information gap and also to maintaining the sense of ownership and participation alive among the villagers.

Menard (1997) stresses the importance of the level of communication existing within the organization to support the participation and, consequently, the internal democracy. When information is spread during such public meetings within the village, the risks of marginalization of some groups decrease as each member of the *Sangha* can be properly informed. Rajapandhy, the managing director of GMCL affirms: “ *we try to involve the villagers in decision making as much as possible, so that they can see what are the results*”.

Up till the present, there is no village organization that liaises directly with GMCL. This constitutes a weak point of the structure. The existence of a leasing organization would allow an increase in the interaction between the upper and the lower strata of GMCL and an improved communication and diffusion of information between the different stakeholders.

In the next future it is planned that the community enterprise venture will spin off into an independent unit as a Federation that will handle all the operations in its name. This Federation is named *Medicinal Plants Collectors and Cultivators Federation (MSMSSK)*. The MSMSSK would promote coordinated action in the local herbal enterprise industry in order to lobby for improved practices. Towards the same the Federation would:

- i. orient gatherers towards good collection practices and benefits of better quality and higher prices,
- ii. orient cultivators towards Good Agricultural Practices such as intercropping and organic inputs
- iii. favor the dialogue amongst stakeholders to enhance the cooperation
- iv. orient stakeholders on emerging industrial trends

Currently, this role is partly played by CCD but the constitution of an *ad hoc* organization would increase the effectiveness of the model in accomplishing the aforementioned functions. The functions of orientation, lobbying and dialogue promotion among the different stakeholders, are particularly important in enhancing the chances of success for an enterprise such as GMCL, active in the herbal sector. We can notice how the GMCL model is capable of adapting itself to its external environment through an evolution of its structure. This adaptation is important in order to respond more effectively to the challenges of the sector in which the enterprise operates. In this sense, we can affirm that GMCL could represent an example of *reflexive organization* (Robbins, 2001).

Districts	7
Dindugal	
Trichy	
Virudhanagar	
Ramanad	
Sivagangai	
Adurai	
Theni	
Villages	66
Total groups	72
Gatherers groups	58
Members	1382
Cultivator Groups	14
Members	182
Shares at GMCL	500.000
Rs	

Figure below: Details on medicinal plants gatherers/cultivators

2.3. Functioning mechanisms of GMCL

We shall now analyze the process through which GMCL operates. This will allow us to get a real picture of the way of functioning of this community-based enterprise and to better understand the role of CCD in the model.

CCD is the liaison between GMCL and the local communities. Its role is multiple and involves several tasks.

The role of CCD is the one of facilitator and action catalyst. CCD promotes *Sanghas* in areas suitable for collection and cultivation and gives managerial, administrative assistance and training to *Sanghas* members.

The facilitator has been defined by Schuman (2005) as “one who contributes structure and process to interactions so groups are able to function effectively and make effective decisions”

In the case of CCD, the role of facilitator is complex and involves several dimensions:

- *organizational* dimension (facilitation in *Sanghas* constitution and operation coordination),
- *communication* dimension (facilitation in the flux of information between the different levels of the organization)
- *capacity building* dimension (facilitating the acquisition of knowledge and know-how and spread of information inside the *Sanghas*).

Several authors have emphasized the importance of the facilitator (Schwartz and Roger, 1994). As we will see more in detail later, these functions play an important role in enhancing the performance of the organization.

At first, CCD involvement in GMCL activity implies the identification of villagers who are interested and willing to take up medicinal plants cultivation and collection.

These villages are targeted on the basis of their socio-economic condition. As the main objective of GMCL is to enhance the livelihood of rural poor, the selection of the beneficiaries will take this aspect into particular account.

This phase of approaching and explaining to the villagers the advantages of taking part in GMCL activity is sometimes long and not always easy. According to some field-coordinators, sometimes several months and frequent visits are necessary in order to gain the trust of the villagers and foster their interest. Most of the times, the villagers associate the medicinal herbs sale with the concept of exploitation and low income, due to the past negative experience with traders. In the general opinion of villagers, the sale of herbs is associated with price fluctuations and therefore instability in the income.

Before the constitution of a *Sangha*, the field coordinator explains the conditions that are part of the agreement with GMCL.

SOPs (Standard Operating Procedures) have been developed for *Sangha* formation, assessment, harvest and post harvest, till dispatch and collection of payment.

The *Sangha*, in adherence of GMCL principles needs to:

- make periodic assessment of cultivation and give feedback to CCD for inputs required,
- monitor their cultivation activities and prepare reports facilitated by CCD team leader,
- adhere to quality, quantity and other agreed standards,
- maintain the instruments for measuring weight and moisture as required, arrange for appropriate storage
- make payments to its members after delivery of harvested produce
- keep systematic records of all goods, transactions and activity as per formats prescribed.

Once the villagers agree to be involved in GMCL, the *Sanghas* are established.

Initial training and guidance is given to the villagers in reference to the operational, administrative and legal procedures involved with the formation and functioning of the *Sangha*. These procedures are varied and concern several aspects such as soil analysis, sustainable cultivation, quality checking, costs of inputs, preparation of periodic reports and time-activity and progress charts.

