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Bioprospecting in South Africa: Opportunities and Challenges in the Global Knowledge Economy – a Field in the Becoming

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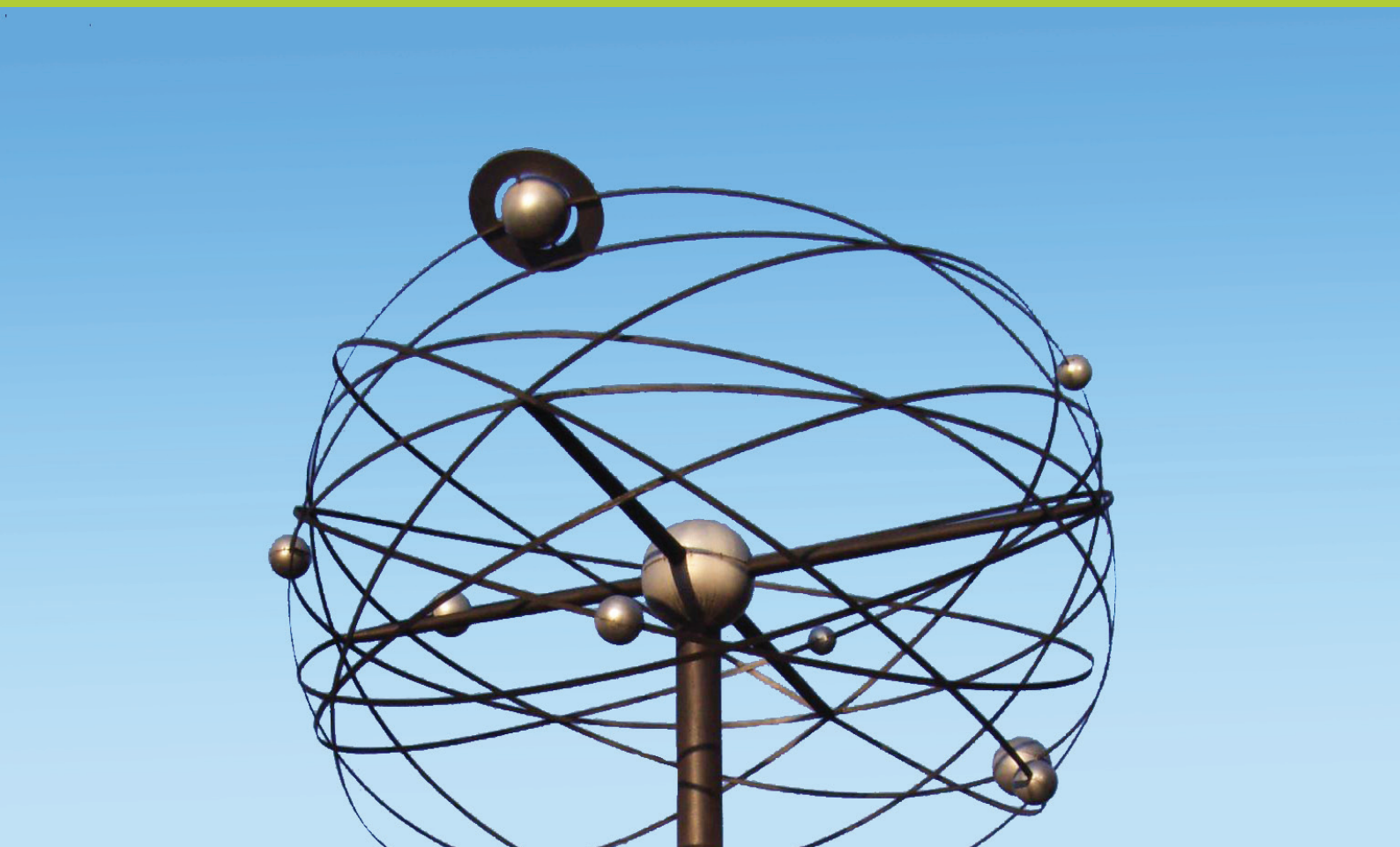

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Bioprospecting in South Africa: Opportunities and Challenges in the Global Knowledge Economy – a Field in the Becoming

Britta Rutert, Hansjörg Dilger, Gilbert Motlalepula Matsabisa

Contents

Abstract

Bioprospecting in South Africa as well as in other parts of the world is an old field with new political, economic and socio-cultural implications. While in colonial and pre-colonial settings the search for exotic flora and fauna prevailed, nowadays the search for and exploitation of biodiversity for commercially valuable genetic and biochemical resources is predominant. In South Africa, a wide range of actors has become involved in the field of bioprospecting over the last two to three decades: medical researchers, traditional health practitioners (THPs), herbalists and plant collectors, politicians and NGOs are all involved in this realm.

This working paper presents first results from an ongoing research project funded by the DFG (German Research Foundation) on "Bioprospecting in the African Renaissance: From Muthi to Intellectual Property Rights" at the Institute of Social and Cultural Anthropology, Freie Universität Berlin (FU Berlin). The authors discuss diverging concepts of property in relation to plants and knowledge about plants, different modes of knowledge protection and disclosure in the context of bioprospecting, and the attempts of South African NGOs to establish Intellectual Property Rights and patenting mechanisms on behalf of "indigenous communities." The paper argues that the field of bioprospecting in South Africa has been shaped not only by the country's Apartheid and post-Apartheid history, but also the complex dynamics of cultural identity and the (scientific as well as economic and social) aspirations of a wide range of actors to become involved in the emerging global knowledge economy.

Zusammenfassung

Bioprospektion in Südafrika ist ein altes Terrain mit neuen politischen und ökonomischen Implikationen. Während in der Kolonialzeit nach exotischer Flora and Fauna gesucht wurde, wird heute die Suche nach kommerziell nutzbaren genetischen und biochemischen Ressourcen vorangetrieben. Um diese zu finden, bedarf es der Unterstützung (indigener) Wissensträger, die in engem Kontakt mit Natur und Umwelt stehen. Während der letzten zwei bis drei Dekaden sind Diskurse und Dynamiken im Kontext von Bioprospektion in Südafrika von einer Vielzahl von AkteurInnen geprägt worden: medizinische ForscherInnen, traditionelle HeilerInnen, HerbalistInnen, PflanzensammlerInnen, PolitikerInnen und NGOs – sie alle spielen eine jeweils spezifische Rolle und konstituieren zusammengenommen das neu entstehende Feld der Bioprospektion.

