From Rio to Reality: A Case Study of Bio-prospecting Local Health Knowledge in Kani Tribal Community of Kerala, India

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Chapter 1.
THE STORY OF AROGYAPACHA

In October 1987, some scientists were on a botanical collection trip to the lush green Agasthya hills in Southern Kerala near Thiruvananthapuram. This expedition was part of an ethno-botanical survey project called All India Coordinated Research Project on Ethno-biology (AICRPE), a program\(^1\) coordinated by Government of India. The group consisted of a senior scientist at Regional Research Laboratory (RRL), Jammu, a senior scientist from TBGRI who is also the head of the ethno-botanical division of the Tropical Botanical Garden and Research Institute (TBGRI), two local Kani tribal men as guides and two junior researchers of AICRPE. When the team reached Kottaram Vechapara, near Chonampara, a reserved forest area of Kerala, they sat on a rock for taking rest. While the scientists were having their food, they found one of the Kani tribal guides, taking something from his matikkuthu (a pouch made of cloth near naval region) and chewing it. On enquiry the scientists came to know that he was taking some fruits of a locally available plant. Small black berries. They asked details of these berries to the Kani men.

“The Kani men were initially very reluctant to reveal the identity of the plant saying that it is a tribal secret, a sacred information that cannot be revealed to any outsider. They said that the use of this plant and other traditional herbal practices followed by them are part of their sacred knowledge system that were imparted to their great ancestors directly by Saint Agasthya - the mythical ancient saint who is considered to be the founder of Siddha medicine and the Agasthya hills, named after him. After great persuasions, the Kani tribe men finally revealed the secrecy of this fruit and even showed the plant which in fact was very much available in the area of Agasthyan hills we were trucking at that time.” (Pushpangadan et.al. 1998:13).

Mallan Kani and Kuttimathan Kani (also known as Mathan Kani) who accompanied scientists as guides live in the Chonampara area of Agasthyamala valley. According to Mallan Kani:

“We take these berries when we feel hungry (visappu), tired (ksheenam). Not only that this is an energy giving plant. So we take when we go to the forest. A handful of these and 2-3 kavil (mouthful) water. That keeps us energetic the whole day.”

After hearing this, the scientists became more curious about the plant. They wanted more information about it. They did research on this plant, locally known as Arogyapacha (Trichopus zeylanicus in Latin). According to Dr.Rajasekharan of TBGRI:

\(^{1}\) AICRPE is essentially a multi-disciplinary and action oriented research program intended to conserve/preserve and document the multi-dimensional perspectives of the fast disappearing traditions, culture and the rich and varied knowledge systems of the tribals and other less sophisticated communities of India. (AICRPE, Final technical report – phase 1 1990) Kerala region’s work of this project was co-ordinated by Ayurvedic post-graduate research centre at Poojappura, Thiruvananthapuram.
Then we asked more about the plant and collected few of these berries and few plants to make herbariums. We stopped our tour shortly after that and came back to TBGRI. Dr. Pushpangadan took few berries to Regional Research Laboratory, Jammu to test whether this plant has any anti-fatigue effect. It was tested there on different animal models. They found major difference between the control and drug administered mouse. Drug administered mice could swim for an added 10-12 hours compared to the control for 3 hours. Then Dr. Pushpangadan wanted more berries and other parts of the plant. Through the help of these people (Kanis), we collected more of this plant especially other parts such as leaves and send it for further experiments. Many experiments were conducted on this plant for anti-fatigue, hepato-protective, immuno-modulatory, anti-stress activities. We found that the plant had a sugar-fatty acid combination, a certain glycolipid fraction that boosts the body's immune system and having anti-fatigue properties. After these experiments, we thought of developing a drug out of it.

The first publication appeared in Ancient Science of Life\(^2\), a reputed scientific journal, on this discovery in 1988, which read:

“Arogyapacha found endemic to Agasthyar hills of Kerala is used by local ‘Kani’ tribe as a health food for instant stamina, evergreen health and vitality. The tonic effect of the plant is comparable to that of the famous health food/drug ‘Ginseng’. A critical survey of Ayurveda classics, suggests that the Arogyapacha may be the divine Varahi described by Sushruta. Chemical and pharmacological evaluation of the plant have been initiated.” (Pushpangadan et.al.1988: 14).