CCD undertakes to arrange for supply of planting material as per planned schedule as well as monitor the *Sanghas*'s cultivation activities. Every *Sangha* in turn holds periodic assessment and review meetings with the CCD team leader to discuss the legal (membership forms, share application and amount), administrative (accounts,

documentation etc.) and technical issues (cultivation, harvest etc.) involved in the activity.

The *Sangha* under the facilitation of CCD makes a procurement potential assessment survey every year on a fixed month to assess its own supplying capacity for each medicinal plant species through the participating group members and gets a consolidated procurement potential assessment for the year. Periodic field visits are made to ensure the adherence of suggested farming measures by the members.

The quantity produced or collected by every member is decided on collective base inside the *Sangha*. This aspect seems to be a sensitive issue, as it can possibly lead to conflicts inside the *Sangha*. Indeed, generally the villagers have as objective the increase in collection or production of herbs: a larger supply corresponds to a larger income. This can sometimes clash with the interests of other members of the *Sangha* who also wish to increase their supply to GMCL.

Conflicts resolution mechanisms are established and the mediation role of CCD field coordinators is requested in case of disputes.

When GMCL gets a firm order from a buyer, it offers to buy the specified medicinal herbs from the members of the group at 70% of the negotiated price value of the buyer industry and requests the *Sanghas* to send samples of material to be collected, in case the groups are willing to accept the offer. GMCL offers to buy the produce at a predetermined price at the time of the harvest, subject to quality and quantity conditions.

This aspect is particularly significant as the market of herbal sector is characterized by price fluctuations and instability, due to the seasonality of the supply. The villagers can therefore benefit from an assurance that the quantity that they procure will be purchased at an agreed price.

The *Sanghas* send the samples of the materials to be collected to the buyer through the GMCL. When the buyer accepts the sample, GMCL places orders to the *Sanghas* specifying quantity, quality, packing style required and transportation modalities.

The members the *Sanghas* collect the medicinal herbs and undertake the initial processing (cleaning, drying etc.). The raw material is weighted and the record of the quantity supplied by every member is kept by the *Sangha* representatives.

The purchased materials are stored in temporary go-down until sufficient volume is obtained, and then shifted to the central go-down or to the market as per the direction of GMCL. The groups take the responsibility of transporting the produce. The transportation costs are shared between the members of the *Sanghas* in proportion to the quantity produced or gathered. In this way, the criterion of equity is kept into account.

The groups' office bearers do the required quality checks (moisture level, presence of foreign bodies etc.), weigh then and pay the actual value to the *Sangha*.

The elected members of the *Sangha* who obtained the requisite training from the CCD maintain the accounts of the transactions.

The procedure for sharing of benefits issued by the transaction with GMCL is considered by the members of the *Sanghas* smooth and transparent. Conflicts are rare.

"The advantages of the GMCL operations are that the villagers can sell directly from their village at pre-announced prices and the weighing is totally transparent," affirms G. Raju, former managing director of GMCL.

As we noted before, the GMCL also manufactures and commercializes herbal medicines produced through the ethnomedicine knowledge held by local folkhealers. The commercialization of GMCL products in the villages is done through local leaders who are selected by CCD field coordinators.

The local leaders have the task of meeting the members of the *Kalasams* and sensitizing them on the importance of herbal medicine. A sale representative from

Maddur points out: *“We advice people through discussions regarding the side effects of Allopathic medication and how they can overcome them. We advice women regarding health and positive aspects of Ayurveda”*. The sales representatives, who will be in charge of selling the medicines locally, will be selected within these groups. The local leaders provide the sales representatives with the GMCL products and obtain a provision from their sales.

The sales representatives are generally pinpointed on the base of their interest and of their willingness to become involved in such activity. The criterion of the age is not kept into account. A sale representative affirms: *“Those that are active in the field are selected. We are not concerned about their social or economic conditions”*. The strength of this system is that the local leaders are selected from among the members of local communities. Therefore they are familiar with the community, its lifestyles, health beliefs and practices and are able to build up trust linkages more easily.

The local leaders and the sales representatives at village level work in coordination. A follow up system has been put in place.

The role of local leaders is complex, as they are in charge of different functions:

- recruitment of sales representatives
- distribution of medicines
- training of sales representatives
- follow up

In *rural towns* the commercialization of GMCL products is done through multiple selling channels (petty shops, restaurants, hotels etc..). The commercial activities are usually located in proximity to the main road, a factor that increases the number of potential customers.

The linkages of proximity and the social network, which are particularly thriving in the villages, have constituted the pillar of the promotion activity.

The sales representative, who are local members of communities, are familiar with the villagers' needs and beliefs, are locally accepted and have therefore a increased negotiation power.

In rural village the promotion is mainly done through “mouth to mouth” word and relies on the network of proximity and mutual help that is well established in rural villages. The villages that have had good results in using *Village Herbs* products recommend them to other members of the community. A sale representative from Kallupathy says at this respect: *“The villagers do not buy immediately because of their suspicion... They have to know the experience of people, around at least 10 of them before they decide to buy the medicine. They should tell them that it is nice to buy it..”/*

This promotion mechanism appears to be effective, as several villagers have pointed out.

A villager from Kurayur affirms: *“ I got to know about GMCL products through my neighbour. I was suffering from chronic joint pain and I was in distress. One day I was complaining with my neighbour and she suggested using GMCL products. I have felt much better since then and I have stated using other medicines such as cough syrup. After my positive experience, I recommend GMCL products to my friends and to the other villagers”*.