Dieses Arbeitspapier präsentiert erste Ergebnisse eines DFG-finanzierten Forschungsprojekts zum Thema „Bioprospecting in the African Renaissance: From Muthi to Intellectual Property Rights“ am Institut für Ethnologie der Freien Universität Berlin. Die AutorInnen stellen insbesondere drei Themen vor, die das Feld der Bioprospektion in Südafrika gegenwärtig prägen: divergierende Konzepte von Eigentum in Bezug auf Pflanzen und Pflanzenwissen; verschiedene Formen des Schutzes bzw. der Preisgabe von Wissen; und die Bemühungen von südafrikanischen NGOs um den Schutz intellektuellen Eigentums „indigener“ Bevölkerungsgruppen. Das Arbeitspapier zeigt, dass Bioprospektion in Südafrika nicht nur von den Apartheids- und Post-Apartheids-Politiken des Landes geprägt wird, sondern auch von den komplexen Dynamiken kultureller Identität und den vielschichtigen (wissenschaftlichen, ökonomischen und sozialen) Hoffnungen und Aspirationen, mit denen unterschiedliche Akteure in das Feld der Bioprospektion im Kontext einer sich etablierenden globalen Wissensökonomie eingetreten sind.

About the authors

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1. Introduction and Background

Bioprospecting in South Africa is an old field with new political and economic implications. The search for valuable natural resources started with the travels of early explorers and colonization between the 16th and 18th centuries (Schiebinger 2004). It continues today, where bioprospecting is defined as "the exploitation of biodiversity for commercially valuable genetic and biochemical resources" (Eisner 1989). This definition shows a clear shift from early adventurous curiosity for exotic flora and fauna (cf. Burchell 1967 / Geri 2007) towards explicit economic and scientific interests in "exotic" genetic and biochemical resources. It does not indicate the underlying fact however, that biopiracy was and still is a major concern of countries with dense biodiversity and weak technological infrastructures. Although the current "Intellectual Property Rights and Patenting System" could be viewed as a measure of protecting "indigenous knowledge and resources", it simultaneously generates new forms of colonialism and does not adequately cover all forms of indigenous knowledge systems. According to Vandana Shiva, a "second colonization" has started through the patenting of new inventions originating from developing countries' natural resources. Shiva claims: "Through patents and genetic engineering, new colonies are now being carved out. The land, the forests, the rivers, the oceans, the atmosphere have all been colonized, eroded and polluted. Capital now has to look for new colonies to invade and exploit its further accumulation." (Shiva 2007: 274).

To encounter the radical exploitation of nature, to take account of the rights of the users and holders of "indigenous knowledge" and to diminish biopiracy, the Convention of Biological Diversity (CBD), the first international tool to regulate "nature", set guidelines for bioprospecting activities in 1993. South Africa became signatory to the CBD after the end of Apartheid in 1995. The CBD's main objectives are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising from the utilization of genetic resources (Sampath 2005). For the first time, access to genetic resources became an international concern that was delegated to the sovereignty of national governments. These issues were strongly emphasized and manifested in the Nagoya protocol, which was adopted by the Conference of the Parties to the Convention on Biological Diversity at its 10th meeting on 29 October 2010 in Nagoya, Japan (Najoya Protocol 2010).

In 1998, Thabo Mbeki, the former President of the Republic of South Africa, proclaimed the "African Renaissance" "to strengthen a second liberation struggle" of self-discovery, democratization and economic emancipation. In subsequent years, his government ratified policies focusing on indigenous knowledge systems, traditional medicine and access to biodiversity. As part of this development, major political changes, both nationally and internationally, led to a discourse on indigenous knowledge, access and benefit sharing and intellectual property rights. In 2004, the most important policies that dealt with the integration of the country's biodiversity (National Environmental Management: Biodiversity Act, 2004) and the recognition of the indigenous population and its knowledge sys-

tems (Indigenous Knowledge Systems Policy, 2004 and Traditional Health Practitioners Act, 2004) were implemented. As a result, new institutions were established to support, protect, and develop indigenous knowledge systems; one of them being the Indigenous Knowledge [Health] Lead Programme (IKS), founded in Cape Town in 2000. In addition to its activities in the fields of research, contribution to policy formulation and advocacy[1], the IKS Lead Programme has been mandated by the Minister of Health to validate and evaluate health claims asserted for traditional medicines against life threatening diseases and chronic conditions. Accordingly, the following components form the IKS Lead Programme agenda: scientific research, industrialization, commercialization of products and promotion of indigenous knowledge systems. This focus underlines the fact that bioprospecting has shifted towards a scientific and economic imperative, although the socio-cultural aspect of "indigenous knowledge" is ostensibly included. The IKS Lead Programme is thus responsible for registering these claims and for scientifically pursuing them – until the potential scientific proof of safety and efficacy can be provided and the plant or a specific plant compound is "ready" for entering the clinical trial phase and becoming a pharmaceutical product.

This paper provides first results from a DFG-funded research project that aims at exploring the socio-political processes and cultural dynamics associated with the field of bioprospecting in South Africa. While bioprospecting in the country is a potentially growing market – with South Africa being one of the most biodiverse countries in the world (with more than 30.000 species of higher plants and 10% of the world's known plant species) – a wide range of actors have become involved in exploiting this potentially infinite wealth of indigenous knowledge and genetic resources: Apart from the IKS Lead Programme, traditional healers, herbalists[2] and (illegal) plant collectors, scientists and NGOs are intensively involved in this realm.

In a multi-sited ethnographic study conducted in South Africa in 2009/10 the following analytical perspectives were of particular interest: 1) concepts of property in relation to plants and plant knowledge, especially of "indigenous knowledge holders" (esp. healers) whose concepts of property are often quite different from those formulated in national and international policies and regulations; 2) measures of protection of indigenous knowledge amongst knowledge holders; 3) issues of intellectual property rights and ac-

[1] The IKS Lead Programme aims "to facilitate research and development, to support policy formulations, to assist in the commercialization of indigenous knowledge health systems, to play a leading advocacy role in promoting indigenous knowledge and to develop functional IKS networks" (see IKS webpage: http://www.mrc.ac.za/iks/indigenous.htm).

[2] Traditional health practitioners who are registrable under the South African Traditional Health Practitioners Act include herbalists (*izinyanga* or *amaxhwele*), diviners (*izangoma* or *amagqirha*), traditional surgeons *(iingcibi)* who mainly carry out circumcisions, and traditional birth attendants (*ababelethisi* or *abazalisi*). In total, there were about 190.000 such practitioners in 2007 (Peltzer 2009). Since there is no formalization process yet, the (unofficial) number is probably much higher. Many healers are members of healers' organizations with the Traditional Healers Organization (THO) in Johannesburg with 29.000 members being one of the biggest amongst them (http://www.traditionalhealth.org.za/t/aboutus.html).

cess and benefit sharing discussed in NGOs with regard to previous "best cases" like Hoodia and Pelargonium. The original idea of the project was to follow one particular plant from its place of origin to the IKS Lead Programme laboratory and further into potential benefit sharing negotiations. The situation, however, turned out to be more complex, and the research finally concentrated more on the *relations between the various actors involved in this "field of becoming"* rather than on "one particular plant". The challenges and obstacles faced during the research, triggered through the nature of the research topic and a diverse country in political-economic and socio-cultural transition form the starting point of the following analysis. In the next sections we will describe the methodological and theoretical approaches to the field, followed by the challenges the researcher experienced[3] and will give an overview of the first research results.