Botanical identification of this plant was not clear initially. So it was tentatively identified as Trichopus zeylanicus with the help of local botanists. According to one of the TBGRI scientists, later it was further identified by sending to Kew gardens (London) and was identified as Trichopus zeylanicus subsp. travancoricus, a plant reported from Malaysia, Srilanka and Thailand. Even though initially it was mentioned that it was endemic to India, later it was understood that Trichopus zeylanicus was available elsewhere too. The anti fatigue knowledge of this plant was first reported by Kanis. Subsequently after going through the Ayurvedic literature, it was also identified as one of the celestial plants, Varahi, mentioned in one of the oldest classical texts of Ayurveda, Susrutha Samhita. A formulation was developed based on this plant. Apart from the pharmacological and phyto-chemical studies, the plant was also studied through the concepts of Ayurvedic pharmacology (Dravyaguna sastra). Three more plants widely known to Ayurveda having immuno modulating and bioavailability enhancing activities were included in this formulation. Toxicological screening and open clinical trials were conducted with this formulation. According to TBGRI, all the experiments were done adhering to WHO guidelines for traditional medicines. Standardization of form of medicine and dosage was done. This formulation was named Jeevani - The life giver. Apart from this formulation an anti-diabetic drug and a sports medicine, Vaji (powerful like horse) were also developed from Arogyapacha. It took almost 7 years for developing a drug. TBGRI got a process patent for this formulation.

When the knowledge was revealed to them TBGRI had made a promise to Mallan Kani and Mathan Kani about sharing of benefits once any drug is developed out of this

\(^2\) Ancient Science of Life is a scientific journal, which publishes mainly pharmacological and phyto-chemical research papers. Arya Vaidya Pharmacy of Coimbatore, a reputable Ayurvedic pharmaceutical industry of South India, publishes this.
Kani knowledge. According to Dr. Rajasekharan:

“*We were quite excited about its possible effects when we first collected the information about this plant itself. Thus that time itself we made a promise to Mallan and Mathan Kani that, if we are able to find out some effect of the plant and if we sell it to some pharmaceutical industry we will provide them with half of the money that we get. It was just a verbal agreement.*”

When I asked about this offer to one of the Kani informants Mallan Kani, he told:

"*After a few years of silence, suddenly the two scientists came to visit us four years ago. They told us about the drug they developed and about the benefit sharing arrangement with a Coimbatore based company. They also made the offer of giving money. “*

When the formulation was developed, many companies approached TBGRI to get technology transfer. Arya Vaidya pharmacy (AVP), an Ayurvedic company based at Coimbatore, South India was the first one who offered to share benefits with the community. As per the Council for Scientific and Industrial Research (CSIR)\(^3\) guidelines, TBGRI made an agreement with AVP on 10\(^{th}\) of November 1995. AVP offered to give Rs.10 lakhs\(^4\) (1 million) as royalty and 2 \% of the profit from sale of the drug. The agreement made was for seven years. As decided earlier 5 lakhs had to be given to the community. Rest five lakhs was used by TBGRI for their research purposes. Apart from this AVP promised to give 2 \% of its sale of which half would go to the Kanis. According to norms set by the Council of Scientific and Industrial Research, the scientists who develop a formula are eligible for 40 per cent of the license fee. But TBGRI scientists did not claim anything. An initial plan to give the scientists one-fourth of the licensing fee was dropped. Arya Vaidya Pharmacy product brochure read like this.

“**BARE-footed Kani tribals of Kerala are champion trekkers even when past their prime. Ask them how they keep themselves fit and mum’s word. Their stamina had for long fascinated botanists who took them along as guides on plant collection expeditions to the forest depths. The secret of the Kani’s evergreen health is out : It has been tracked to the unripe fruits of the Arogyapacha, a wild herb found in Agasthyar hills on the Western ghats.”**

Arya Vaidya Pharmacy started production of *Jeevani* at their factory near Alathur in Kerala with Good Manufacturing Practice (GMP) standards. Arya Vaidya Pharmacy product development brochure said, “*Arogyapacha enters modern pharmacopoeia as a safe, anti-stress, anti-fatigue, appetite promoting and restorative tonic*. Commercials about *Jeevani* appeared through different media. “*The wonder drug from the custodians of Ayurveda - Jeevani - An Ayurvedic Product*” “*Arogyapacha, the health food of 21st century - challenging Ginseng*”\(^5\) were some of the captions used. Industry’s altruism was filled in all propaganda. Benefit sharing offer became hot topic in national and international discussions on biodiversity. Bio prospecting of *Arogyapacha* even became a case study at the Convention on Biological Diversity, fourth meeting of Conference of Parties in May 1998 (www.bio-div.org). *Jeevani* had good demand in the Indian market.