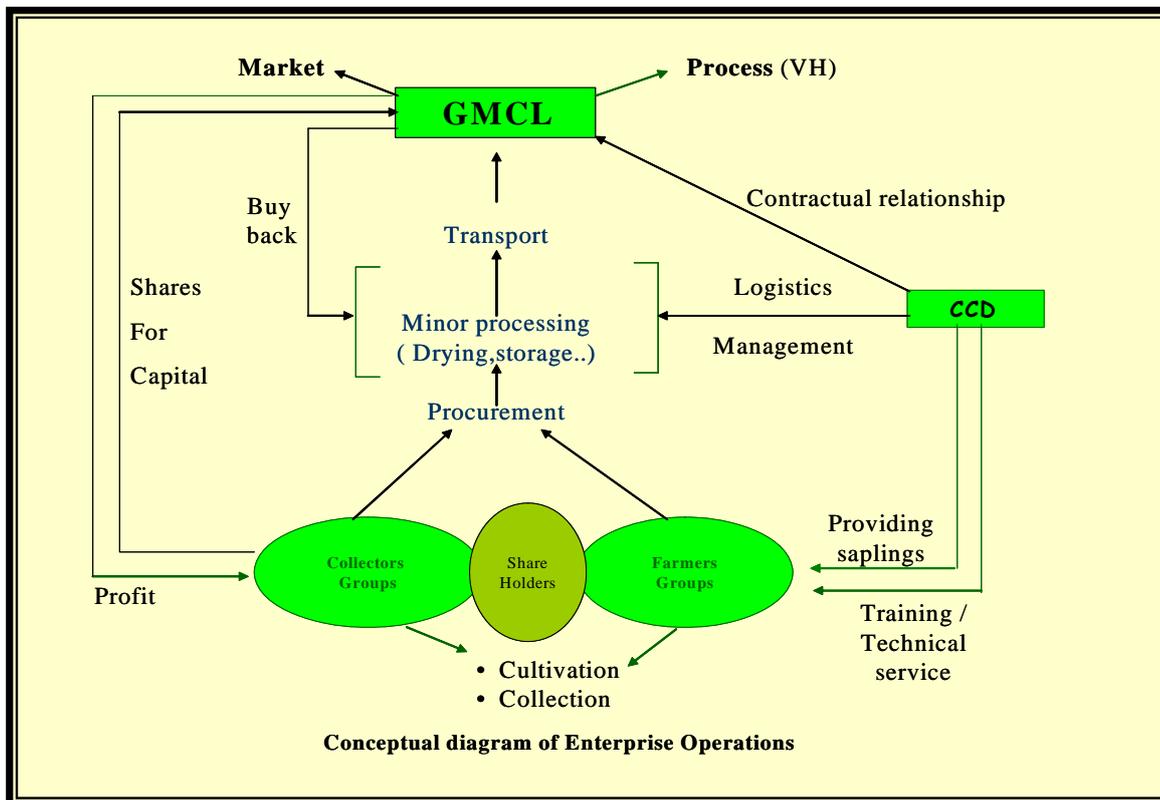


Figure above: Conceptual diagram of GMCL operations

2.4. The importance of the network structure in GMCL

GMCL is characterized by a network structure. This network is formed by different organizations includes several NGOs, think-tanks and research centres.

The organizations who have played a particularly important role in the development and success of the GMCL model are the Foundation for the Revitalization of Local Health Traditions (FRLHT) and CCD, in Tamil Nadu (Madurai city).

Anderson *et al.* (1994) define networks "as a set of two or more connected business relationships, in which each exchange relation is between business firms that are conceptualized as collective actors" (Anderson and Jack, 2002). The essence of this definition is the concept of 'collective actor' and consequently the existence of collective actions. This point is also emphasized by authors such as Schwartz and Roger, 1994. For them "networks can be thought of as a higher stage of alliances, for in the strategic centre there is a conscious desire to influence and shape the strategies of the partners, and to obtain from partners ideas and influences in return".

Within the network structure design of GMCL model, a distinction could be done between *primary* organizations and *support* organizations.

As we saw it before CCD represents a primary organization, as it helps GMCL in organizing and coordinating the main operations at grass-root level. CCD not only plays this operational role on the field, but also allows the coordination between the upper and the lower strata of the organization.

On the other hand, FRLHT represents a support organization in the network. Its role consists in the mobilization of funds necessary to set up the enterprise, in the organization of training activities for the *Sanghas*, quality control of raw herbs. Being a research centre, FRLHT has technical skills and know-how to develop medicinal and health products. The laboratory has expertise in handling raw drugs, semi-processing

and storage and in production optimization, and product development. All these skills have been important to enhance the success of GMCL.

A comparative advantage of GMCL compared to its competitors, is its ability to assure the identity and the traceability of the plants supplied. This is an essential aspect for the pharmaceutical enterprises that are quality oriented. Identification of plants in trade is complicated by the fact that there is no reliable system of matching trade names to botanical names.

Thanks to the support of partners such as FRLHT and CCD and to the fact that GMCL works in close conjunction with the primary suppliers, the quality of GMCL products is ensured throughout the whole chain, from the collection of raw material to the production of the final product.