2. Theoretical Implications

Research in the field of bioprospecting requires a thorough reflection on ethnographic methods and understanding. Questions pertaining to "property regimes", the transformation and appropriation of "traditional" medicine or the "African Renaissance" must be analyzed within a field of international and national politics, law, science, indigenous populations and their various forms of knowledge. No actor – whether human (e.g. politician, healer or scientist) or non-human (e.g. plants or technical equipment) – in this field can be analyzed as a monolithic or independent entity. Medicinal plants acquire meaning across different (knowledge) spaces, act with new agencies, create new synergies and frictions (Loewenhaupt-Tsing 2005), but also stay what they are as material objects: plants growing in specific environment(s).

This research focuses on *plants and different forms of knowledge* as distinct analytical reference points. In addition to Bruno Latours' Actor-Network-Theory (ANT), which proposes the same analytic space and the capacity of agency for both human and non-human actors (Latour 2005), helpful theoretical approaches are also Tim Ingold's approach of lines (2008) or Deleuze's rhizomes (1988). They represent multiple, non-hierarchical entry and exit points in data representation and interpretation. Since bioprospecting is a "field of becoming", these theoretical approaches are useful to frame the field and allow equally balanced descriptions of all involved spaces and actors.

In addition to the meta-theoretical approaches the topic of bioprospecting needs to be contextualized in the regional and historical setting. For a country like South Africa, one of the strongest economies and the driving economic force of the African continent, the emphasis on economic interests and development is crucial. The need to stabilize this position as a serious participant in the global economy renders the country's biodiversity a strong means of economic growth. In this context different regimes of values converge

[3] The fieldwork in South Africa was conducted by B. Rutert. H. Dilger is the Principal Investigator of the research project and responsible for its conceptual and methodological framework.

into the idea of the "African Renaissance". On the one hand, considering the huge impetus of marketing plant products and related indigenous medical knowledge(s), we can speak of the "commodification of culture". Commodities, as Appadurai (1986) has argued, can be defined as objects of economic value. On the other hand, considering that these prospect products carry implicit "images of Africa" and at the same time might produce monetary and non-monetary benefits, they promote an "identity economy" (Comaroff & Comaroff 2009). This economy is not merely expressed in economic value but in further "regimes of value" (Appadurai 1986), such as emotional values or the value of ethnic heritage. For the analysis, the value of ethnic heritage or the value of inherent emotions or of passionate interests (Latour & Lépinay 2010) is as important as the scientific value or biovalue (Waldby 2002) of medicinal plants and knowledge. All of them are to some extent ultimately bound to a political value, expressed in ongoing political discourses in the government, in traditional healers' organizations, in NGOs or "simply" around the fire in village homes. Although bioprospecting activities focus primarily on scientific and economic development, the hidden agenda of medicinal plants and related knowledge(s) is articulated in the constitution of new policies, institutions, civil society groups on the one hand and the new legitimization of "an emotional self-discovery and self-representation of a new African identity" (Mbeki 1998) on the other. Both are inevitably linked to each other but must also be analyzed separately.

3. Challenges of Multi-sited Ethnography in the Field of Bioprospecting in South Africa

South Africa's biodiversity is exceptionally rich and entails a largely undiscovered treasure of chemically and genetically valuable resources. As dense as "nature" is, it is simultaneously strongly connected to and embedded in multiple cultural systems of knowledge, spirituality and cosmology, depending on the geographic region, language and ethnic group. With eleven official languages acknowledged by the constitution and innumerable cultural traditions and ethnic subgroups, South Africa can be considered one of the world's most diverse countries.

Therefore the idea of multi-sited ethnography needs to be properly understood since it differs from "classical" ideas of ethnographic research (Marcus 2009). It makes sense to talk not only about multiple *sites* (Marcus 1995) but also of multiple *layers*, multiple *actors*, multiple *ontologies* and *epistemologies* involved in South African bioprospecting that show up in very different perceptions of and access to knowledge about plants. These multiple sites and entities are permanently "on the move", with new policies, technological developments or economic decisions evolving. Considering this background, major challenges were experienced in the field.

First, the challenge of language: The researcher attended two intensive Xhosa language courses at the University of Cape Town and the acquired knowledge of Xhosa was helpful

while visiting rural areas in the Eastern Cape region. However, a translator was necessary to grasp more detailed understanding of "indigenous knowledge". Also, for inquiries at Durban and Johannesburg *muthi*[4] markets, a basic understanding of Zulu would have been of great advantage, since medicinal plants at the market were described and sold in Zulu. Most plant names in South African local languages are rich in meaning and emotional expression. A *muthi* available at Johannesburg *muthi* markets called *velabhaleke* expresses the notion that "someone smiles at you when you wash with it" (*Ukuhleka* = to smile). It is therefore important to understand that names, whether they are of people, animals or plants are related to a meaning. Plants also carry their names from their indigenous medical knowledge and use. No medicinal plant "just has a name". This field of inquiry, however, could only marginally be integrated in the research due to its linguistic complexities.

Second, bioprospecting was shown to be a field of political tensions and economic competition. Thus, while the researcher conducted fieldwork in the laboratories of the Indigenous Knowledge [Health] Lead Programme, this very fact created mistrust in indigenous stakeholders (esp. local healers) who often regard the IKS as an institution promoting biopiracy. The researcher was therefore received with a strong degree of mistrust and discomfort and a reluctance to speak openly about (the properties of) specific plants in almost all visited field sites. Being perceived as a "spy" was an ongoing experience, particularly in the IKS laboratory (despite the fact that a memorandum of understanding had been established between the IKS Lead Programme and the Free University Anthropology Institute which granted entry into the laboratories as participant observer). This must be seen under the aspect that the IKS Lead Programme, unlike most research institutions working in indigenous knowledge systems and medicinal plants, has standing research agreements with clauses of confidentiality between itself and the knowledge holders. All of its research is based on actual recipes from knowledge holders or claimants and does not work based on literature searches. The knowledge in this context must therefore be handled carefully and cannot be revealed openly.

A more general question derives from that experience: to what extent, from an ethical point of view, is it legitimate to expect open access to information in a field where knowledge is regarded as highly valuable and contested and where biopiracy has been at stake for centuries? More than once the researcher experienced secrecy and suspicion from traditional healers who were concerned about the "theft of their knowledge". In one focus group discussion with traditional health practitioners from the Cape Flats townships at the IKS Lead Programme Laboratories in Cape Town, a very reserved atmosphere made it almost impossible to lead a constructive discussion. The more access potential interview partners had to the "power centers" of urban institutions and infrastructure, the more they were aware of the potential threat of biopiracy. In addition, the researcher

[4] *Muthi* is a Xhosa term describing all kinds of medicinal plant mixtures used by indigenous people for healing purposes as well as for witchcraft and spells (Ashforth 2005).

often struggled with high financial claims for the knowledge the interview partner would reveal, in particular when talking to traditional health practitioners in contact with the IKS Lead Programme structures.