The importance of the network as an instrument to enhance the performance of the organizations has been already emphasized in literature (Carley, 2003). Some authors have underlined the capacity of a network to have an increased and diversified set of resources available and to be more responsive to the external environment and the changes it undergoes through.

As a consequence of being a part of a wider organizational network, GMCL has been able to benefit from different services. The social exchanges within different organizations allow a transfer of information and knowledge (Ahuja, 2000). This facilitates its action and increases its performance.

When diverse individuals and their organizations interact with one another, they begin to mutually understand the common needs and priorities (Wilkinson, 1991; Luloff and Swanson, 1995). Such action provides the individuals with the ability to retain community identities, maintain local control over decision-making, and address their own development needs.

2.5. Impact of GMCL on local communities: enhancing socio-economic development

As we underlined it before, the tribal communities involved in GMCL activity are predominantly landless. This reflects the fragility of the livelihood options for these *scheduled tribes* and their vulnerability to income variations. Of the total landholdings, only a very small percentage of the land holding are irrigated. Among marginal holdings only a minority of the tribal lands get irrigation facilities.

A small minority of these tribal households own agriculture related equipment/asset such as bullocks, ploughs, carts and tillers. This indicates the severe landlessness issue among these tribal members. Generally these tribal members own movable assets in the form of consumer durables. Not a single tribal land owning families possess pump sets for irrigation. This shows the very low asset owning capacity of these households.

The impact of GMCL activity reflects the multiplicity of goals (economic, social and environmental) and the diversity of local needs. This holistic perspective creates the potential for local development and makes this community-based enterprise a sustainable strategy for poverty alleviation.

The development that GMCL has been able to generate is not just economic (increase of household income) but it involves important social aspects such as empowerment and capacity building and improvement of local health system.

In terms of household *income*, the villagers pointed out how the association with GMCL has allowed them to get better prices from local traders. In the past the villagers affirm that they had to bear costs of transporting the raw material to the local market. Price fluctuation was a major problem, so the gathering activity was not profitable for them.

Currently the farmers, through the intermediation of GMCL are able to gain higher margins: they now earn around 30% more than before.

The association with GMCL has also allowed the farmers to increase their negotiation capacity with some Indian pharmaceutical enterprises (Natural Remedies, Ompharma, Himalaya etc..) that buy raw herbs from the *Sanghas* and to expand therefore their sales not just at local level.

The activity of GMCL has also produced indirect increase of household revenue and has boosted their saving capacity. After the intervention of GMCL, the villagers are able to increase their savings as a consequence of the reduction of expenditures for medicines. A sales representative affirms: *"if someone has cough I gave her the sugam syrup. If she approaches an allopathic doctor for the same problem, she would have to shell out much money for her consultation. But if she comes to us, they can directly get treated for their problem without wasting much money, especially for older women because the Government hospital is 3 km away"*.

The advantage of reducing the expenditures in the household for the purchase of medicine is also emphasized by another sale representative from Maddur. She affirms: *"the problem is that we need to pay 20 Rs to the doctor to get a drug worth 2 Rs. By coming to us, people get free advice and they have to spend money only for the medicine. Further, this venture is not illegal because the medicines are all over-the-counter ones"*.

Nevertheless, it is important to point out that this increase in household income does not mean automatically an increased capacity for women to decide its allocation between the different expenses. Women generally only control income with male permission, which may be withdrawn. Women's own cash earnings are often incorporated into these existing patterns of resource allocation rather than radically transforming them. Although women may control some of their own earned income, this is widely variable between cultures, within cultures between different social groups, and even between households within the same family (Dwyer and Bruce eds., 1988; Standing, 1991).

GMCL seems to be an enterprise able to enhance local entrepreneurship and employment. A leader from Umlalli explains: *"Our venture helps create job opportunities for women. We do not involve doctors because then our venture will become centralized and money will get distributed. We want to ensure that the local profit is used locally"*.

Some sales representatives such as Rajeswari, who have been able to start up their own business activity, represent an example of the reinforcement of local entrepreneurship.

Rajeswari is a young woman in her thirties from a small hamlet close to Sante Marally (Karnataka). Since the past 4 years she has been working full time as a sale representative for GMCL products and she has opened a petty shop in Sante Marally. As her income is on the increase, she is planning to open a bigger medical shop in the next future.

Some of the women interviewed, especially the young ones, have expressed their interest in opening their own medical shop in the future. Mangiura, a young woman from Mumballi village (Karnataka) affirms: *"I am a member of Kalasam in Mumballi. I became involved in the sale of GMCL products when a local leader came to the Kalasam to present GMCL products and to explain to us their use. I am not selling the products as a pocket amount, around 2000 Rs per month, but I want to be more involved in this activity in the future. I am much interested in Ayurveda and medicinal plants. I will finish my graduation this year. My aspiration is to open my own shop medical shop in the village afterwards"*.

GMCL in synergy with other local organizations, such as the microcredit one already existing in the villages, can be the starting point to promote other forms of entrepreneurship at village level.

The increase of savings among villagers can encourage them to use these financial resources in starting up small business activities on which they can fall back during difficult times.

The GMCL model appears to be able to produce inside the villagers wider socio-economic outcomes than benefit sharing alone. This includes an enhanced *capacity* and *empowerment process* for women.

Concerning the first element, the action of GMCL in the villages has enhanced a process of **capacity-building** at community level focused on their traditional knowledge, notably:

- increased capacity to study, document and monitor traditional knowledge on medicinal plants and their use, make an inventory of plants and local biodiversity through biodiversity registers etc.,
- increased capacity for gatherers and collectors (sustainable harvest methods, agro-techniques, cleaning, quality control, accounts and record keeping etc.).

A range of training programs and capacity building initiatives have also been organized with the collaboration of FRLHT and involved training on issues such as processing and marketing of herbal drugs, value addition activities and sustainable harvesting and collecting techniques for medicinal plants.

The increase of capacity building in terms of medicinal plants (how to use, to recognize and protect them) has boosted the involvement of local communities in GMCL activity. This is the case especially for the activities related to the final products: the villagers who were familiar with the use and the importance of medicinal plants to enhance their local health system, have shown a greater interest in purchasing and selling GMCL products.

In some communities traditional knowledge in ethnomedicine as well as the faith in its efficacy is dwindling, due to the increase of modern medicine system. Through the promotion of GMCL products and the associated training activities, the traditional knowledge can gradually be enhanced. The final result could be the passage from a form of *individual* knowledge (mainly possessed by the folk healers) towards a form of *collective* knowledge (the members of the local communities).

Concerning the **empowerment** of women, the interviews have emphasized an improvement of social status of herbs gatherers and of sales representatives in the villages, their better access to power and resources at community and household level and the creation of women' institutions such as *Sanghas* and other informal meeting groups.

Becoming a member of the *Sanghas* or a sale representative has consequently increased her social standing in the village in a visible manner: the women own and manage their own small business, meet number of people in and outside her village who value their ideas and contribution.

For the women, participation in and the decision to be active in the *Sanghas* has often been the first gateway to be crossed and their first empowered step.

For most women it was the ridicule and heckling by village men that is the most difficult for others it is the reactions of the husband. A Sangha woman in Perunguri recalls "*my husband told me to stay at home and look after the housework, in stead of going and gossiping. If I was late in cooking his dinner after a meeting, I was beaten.*"

As the women GMCL works with are poor women and generally belong to the lower caste, the pressures at home were further exacerbated by the fact that they were mobile in spaces traditionally reserved for men and in many cases for upper caste men only.

Social recognition has gradually given way to respect in most villages and the changes most visible in the public domain. This issue of respect and recognition by the village community is a very critical marker of change for the women.

A sale representative called Rajeshvari affirms : *“ I was earlier working in a dairy, then in a shop and finally have joined this enterprise. I have become so much self-reliant that I can go to the city alone and sell my wares. Further, earlier I was just some person. But now, people recognize me as Rajeshvari who can treat diseases. I have also improved my knowledge regarding diseases because I have to educate the public”*.

For a Sangha woman in Sante Marally, her knowledge of herbal medicine has changed her relationship with the landlord. *“I could not enter the landlord’s house by the front door, but now that I have learnt to use herbs, he calls me ‘doctoramma’, and begs me to come to his house”*.

Changes within the household either in terms of lessening of the workload, greater participation in decision-making, a more equal status in the household are some issues emphasized by the villagers.

A woman from Palavaram affirms *“ whenever anything had to be decided in the family, my opinion was never asked. Now, my husband does not decide anything without first consulting me. I used to think of him as my lord and master, now we are companions, we are friends”*.

Membership to the Sangha belongs to the women independently. The women got together on an equal footing. The Sangha becomes also a place for exchange and debate. The emotion associated from participation in the Sangha is effectively expressed by a woman who states: *“ being a member of the Sangha is like being in my maternal home”*.

Social capital is a community’s major resource (Bourdieu, 1997; Coleman, 1988; Flora, 1998). The fact that these village organizations, such as *Sanghas* are created on the basis of collectively owned cultural and social endowment, facilitates the creation of solidarity among community members and receptivity to collective action. Granovetter (1985) with the notion of *embeddedness* underlines how the economic actions of individuals are always imbedded in social networks. The network constitutes therefore a specific way of coordinating the personal and interpersonal relationships that help the building of trust and prevent the generation of opportunistic behaviours.

A woman from Minitankulam village affirms: *“It is good to be a member of the Sangha.. This helped me to meet other women of the village. We share our problems and we support each other. If someone is in need, or if I am in need, I know that I can rely on them and they know that they can rely on me. This is mutual”*.

The establishment of these community networks, which are the result of these community organizations, allow resources to be pooled, actions to be coordinated and safety nets to be created in order to reduce risks for community members (Bourdieu, 1997; Putnam, 1973).

The process of empowerment, which is a result of their involvement with GMCL, can therefore foster other entrepreneurial initiatives inside the village community. As a woman from Kulayur village affirms: *“ I am a member of the local Sangha. This has helped me a great deal to increase the faith in my own capabilities and in the ones of my group. Our work has been fruitful. We have had good results in the Sangha and we continuously supply to GMCL several species o plants. The quality of our supply has always been considered good...I have decided to start up a little activity with other women of the village. We will produce baskets and sell them locally”*.