A third major challenge of this field research was that a trustful relationship needs time and long-term presence, which is difficult to set up in a multi-sited fieldwork. Altogether 10 weeks were spent in 3 Eastern Cape villages (Mbotyi close to Lusikisiki, Mtambalala close to Port St. Johns and Mzantsi close to Butterworth) in order to establish rapport with traditional health practitioners, accompanied by short-term visits at Durban and Johannesburg *muthi* markets. Regular attendance at the Indigenous Knowledge [Health] Lead Programme laboratory was part of the weekly research schedule throughout the whole year. With the help of a friend, a "white" traditional healer, and an IKS research assistant trained as an anthropologist and healer, the bridges between the epistemologies and ontologies within the different fields were crossed more easily. The white sangoma was trained by a "black" healer in the Eastern Cape, where she spent a year for her apprenticeship. She had the experience and knowledge of the local (indigenous) world and was very helpful in translating cultural meanings. Of similar help, although from another perspective, was the insightful view of the fluently Xhosa and English speaking IKS employee, who joined the researcher on a field trip to the Eastern Cape to interview traditional health practitioners.

Additionally, fieldwork was conducted at meetings of NGOs, with governmental representatives, with independent scientists and at medicinal plantation sites set up by the IKS Lead Programme. Thus, the research covered a multitude of different (yet often interconnected) sites that were all engaged in the field of bioprospeting and tried to establish rapport and relationships of trust in all of them. This leads to the final challenge in dealing with significant differences with regard to terminology, languages and ontologies in the various field sites. It took the researcher considerable time to get familiar with places and spaces. The epistemological language used in a laboratory was as much "alien" to the researcher (Latour & Woolgar 1986) as the ontologies in local communities, in ceremonies, during plant collection or preparation of medicine. In that sense the researcher decided to grasp as much understanding as possible with the help of assistants that were at home in *both* epistemologies and ontologies, and instead of relying on the general assumption that a particular field site needs long term attendance, more focus was given to the *relations* between the field sites, the interwoven *connections* and *dependencies* that characterize this particular assemblage. In this sense, the characterized challenges can also be regarded as an excellent opportunity for applying multi-sited ethnography, for opening new methodological perspectives and for studying frictions and juxtapositions within specific field sites in an interconnected world (Dilger and Hadolt 2010: 24f.).

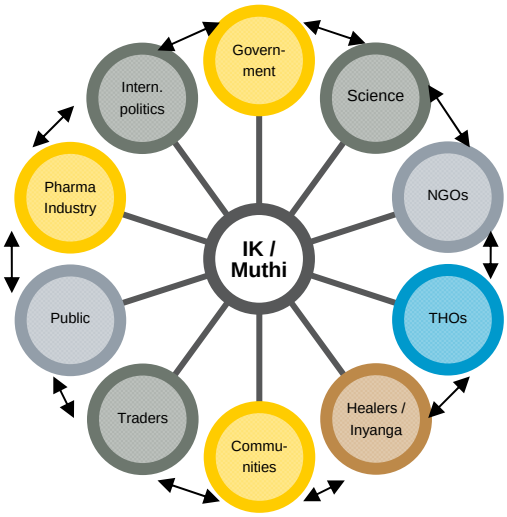

Fig. 1: The actors involved © Britta Rutert
(THO = Traditional Healers Organizations, IK = Indigenous Knowledge)

4. Research Results

In contrast to Latin America or India, where bioprospecting is widely discussed and connected to a strong civil society engaged in this realm (cf. Posey 2002, Nigh 2002, Sampath 2005), South Africa lacked both open discussion and connection to civil society throughout the years of Apartheid. Thus 80 % of the country's population that are predominantly black were excluded from official political and economic involvement and due to segregation politics it was difficult to form a strong cohesive civil society in relation to the protection of plant knowledge and biodiversity.

Until today there is no case of a plant, plant mixture or remedy that can be labelled a "best case" in terms of a fair benefit sharing agreement. This might be the case due to the political situation as well as the fact that scientific research has not advanced that far to have brought a product into the market that can be used as "best case" for benefit sharing. Since the Biodiversity Act was implemented in 2004, it has been obligatory for every bioprospecting activity to integrate an Access and Benefit Sharing (ABS) agreement, a Prior Informed Consent (PIC), a Material Transfer Agreement (MTA) and an Information Transfer Agreement (ITA) negotiated with involved "indigenous communities". These theoretical concepts are not easy to apply in practice. Indeterminate political terms such as "indigenous communities"[5] and incongruence between policies and the

[5] "'Indigenous community' means any community of people living within the borders of the Republic, or which historically lived in the geographic area located within the borders of the Republic" (South African

complex multi-cultural South African reality lead to a tedious application process. To date, positive benefit sharing agreements can only be negotiated when local communities are strongly supported by NGOs, as can be observed in the Hoodia[6] and the Pelargonium[7] cases. In general the NGO "scene" in the field of bioprospecting in contemporary South Africa is still small in numbers but strong in effects. Traditional Healers' Organizations, on the contrary, are highly dispersed in terms of ethnic affiliation and geographical region. They are only starting to realize their influence in political decisions making processes now. The healers' main representative is the "Traditional Healers Organization for Africa" (THO) based in Johannesburg. The THO is currently the strongest public "indigenous" voice in the IPR and ABS discourse, primarily represented by the THO national co-ordinator Ms. Phephsile Maseko, a highly engaged and powerful traditional healer. In other regions healers' organizations are dealing with the issue as well, but on a more "local level" (cf. Zenker 2010).

In general, communication between state, science, NGOs, THOs and the public can be more and more traced in the public debate, and new assemblages like the "Hoodia Task Force Group", institutions like the IKS Lead Programme, or individuals like Dr. Isaac Mayeng (director of the traditional medicine group at the Department of Health and a trained healer), Dr. Motlalepula Gilbert Matsabisa (director of the IKS Lead Programme who merges between the scientific and the "local" world), or the IKS Lead Programme research assistant, Ms Mirranda Javu trained as an anthropologist and as a practising traditional health practitioner are engaged as mediators between the "different worlds". Conversely, although South Africa is interested in acknowledging "the country's heritage and its people", dependencies on economic forces from industrialized countries are prevailing, since South Africa's technological and financial infrastructure is not sufficiently prepared to provide "quality products" as demanded for the international market.

In the following, research results will be presented concerning the different social, cultural and economic realities, but also with regard to the hopes, interests and "failures" included in the field of bioprospecting. The young market is "a field in the becoming", open for the voices, aspirations and contestations of a wide range of actors. Shifting political decisions might develop the field in new directions. The focus here will be on ideas of local property regimes and the various measures that actors take to protect their respective knowledge.

Intellectual Property Laws Amendment Bill, 2008).

[6] *Hoodia Gordonii* is a cactus originating from the Kalahari Desert. The chemical compound P57 was later extracted by the Council for Scientific and Industrial research (CSIR) and marketed as dietary products.

[7] *Pelargonium sidoines*, a plant used as a herbal remedy known as *Umckabloabo* was part of an patenting dispute between the community Alice in the Eastern Cape and the company Schwabe from Germany. Schwabe finally had to withdraw patents.

4.1. Muthi *and Local Property Regimes*

The idea of property has a particular meaning for traditional health practitioners in South African local settings. In interviews with healers in the different field sites plants were often referred to as something that belongs "to the ancestors", to the "ancestral spirit", or simply to "nature" and was thus seen as deeply related to "a collective" (the living and the dead) and to the embeddedness in nature. Plants were used and collected in intensive communication with the ancestors in day or night dreams or in specific prayers. During plant collections attended by the researcher in three Eastern Cape villages, decent greeting ceremonies were performed with prayers for the ancestors before leaving the house and before digging the plants from the ground. A silver coin was put at the place where a particular plant was removed. It is a crucial part of the work of the healers to stay connected with their ancestors and the surrounding environment or the land respectively. In the entire field settings the healers repeatedly emphasized this connectedness.

During the Apartheid era, access to land was strongly restricted for the local population. Today, the tradition of collecting *muthi* is again endangered by restrictions of local authorities and nature conservation endeavours. Regional forests, coastlines or the Fynbos[8] are increasingly protected and fenced up and access is only allowed with official permission requested from local authorities[9]. Being connected to land is an important part of the traditional healing system, and hence of tradition and cultural values, and is highly endangered through these new regulations. Healers would often dream about a place and a time where the plant must be collected, e.g. early in the morning in the forest under a specific tree. In the wake of the new regulations it becomes increasingly difficult to follow these dreams, because the plants are no longer accessible (interview with healer, Umthatha, Eastern Cape, March 2009). As a result *muthi* nowadays has to be bought in *muthi* shops or on markets instead of being collected in the forests and bushes. A vicious circle has evolved as the new regulations enhance the demand for bought plant material, which then leads to increasing illegal (over-)harvesting through traders. Illegal, wild harvesting of plant material is an economic branch expanding all over South Africa. A healer in the Eastern Cape complained: "Now they set up all these rules and prevent us from following our tradition. But it is not us (the healers) who take all the plants; it is them (the 'illegal' harvesters)" (interview in Mbotyi, August 2009). This healer referred to the wild harvesters, who receive 20-50 Rand per bag of collected plants, without "knowing" the traditional use or healing purposes of the plants, often employed by contracting companies or *muthi* market traders, endowed with a piece of paper with plants to be collected, reduced to mere economic value and business. These plants are re-entering the

[8] "Fynbos is the natural shrubland or heathland vegetation occurring in a small belt of the Western Cape of South Africa, mainly in winter rainfall coastal and mountainous areas with a Mediterranean climate." (http://en.wikipedia.org/wiki/Fynbos).
[9] E.g. Cape Nature "Permit to Pick Flora".

circle of "traditional" values again when, after being bought, they are used as plant medicine by the healers again. The importance of being connected to the ancestors and the environment while collecting is therefore carved out of the "traditional circle" under these new circumstances.

Although access to the environment is increasingly restricted and plant collection is illegal without permit, healers still go for collections in unprotected forests or riversides. During plant collections with healers in the Eastern Cape, the researcher gained valuable information on the method of plant collection and their later application, although the healers were reluctant as well to share too much in-depth information and kept specific knowledge for themselves as a mode of protection. Yet, the collected plants were quite diverse in terms of their parts and their application. Here, only few examples can be given for illustration. A plant with an onion-like structure, called *intelelezi* (see fig. 3) has several forms of applications, according to the healers: The big bottom root part is used as a headache powder, the small roots are used in crushed and cooked form for cleansing the blood, the onion leaves are used to treat itchy skin as well as bad dreams and to wash the house for protection against evil spirits. A mixture of the plants *Tuteleleso* and *Mayime* serves for good luck in court. *Mkwa Mgwanqanisa* can be used to wash, look and smell "beautiful". One healer in a far off Eastern Cape village explained that medicine could always be used for "good" and "bad" purposes, depending on the user's intention. Bad intention and bad medicine are assumed to cause bad energy and calamity. "One must be very careful with these medicines", he said, "they are very strong and even can be dangerous and misused for witchcraft." A very special *muthi* he treasured inside a long deer horn got stolen out of his *indhumba* [10] and he claimed: "When they use the *muthi*, it can only cause bad energy, because it is stolen *muthi*, it carries bad energy."

These are only a few examples of an almost infinite spectrum of traditional knowledge about medicinal plants. This knowledge is based on much more than mere healing purposes but comprises next to physical ailment and treatment attention to the sociocultural everyday "needs and worries" of the population. This illustrates that property in South Africa – at least from the perspective of healers – cannot be manifested exclusively as a material item. It is much more bound to the use and interpretation of the plants, to the spiritual and ceremonial dimensions of cultural tradition, to communication with ancestors and to related knowledge. Local property regimes on *muthi* must therefore be regarded as an intangible rather than a tangible good.

While this particular aspect requires a more detailed analysis of the collected data, we can already assess that property as conceived by the interviewed healers is very much defined by spiritual and ceremonial dimensions. Such dimensions are difficult to measure and

[10] The *indhumba* of sangomas is a sacred place used for communication with the ancestors, for healer novices *(amathwasa)* to connect with the ancestors, and for healing consultation and *muthi* preparation and storage. Access to the *indhumba* while the sangoma prepare *muthi* or pray to the ancestors is usually not allowed.

evaluate with the methods of natural science. Ongoing changes due to bioprospecting and commodification processes (Comaroff & Comaroff 2009) influence ideas of property: Thus, whilst property in indigenous settings previously was not related to the material matter of plants but rather to the *knowledge* associated with plants, that was either shared or kept secret, property is becoming increasingly defined in the sense of a commodity and of economic value which increases even more through the interpenetration of science and the global pharmaceutical market. Hence, (plant) property that moves from indigenous settings to scientific laboratories into the global pharmaceutical market is going through some major transitions, translations and reductionism. In this highly contested (economic and political) field both plant material and knowledge are inevitably put under considerable measures of protection, as outlined in the next chapter.

Pictures: B. Rutert

Fig. 2 and 3: Plant collection, Eastern Cape, March 2009, Sangomas in South Africa are predominantly female.