3. Discussion: key achievements and lessons

Several interesting findings emerge from this case study. *The first* is that the GMCL and its network have responded to the emerging reality of the protection and use of traditional knowledge and the need to embed economic activity and development

intervention in a much wider sense than has been habitual up to now. The revitalization of local traditions, made possible through the intervention of partners of GMCL network such as FRLHT and CCD, has played an important role in setting up GMCL and in fostering the sense of involvement and interest among the villagers to become part of the company.

In this community-based enterprise, the community's cultural identity has been a driving force and impelled social, economic and environmental initiatives concurrently. At the same time, it is the local culture, expressed through the traditional knowledge of these communities that has endowed GMCL with flexibility and the comparative advantage necessary to compete in the market of herbal medicine.

The involvement of local communities has been increased by the fact that these skills (stemmed from their traditional knowledge) and experience are imbibed in the local culture and form part of the community's past identity.

Another important element that we would like to underline in GMCL is its holistic approach which is reflected in the multiplicity of its goals (enhancement of socio-economic development, conservation of natural resources and traditional knowledge, enhancement of health system). In this context, the profits are used more as a proxy for development rather than the primary measure of success. The multiplicity of GMCL goals reflects the diversity of local needs, which both creates the potential for constructive local development.

The *second* finding is that this community form of bioprospecting has chosen an approach that has relied on creating this space and flexibility according to the broadest possible set of principles consistent with operational control.

The governance structure of GMCL is typically rooted in cultural traditions. Ancestral traditions of community management and decision-making are frequently revitalized to play an important part in the communal life into which enterprise is woven (King, 1995). Community assemblies have been one of the most important mechanisms available for community planning, for dealing with power imbalances and conflict, for achieving accountability, and for strengthening local organization (Peredo, 2001).

The active involvement of local members plays an important role in generating a sense of community (Bowen et al, 2000) and shared ownership on the part of participants in the development of community based enterprises such as GMCL.

The governance structure of such a community organization should be consistent with the structure of decision-making in its community, typically involving communal assemblies of stakeholders.

GMCL has as one of its main pillars of the structure, local organizations such as the *Sanghas*. This has positive effects in the strengthening a sense of community and favours the participation of its members in GMCL activity. The limited number of members and the homogeneity in their background has helped in minimizing conflicts and discriminatory practices and in enhancing the social capital within these local institutions.

The interviews and field observations have reported that there are certain elements/factors, which are crucial for the successful functioning of *Sanghas*. The major internal factors contributing to group success include:

- (i) presence of an educated, sincere, and dynamic leader
- (ii) stability in leadership
- (iii) homogeneity in membership (members belonging to same income or social strata)
- (iv) democracy and transparency,
- (v) co-operation, unity, and mutual understanding.

While considering the internal factors contributing to group's success, groupwise variations were not observed – almost the majority of the members, irrespective of groups, remarked that good leadership, co-operation among members, and transparency in decision-making are essential for the smooth functioning and sustainability of the group. However, members felt that the role of the group leader is one among the foremost factors responsible for a group's success or failure. Distrust in the leaders, lack of transparency in transactions, and autocratic style of function of the leadership were identified as the major factors inimical to the success of groups in the long run. In some of the defunct groups, absence of a strong secretary to inculcate in the members the real spirit of group dynamics had led to its failure.

Nevertheless, overdependence on leaders is found among members of some *Sanghas*. This system of spoonfeeding cannot be considered a positive sign; a strategy of gradual and slow withdrawal of the helping hand of the leader seems to be the ideal mechanism for making the groups self-reliant.

Another finding is that while the participation of farmers and the rural poor in the bioprospecting arena is clearly critical, effective participation of a broader set of actors and the establishment and management of relationships involved are essential if an effective and sustainable initiative in community bioprospecting is to be developed.

Right from the start, the aim has been to involve NGOs such as CCD and scientists such as the ones working in FRLHT in one broad coalition and then to give the resultant system freedom to develop and to do so experimentally.

From the interviews carried out with the farmers, it results that the role of the promoting agency at the field level, such as CCD has been one of the most important external factors contributing to the success of GMCL initiative in the rural areas. The majority of the members interviewed felt that CCD and the co-ordinators had a crucial role in the initial years till the groups reach the stage of self-sufficiency. The role of the promoting agency is not confined to mere mobilisation of rural women folk. The agency is also expected to inculcate in them a spirit of self-help and mutual help and a profound understanding of the mission and goals of the *Sanghas* Groups. These functions are extremely important: once the members understand the objectives, the mission and the benefits, the chances that they would remain loyal throughout and never leave the group will be enhanced.

This active interaction and cooperation between these different organizations has helped the GMCL:

- in reinforcing their linkages with mainstream institutions,
- in enhancing their opportunities and innovation,
- in funding better and more effective ways of supporting development initiatives, local resources and skills

As the social exchanges within village organizations allow a transfer of information and knowledge, the efficiency of the model is increased.

Fourthly, the approach followed by GMCL which constitutes a key factor of this bioprospecting experience, has been the focus on enhancing capacity and empowerment at farmers and NGO levels and then gradually to withdraw as these capacities reach the stage of self-sufficiency. As the field data show, considerable training has taken place on the field by CCD, to build up *Sanghas's* ability to handle the various tasks needed to harvest the species from the wild, to produce and commercialize the ayurvedic medicines. However, having done this it is also clear that sufficient learning and adaptation has taken place to permit field operations to become semi-autonomous. There is every likelihood that complete autonomy will be reached within few years or at least the feasibility of it will have genuinely been tested and

perhaps different viable options will ultimately be pursued. This being so, the catalytic objective of GMCL model would have been achieved.

The enhancement of capacity-building and empowerment at community level in terms of traditional medicine and herb uses through GMCL is important for several reasons:

- there seems to be an emerging consensus that *capacity-building* and *empowerment* contributes to **socio-economic development** of communities in the long term (Alley and Negretto, 1999, UNDP, 1996). The increase of capacity building through the GMCL activity can therefore foster this positive process.
- *capacity-building* and *empowerment* promoted by GMCL suggests a shift towards the enhancement and the strengthening of existing capacities of communities **in participating through their village institutions**. The link between *participation*, *capacity-building* and *empowerment* has been underlined in the literature (Duncan and Thomas, 2000). The enhancement of community capacity building through the GMCL activities could be an effective response to the “*structural and functional disconnection between informal, indigenous institutions and formal institutions mostly transplanted from outside*”(Dia, 1996). Such disconnection has often undermined development activity in the past and is also a way to increase the capacity of a community to negotiate and to establish a more equitable relationship with the outsiders (especially pharmaceutical sector).
- as *capacity-building* and *empowerment* in GMCL initiative are rooted in the recognition of community capacities and institutions, they can lead to an increased emphasis on **partnership** with other stakeholders. This aspect is particularly important in order to increase the effectiveness and the sustainability of this community-based enterprise.

A *final* point is that there has been a special effort on the part of the GMCL model to capture the interests of farmers by starting with interventions of a relatively straightforward type. This has helped build up enormous social capital that GMCL can use to launch future strategic opportunities presented by the growing herbal sector. It reiterates once again the importance of social networks spanning the researcher/user divide as a key element of capacity building.

4. Challenges ahead

There are several issues that need to be outlined. The first is the one of ecological sustainability of this initiative in the future.

The key resource, the ethnomedicine knowledge, which constitutes the pillar of GMCL, is represented by the medicinal herbs. The basic condition for the development of GMCL has been the availability of this resource in the local area. Without this local availability, the constitution and the development of this community-based enterprise would have been unlikely.

In the case of GMCL, this risk seems minimal as the logic behind this venture is not just economic in nature. As it is stated in the objectives of the company, the enhancement of livelihood of local communities is linked with the conservation of the medicinal plants. A particular emphasis is given to sustainable harvesting techniques. In the past, projects that preceded the constitution of GMCL had as objectives the documentation of medicinal plants and the increase of awareness among communities on their uses and cultivation. It is particularly important that this emphasis on ecological sustainability is maintained and possibly boosted in the future.

A second challenge that this kind of initiative is bound to face is the current complexity of herbal sector from a structural point of view. It is a commonly held view among those associated with the medicinal plants sector that the marketing of medicinal plants is generally biased in favour of the so-called 'middleman', resulting in low returns to the stewards and collectors of the resource. In many cases, prices paid by wholesalers are of a higher magnitude than the selling prices for collectors, even though no value addition to the plants occurs during the stages falling between the collector and the wholesaler.

Studies that document these price differences, usually posit the view that the middleman exploits the lack of market information to obtain a cheap price. Certainly this is at least partly true: the market is imperfect in terms of price-setting because of the restricted flow of information (Kala, 2003).

Given the imperfections and complexities of the market as described above, price behaviour is difficult to assess. Prices tend to be volatile and may follow fluctuations between scarcity and over-supply, as well as seasonal variations. In addition, as noted above, prices also vary enormously in different places, a phenomenon which though still not fully understood, seems to be primarily a result of the general lack of information dissemination and overall awareness of different buyers and sellers at different points in the chain.

Another issue that we would like to raise at this point concerns the degree of genuine motivation of the members of community at the grass root level in carrying out this initiative.

Not always the *Sanghas* has proved to be successful in the pursuit of GMCL objectives. In the village of Kurayur, the *Sanghas* failed to enable members to realise their potential benefits. The reasons identified for the failure were the wrong approach followed in the *Sanghas* formation by the team, misconceptions about *Sanghas* goals both among the team and the members, and lack of clarity about the concept. The main lessons drawn from this case is the need for creating *Sanghas* based on a clear assessment of the needs of different sections of the society, ensuring clear understanding of the concept of *Sanghas* among team members involved in promoting *Sanghas*, and enhancing the relevance of *Sanghas* to their members by enabling them to meet effectively their requirements, in terms of amount of time necessary to carry out the shared activities and personal responsibilities.

Once the members get the crux of the mission and realise the benefits, the chances that they would remain loyal throughout and never leave the group will be increased. When the group becomes stabilised in its functioning, internal factors like good leadership, unity, and mutual understanding among the members determine the pace of growth and development.

As the approach followed by this bioprospecting model is holistic in its conception, its sustainability depends upon a spectrum of economic and non-economic goals. In the case of GMCL, its success is not just based from the economic criteria. Although the economic sustainability is essential to perpetuate this community-based enterprise, the delivery of social benefits (empowerment, capacity building, enhancement of local health system) is essential for the perpetuation of such a form of community bioprospecting initiative. The acknowledgment and the full awareness of the members of community that GMCL is able to deliver not merely economic benefits but also social benefits are essential. If this is not the case, the involvement of the community's members could dwindle. As we have already emphasized, the challenges for an enterprise operating in herbal sector are numerous (in terms of competition, price fluctuations etc.). At local level, a possible menace is represented by the traders, who still go to the villagers and offer higher prices in order to have their supply back. Only if the villagers attribute to GMCL a role in enhancing their livelihood in a wider way, they will be willing to be part of this community-based enterprise.