4.2. Measures for the Protection of Knowledge

Apparently, the field of bioprospecting and medicinal plants is highly politicized. Measures of protection can thus be noticed on all levels: in rural villages amongst healers and herbalists, at the *muthi* markets in Johannesburg and Durban, but also in official governmental meetings, in conversations with traders, commercial farmers and independent scientists as much as in the laboratories of medical and biochemical research institutions.

As a first measure, healers in rural villages concealed their knowledge against other healers or against scientists, to protect their private "intellectual property". Although knowledge about plants in general is not perceived as property or as something that is owned by someone else but by the "ancestral line", the healers nevertheless guard it as an essential part of their profession: Traditional health practitioners are usually regarded as custodians, or holders of this knowledge. In Mbotyi, a small, remote costal village in the Eastern Cape, Thabo[11], an old and experienced sagoma, kept his knowledge secret "for himself". Mbotyi hosted six healers and herbalists altogether, all having their own specific areas of knowledge and practice. They needed to keep their knowledge secret. For the integrity of each healer and in order to be known as a healer specialized in certain diseases or ill functions, Thabo was, amongst others, known for his ability to defeat witchcraft (his own daughter had been bewitched and he allegedly succeeded in healing her). But he explained, "I never show or explain to anyone what I do when I mix my *muthi*, not even my patients or relatives know. Only with my apprentices *(amathwasa)* I speak about my work. They need to know." (informal communication, Mbotyi, October 2009) It is not unlikely that even *among* the family members only one appointed family member will be shown the plant and taught about this family secret.

The main reason for his reluctance to reveal information beyond mere knowledge protection was related to the healer's special requirements regarding communication with the ancestors. Healers prepare themselves spiritually before working with *muthi*. Thabo had to enter communication with the ancestors and stay in touch with them for the right mixing ratio and combination of plants and dissolvent, such as salt, fat or alcohol. Mixing *muthi*, according to him, was always bound to an intense relationship between healer, plants, the ancestral spirits and finally, the patient. Depending on the healer's personality some knowledge would be shared while other knowledge would be kept secret.

The often encountered resistance and protection of knowledge against researchers, and especially "white" people was shaped by a number of historical reasons. The practice of traditional healing during Apartheid was restricted by the "Witchcraft Suppression Act" (Act 3 of 1957 as amended by Act 50 of 1970) that prohibited any kind of "performance of witchcraft". Witchcraft was here defined as the equivalent to "traditional healing." After centuries of suppression of the tradition and ongoing biopiracy by white people, protec-

[11] All names of the interviewed healers were changed.

tion has become a means of cultural survival. Traditional healing and traditional knowledge are sometimes said to be "all" that Blacks have after losing their land to colonizers and this knowledge is to be protected dearly. Within these structures, property must be related to knowledge rather than to the material good (plants, plant parts, animal parts or other ingredients of *muthi* such as salts or alcohol). It remains an unresolved dilemma how to protect this intangible property in the future. This aspect particularly comes into play when considering the intellectual property debate, where knowledge property can only be protected when it is declared as an invention of an individual owner (as opposed to collective owners such as indigenous communities or the "ancestral line"). Knowledge that is embedded in the ceremonial and spiritual realm without being converted into a product through scientific activities is difficult to protect by the current intellectual property law (see Vermeylen et al. 2008).

In total, the healers and herbalists are carriers of an immense archive of ethno-medical knowledge that is about to disappear due to the extinction of plants as well as the modernization process of the South African society. Many healers and herbalists feel frustrated because the coming generation prefers "money-earning" jobs to learning the art of plants and healing. The government, aware of the threatening loss of traditional knowledge, has in cooperation with the South African Traditional Medicines Research Unit, University of Cape Town started to build up an internet based traditional medicinal plant database (TRAMED) to secure traditional medical knowledge and knowledge about a biodiversity that is likely to disappear. The database will be a useful tool to protect knowledge but at the same time it signifies an immeasurable loss of undocumented local knowledge (cf. Bowker 2006), as knowledge in the database will be reduced to the TRAMEDs keywords "plants – treatment – toxicology – pharmacology – chemistry", and thus also is a tool promoting an ongoing dichotomy between "scientific" versus "indigenous" knowledge, which tends to ignore the local (spiritual) knowledge to a high degree. This is also true for the endeavours the IKS Lead Programme laboratory envisages when analyzing traditional medicinal plants for valuable pharmaceutical properties. Although direct contact with traditional health practitioners is on the IKS Lead Programme agenda, and is also performed in its daily activities (such as following up of claims or educational workshops for healers at the IKS), the question why the IKS Lead Programme is engaged in "indigenous knowledge" remained an open question. The view of the director of the IKS was clearly oriented towards "science" and the potential market. Thus, although indigenous knowledge is used to find potential pharmaceutical properties, in the end it is not necessarily included in the final product itself, unless for marketing strategies.

In contrast to the healers, knowledge protection amongst scientists in the research laboratories was often based on the assumption that competition from other national and international research institutions would be "dangerous" before potential products, chemical compounds or scientific procedures have been patented. In the IKS Lead Programmes laboratories, all plants under investigation were abbreviated and anonymized

with P26, P27, P28 (ongoing), and no plant was disclosed in publications or at conferences, unless its compound and healing properties had been patented. Thus, anonymization and patenting are *the* modes of protection for scientific research. A researcher working at a laboratory at the University of the Western Cape explained, almost anxiously: "You know they would even kill you to get the knowledge; you must be very careful" (informal communication, July 2009). His comment was related to abstracted scientific knowledge and results rather than to the material entity of the plant or the knowledge relevant for its use in specific contexts. However, the comment goes in line with ongoing comments at the IKS Lead Programme laboratory that "you must be careful here. Don't talk to anyone openly" (at the IKS laboratories). Again, the high contestation around "knowledge" as "intellectual property" is apparent. In both sites, indigenous setting and scientific laboratory, modes of protection are part of the daily interaction, although for different reasons, as explained above.

In many different communications with commercial traders dealing with medicinal plants or independent scientists we learned that the field of bioprospecting is a "political minefield". It is shaped by fear and anxiety of knowledge disclosure and/or the identification of the names of interviewees. Although explicit interest was noticeable to "talk about the issue", reluctance to become "too specific" was an ongoing side effect and an interesting result of the research. These preliminary results need further exploration with regard to the dynamics of commodification in the neo-liberal market as well as concerning the position of knowledge as (intellectual) property and related ownership signifying "cultural identity" within the global world economy. The value of this "cultural identity" will be central to the analysis of access and benefit sharing negotiations and agreements as sketched out in the following section.

4.3. NGOs, Property Regimes and Access and Benefit Sharing

The situation described above poses questions regarding intellectual property rights (IPR) and access and benefit sharing (ABS) in South Africa. Where secrecy and protection are prevailing, a battle around resources and political positions is inevitably at play. Although first policy guidelines to regulate ABS have been anchored in the National Biodiversity Act in 2004, the government is struggling with finding a clear position. The general positions in property law (patents, trade mark, copy right) are difficult to apply to traditional knowledge. A *sui generis* system will be the, yet unsolved, most efficient solution.