A third and final point is pertains the place and the perception of traditional medicine among the young generations in indigenous communities. This point is particularly delicate and deserves special attention.

From our interviews it emerged that in some villagers the role of ethnomedicine and local healers is dwindling. This phenomenon is especially recurrent in the young generations. In many cases, the ethnomedicine has been reduced merely to the treatment of minor illnesses and it lost its prestigious value and popular appeal as an efficient medical system.

The role of folk healers in the revitalization of local health traditions should be more carefully considered.

In the case of GMCL, the folk healers have mainly been involved in the documentation of their traditional knowledge at the beginning of GMCL activity. Their role has been marginal since then. The degree of acceptance and interest of folk healers towards GMCL products may vary: the folk healers have their own remedies, prepared with fresh ingredients and they may be willing to stick on to them.

Nevertheless, a positive judgment of folk healers in regard to the GMCL medicines would facilitate a build up of the trust among the villagers towards GMCL products and enhance their acceptance. Emblematic is the case of Maddur village. In this village, Narasimaiah, a local folk healer has played an important role in promoting the use of medicinal herbs. He affirms: *"When patients come to me, and most of them are known to me since many months, I give them medicine for about three days. They then realize the importance of the medicine and come back for more... People usually go for English drugs or injections but in emergency situations, so people come to me and if I am successful in treating them, they continue to have faith in me. I think herbal medicine has a good future"*.

An increase in the awareness of the villagers in rural areas on the importance of using Ayurveda as an effective and side-effect free form of treatment is necessary in order to promote initiative such as the one of GMCL. As a sales representative from the village of Minitankulam has rightly pointed out: *"Because the villagers don't know about side effects, they are happy with English medicine.. they say if you take English medicines diseases are cured in one day.. but what will happen next?"*.

This increase in the awareness could be done through the organization of workshops and training activities at village level and could involve folk healers, local NGOs and other local organizations.

At the moment there seems to be some difficulties in establishing long-term partnerships with NGOs active in the revitalization of local health tradition. The strengthening of these partnerships could be a way forward to promote the ethnomedicine culture in rural areas.

In the area where our study took place, in numerous villagers the chemist's shops exclusively sell allopathic products. The ayurvedic medicines are often just sold at *taluk* level so that GMCL products sold through the sales representatives represent the only selling channel. An increased awareness towards herbal medicine among the villagers would be essential to take advantage of this factor and to expand the market penetration. As a local leader has pointed out: *"giving more and more information to people in every village regarding Ayurveda and its uses is very important. Awareness and advertising have to go hand in hand.... We need to motivate them. ..If we can motivate more people the success of our initiative will be more easily achieved"*.

Conclusion

GMCL is a form of institutional innovation that has much to commend it. Its strengths lie in its efforts designed to build sustainable links between traditional knowledge and development in poor farmer context. In our view it embodies an approach that deserves consideration by the wider constituency of those involved in development assistance that seeks to bring the outcomes of bioprospecting to those who need it most. As GMCL model shows, the community bioprospecting could represent an alternative and promising model for development of local communities. This form of bioprospecting which aims to promote, protect and use traditional knowledge to the advantages of the poor, is a culturally appropriate response to the problems of lack of equity and participation which characterizes the majority of benefit sharing agreements.

This paper is an attempt to explain the notion and the nature of an alternative and more participative and democratic form of bioprospecting. It has tried to identify the typical components of its formation, composition and operation and impact through the study case of a community-based enterprise, GMCL, active in the herbal sector.

There is obviously considerable scope for further work and research to test the conjectures offered above as the organizational forms and outcomes of such alternative forms of bioprospecting models, and to expand the understanding on these and other factors connected with the formation, evolution, and performance of these alternative form of community initiatives.

Likewise, research should be conducted that leads to a fuller understanding of the characteristics of these new forms of community initiatives that do emerge. For example, can alternative forms of governance be equally effective or is a fully democratic type of governance necessary to maintain the commitment of members of the community, as our discussion suggests? With regard to the community's resources and skills, how can these are expanded over time to provide greater opportunities for community members? There is also the question of how these community initiatives set goals, what goals should be set, and how the goal formulation process can be improved.

With regard to the outcomes of this different approach of bioprospecting, there is scope for further investigation. The most obvious question is how well it has actually functioned in the attempt to bring sustainable benefits of various kinds to the communities.

The question of how, in detail, market, NGOs and other corporate bodies may interact with these grass-root organizations so as to benefit their operation as well as that of their partners also links theoretical with empirical questions. A vital area of inquiry in this connection is the relationship between these new forms of community organizations and the surrounding economic and legal environment. Which market structure and legal frameworks may foster or inhibit their emergence, and which ones encourage or hamper effective and sustained performance?

To conclude, although the connection between ethnomedicine and the potential for generating local development through collection and growth of medicinal plants has still to be understood and documented through studies, GMCL study case shows that there is potential for the development of organizations of this kind.

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