However, in general IPR and ABS negotiations are hardly effective without the support of NGOs and private lawyers. The widely discussed case of the cactus *Hoodia Gordonii* (cf. Wynberg, Schroeder & Chennels 2009), a plant growing in the Kalahari Desert, being used by the San over centuries to quench thirst and hunger, was celebrated as the first case in South Africa that envisaged benefit-sharing as recommended by the CBD. It was negotiated between the Council for Scientific and Industrial Research (CSIR), a govern-

mental research institution, and the San Community and released a 6 % royalty share for the San. But even this promising contract finally broke down due to decisions made by three (pharmaceutical) companies, Pfizer, Unilever and Phytopharm. According to a spokesman of the company Unilever, the quality standard products deriving from *Hoodia* have not materialized for the international market (Starling 2008).

For the *Hoodia* case the "First National San Council" was initiated in 2001, formed as part of the "Working Group of Indigenous Minorities" (WIMSA). WIMSA gives the council a mandate to negotiate with the Council for Scientific and Industrial Research (CSIR) on sharing benefits. Together with Roger Chennels, a lawyer fighting for the rights of indigenous minorities, they managed to negotiate the above-mentioned royalties for every *Hoodia* product resulting from the CSIR cooperation. Next to the *Hoodia* case, a group of South African and European NGOs (Centre for Biosafety, Bern Declaration and German Church Service) and members of the Alice community in the Eastern Cape formed to sue Schwabe against the misuse of the IP-system: While a patent must include a novel invention, "indigenous people" had used the extraction method that is also used to produce for *Umckaloabo* for centuries. Schwabe's patents on *Pelargonium*, the core ingredient of *Umckaloabo*, were therefore illegal and had to be withdrawn. The *Pelargonium* case was a major breakthrough for "indigenous people" to claim their rights on their knowledge. Myriam Mayet (African Centre for Bio-Safety, ACB) announced: "Nevertheless, we regret that such action comes only after such patents have been challenged by us".

These two cases show how much the ABS and IP debate is still in its infancy. "Indigenous people" depend on the support of NGOs to be on a legal and financial level strong enough to fight for their rights. The situation would look more promising if the South African government had decided to follow the "public health direction" rather than the "commercial direction" (interview with independent researcher in Cape Town, August 2009), which would ask for a clearer focus on medicinal plants to support the country's health care situation with herbal remedies. This position came clearly up in terms of *Sutherlandia*, a plant that is highly effective in boosting the immune system of HIV patients. The plant went through first pre-clinical trials conducted by the University of Western Cape, the University of KwaZulu-Natal and the Medical Research Council (MRC), which proved its safety[12], so that the promotion of *Sutherlandia* as a herbal remedy would have had legitimacy. Instead, synthetic drugs are intensively promoted. Also, a (missing) National Department for the Regulation of Indigenous Knowledge ABS and IPR[13] would help to enforce the application of ABS and promote traditional medicinal

[12] See: http://www.sahealthinfo.org/traditionalmeds/firststudy.htm and http://www.nstf.org.za/ShowProperty?nodePath=/NSTF%20Repository/NSTF/files/Workshops/2011/Sutherlandia.pdf.

[13] The National Indigenous Knowledge System Office (NIKSO), Department of Science and Technology (DST) looks after IKS research and the interest of traditional health practitioners. However, NIKSO is not involved in ABS and IPR negotiations and applications.

plants for the improvement of the health situation all over the country. Such a department could also help to set up regulations and to undermine bureaucratic obstacles that prevent progress in the field of bioprospecting (information from independent scientist and activist, August 2009).

Instead, NGOs like "ACB" or "Natural Justice", who engage as "cultural lawyers" to set up bio-cultural protocols for and with indigenous communities to claim their cultural heritage and to be able to negotiate IPR and ABS, are the "translators" merging between the different involved fields. In December 2010 the NGO "Natural Justice" offered a workshop at the IKS Lead Programme on "Legislative requirements for conducting research on medicinal plants and traditional medical knowledge with special reference to the South African situation" which also aspired a closer cooperation between the Medical Research Council/Indigenous Knowledge System Lead Programme and "Natural Justice". This underlines the strong and important role that NGOs play in the field of bioprospecting in South Africa as well as the interconnectedness of the involved actors.

5. Conclusion

This paper uncovered a particular situation of bioprospecting in South Africa in the year 2009/10. Although bioprospecting has a long history in the Southern African region – and in other parts of the world – the field is new and mutable. It is guided by a number of social and political constellations that are obviously interrelated, but often in contradiction and tension with each other. Our research showed that, although much effort is put into recognizing indigenous knowledge systems and health related knowledge and practices, South Africa still has to deal with a number of constraints to succeed in the process of the "promotion and protection of indigenous knowledge". First, the "shadows of the past" still lead to mistrust and suspicion, particularly amongst the indigenous population and knowledge holders (esp. healers) in particular. Even though policies, regulations and newly established institutions support the idea of promoting indigenous knowledge, the fact that biopiracy has been at stake for centuries does have a strong influence on people's behaviour and on the needs of protection. Additionally, embedded in the wake of the globalizing economy, natural resources are perceived as commodities attractive for the world market. Medicinal plants are of particular interest due to the increasing desire for "natural products" in the industrialized world. Knowledge holders do realize that they are in the possession of "green diamonds". The fear of biopiracy that has grown over centuries cannot simply be banished by installing IPR policies and by potential benefit sharing agreements. To date no such agreement has been implemented satisfactorily. Although first "best cases" have been established with Hoodia and Pelargonium, the shift towards creditable and sustainable benefit sharing agreements, and thus towards an honouring of "indigenous culture" (which still needs to be defined), remains a future project. Until then we have to expect that in further applications of bioprospecting endeavours the protection of knowledge and secrecy to protect cultural goods and

traditions remains to be discussed as well as the control over an implicit territory of inherent knowledge and identity. However, the implementation of policies, the establishment of institutions, the international and national debate on property rights and benefit sharing, and also the engagement of people merging between the different "worlds", the "new value of *muthi*" (Reihling 2009), and thus of the plants themselves, have all started a discourse. This discourse may finally lead to "an emotional self-discovery and self-representation of a new African identity" (Mbeki 1998). Whether the underlying expectations, aspirations and (economic and identity creating) hopes will be fulfilled in the way they are expected remains to be seen in this "field of the becoming".

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6. Bibliography

African Centre for Biosafety: Major Breakthrough in the Fight against Biopiracy: Pelargonium Patents http://www.biosafetyafrica.net/index.html/index.php/20100426305/Major-breakthrough-in-the-fight-against-biopiracy-Pelargonium-patents/menu-id-100029.html (accessed 15.8.2010).

Appadurai, A. (1986): Introduction: Commodities and the Politics of Value. In: Appadurai, A. (ed.): The Social Life of Things. Cambridge: Cambridge University Press.

Ashforth, A. (2005): Witchcraft, Violence, and Democracy in South Africa. Chicago: University of Chicago Press.

Bowker, G. (2006): Memory Practices in the Sciences (Inside Technology). MIT Press: Cambridge.

Burchell, WJ (1967): Travels in the Interior of Southern Africa. Cape Town: C. Struik.

Cape Nature Permits
http://www.capenature.co.za/permits.htm?sm[p1][category]=458&sm[p1][persistent]=1& (accessed 08.10.2011).

Chennels, R. (2010): Commercial Development of Hoodia
http://www.kalaharipeoples.net/article.php?i=232&c=22 (accessed 15.10.2010).

Chennels, R. & Du Toit, A. (2004): The Rights of Indigenous People. In: Hitchcock, R. & Vinding, D.: Indigenous Peoples' Rights in Southern Africa. Copenhagen: Es/Skolens Trykkeri.

Comaroff, J. & Comaroff, J. (2009): Ethnicity, Inc. Scottsville: University of KwaZulu Natal.

Convention of Biological Diversity (CBD) (1992): United Nations Conference on the Environment and Development (UNCED). Rio de Janeiro, Brazil.

Deleuze G. & Guattari, F. (1979): Rhizom. Berlin: Merve Verlag.

Department of Environmental Affairs and Tourism (DEAT) (2004): National Environmental Management: Biodiversity Act, No. 10 of 2004, Republic of South Africa.

Department of Trade and Industry (DTI): Intellectual Property Law Amendment Bill. 2008. Republic of South Africa.

Dilger, H. & Hadolt, B. (2010): Medizin im Kontext. Überlegungen zu einer Sozial- und Kulturanthropologie der Medizin(en) in einer vernetzten Welt. In: Dilger, H. & Hadolt, B. (Hg.): Krankheit und Gesundheit in einer vernetzten Welt. Frankfurt a.M.: Peter Lang.

Eisner, T. (1989): Prospecting for Nature's Chemical Riches. Issues in Science & Technology, 6, 31-34.

First Toxicity Study of Sutherlandia Leaf Powder
http://www.sahealthinfo.org/traditionalmeds/firststudy.htm (last access 15.08.2011).

Geri, A. (2007): Knowledge Free and "Unfree": Epistemic Tensions and Plant Knowledge at the Cape in the 17th and 18th Centuries. International Journal of African Renaissance Studies 2, no. 2:136-182.

Indigenous Knowledge System [Health] Lead Programme
http://www.mrc.ac.za/iks/indigenous.htm (accessed 20.02.2011).

Indigenous Knowledge Systems Policy (2004): Republic of South Africa.

Ingold, T. (2008): Point, Line and Counterpoint: From Environment to Fluid Space. In: Berthoz, A. & Christen, Y.: Neurobiology of "Umwelt": How Living Beings Perceive the World. Research and Perspectives in Neuroscience. Heidelberg: Springer.

Latour, B. (2005): Reassembling the Social. An Introduction to Actor-Network-Theory. Oxford: Oxford University Press.

Latour, B. & Lépinay, A. (2010): The Science of Passionate Interests: An Introduction to Gabriel Tarde's Economic Anthropology. London: Prickly Paradigm Press.

Latour, B. & Woolgar, S. (1986): Laboratory Life. The Construction of Scientific Facts. Princeton: Princeton University Press.

Loewenhaupt-Tsing, A. (2005): Friction. An Ethnography of Global Connection. Princeton: Princeton University Press.

Marcus, G. (1995): Ethnography in/of the World System: The Emergence of Multi-Sited Ethnography. In: Ann. Rev. Anthropology, 24:95-117.

Marcus, G. (2009): Introduction: Notes toward an Ethnographic Memoir of Supervising Graduate Research through Anthropology's Decades of Transformation. In: Faubion, J. & Marcus, G.: Fieldwork Is Not What It Used to Be. Learning Anthropology's Method in a Time of Transition. Cornell: Cornell University Press.

Mbeki, T. (1998): The African Renaissance. Statement of the Deputy President Thabo Mbeki. SABC, Gallagher, 13th August.

Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity (2010). Nagoya.

Nigh, R. (2002). Maya Medicine in the Biological Gaze: Bioprospecting Research as Herbal Fetishism. Current Anthropology, 43 (3):451-77.

Peltzer, K. (2009): Traditional Health Practitioners in South Africa. The Lancet, Vol. 374.

Posey, D. (2002): Upsetting the Sacred Balance: Can Study of Indigenous Knowledge Reflect Cosmic Connectedness? In: Silitoe, P. & Bicker, A. & Pottier, J.: Participating in Development: Approaches to Indigenous Knowledge, London: Routeldge.

Reihling, H. (2008): Bioprospecting in the African Renaissance: The New Value of Muthi in South Africa. Journal of Ethnobiology and Ethnomedicine, 4:9.

Sampath, P. G. (2005): Regulating Bioprospecting: Institutions for Drug Research, Access, and Benefit Sharing. Tokyo, New York, Paris: United Nations University Press.

Schiebinger, L. (2004): Plants and Empire. Colonial Bioprospecting in the Atlantic World. Cambridge: Harvard University Press.

Shiva, V. (2007): Biodiversity, Intellectual Property Rights, and Globalization. In: De Sousa Santos, B. (ed.): Another Knowledge Is Possible. Beyond Northern Epistemologies. London: Verso.

Republic of South Africa (2010): South African Intellectual Property Laws Amendment Bill.

Starling, S. (2008): Unilever Drops Hoodia. An Online Article http://www.nutraingredients.com/Industry/Unilever-drops-hoodia (accessed 03.08.2011).

Traditional Health Practitioner Act, No. 35 of 2004, Republic of South Africa.

Traditional Medicine Database (TRAMED) http://www.mrc.ac.za/Tramed3/ (last access 15.08.2011).

Vermeylen, S. & Martin, G & Clift, R. (2008): Intellectual Property Rights Systems and the Assemblage of Local Knowledge Systems. International Journal of Cultural Property, 15: 201-221.

Waldby, C. (2002): Stem Cells, Tissue Cultures, and the Production of Biovalue. Health, 6 (3): 305-323.

Witchcraft Suppression Act (No. 3 of 1957): To Provide for the Suppression of the Practice of Witchcraft and Similar Practices. South Africa.

Wynberg, R. & Schroeder, D. & Chennels, R. (2009): Indigenous People, Consent and Benefit Sharing. Lessons from the Hoodia Case. Heidelberg, London, New York: Springer.

Zenker, J. (2010): Traditionelle Medizin und Afrikanische Renaissance. In: Dilger, H. & Hadolt, B. (eds.): Krankheit und Gesundheit in einer vernetzten Welt. Frankfurt a.M.: Peter Lang.

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