\(^3\) Council for Scientific and Industrial Research is one of the highest bodies of scientific research in India.
\(^4\) Lakhs is a denomination used in India commonly to denote 100000.
\(^5\) From the product brochure developed by Arya Vaidya Pharmacy in 1996.
The drug now available in the market for Rs. 160 for a 75-gram jar had high demand from South East Asian countries like Thailand and Malaysia.

"It wouldn’t take long before Arogyapacha starts eating into the billion dollar international market of ginseng. More than $375 million worth of raw Korean ginseng are sold every year. We expect our product to do better."

- Arogya Pharmacy brochure

In the beginning Arya Vaidya Pharmacy was very enthusiastic about the export market. It was evident from the above lines. But this enthusiasm did not survive too long.

Arogyapacha case was controversial since the beginning. Apart from the raw material supply problems, benefit-sharing plans were also not smooth. Memorandum Of Understanding (MOU) between TBGRI and Arya Vaidya Pharmacy for the technology transfer was to be signed in July 1995 by then chief minister of Kerala, A.K.Antony. Opposition political parties in the state legislative assembly led by Communist Party of India-Marxist (CPI-M) opposed this proposal saying that the license fee could have gone into millions of rupees because of the international market potential of the product. They also accused the government of selling the technology to a private company instead of transferring the technology to the government managed Ayurvedic pharmaceutical company like Oushadhi or Kerala State Drugs and Pharmaceuticals. Opposition suggested that if it is not feasible to sell it to a government firm, the government should negotiate with a private company that would give more royalty. According to Dr.Pushpangadan, then Director of TBGRI:

"The license fee of Rs. 10 lakhs was adequate as AVP was taking the risk of buying a product untested in the market. It is a promotional drug, 2 per cent royalty is an internationally acceptable norm. One to four per cent royalty is accepted worldwide. Regional research laboratory of the Council of Scientific and Industrial Research did technology transfer of an Ayurvedic drug in the 1980s for less than Rs. 2 lakhs. Later, the Central Drug Research Institute, Lucknow, sold the technology of a memory drug based on Brahmi -Bacopa monnieri for Rs. 10 lakhs. Both were a one-time transfer, though ours is not a complete transfer. Seven-year term given to the private firm would help establish the credentials of the drug, and its license can be sold later for higher profits. It is the highest license fee paid for a drug based on traditional know-how in India This is the first experiment of benefit-sharing with a local community in India, and perhaps the world, we want this to be a model. This is TBGRI model." (Martin 1998:15).

While this debate ensued, on October 20th 1995 Governing council of TBGRI, under the chairmanship of the chief minister of Kerala, A.K.Antony approved the proposal to transfer technology of the drug to AVP. The MOU before the ministry was dissolved in November 1995. Still benefit sharing mechanism did not come out of the impasse. In 1996, when the CPI-M led coalition came to power, it did not take any initiative to formulate a smooth benefit sharing mechanism.

In the meantime as the production increased, there was huge demand for the raw material. Excessive harvest of the plant from the wild would endanger the species. Thus TBGRI tried to do tissue culture for the multiplication of the plant. According to Dr.Rajasekharan:
It (tissue culture) was not successful. It grows naturally in places where there are small streams and shade. The leaves of the plants grown in natural habitat are big, but one through tissue culture is very small. If we have to use the tissue culture one, we have to do also fresh experiments to know whether they are equally effective. So it is not economically viable.

Arya Vaidya Pharmacy offered Kanis, Rs.500 per kilogram of dried leaves if they were ready to cultivate. In 1994-1996, Integrated Tribal Development Program (ITDP) envisaged by the Directorate of Tribal Welfare, Government of Kerala initiated a scheme in collaboration with TBGRI to help the Kanis grow medicinal plants in their settlements. Under the project, 50 selected families received Rs. 1,000 each. Reportedly, 20.25 hectares were under cultivation. Under this scheme, the TBGRI agreed to buy the harvested leaves from the families that were then supplied to AVP for pilot phase production of Jeevani (Anuradha 2000:20). Kani people started growing it in the backyards of their forest settlements under this government scheme. In 1996, when Kanis took Arogyapacha leaves out of their settlements for sale, they were stopped at the forest check-post at Kottur. There were varied reasons for the forest department’s ban. Reasons for the ban followed in series. Initially it was told that Trychopus couldn’t be collected, as it is an endemic plant. Another reason was that it is not a Non-Timber Forest Produce as per the forest department’s notified list. Yet another reason was the forest areas Kanis inhabit mostly come under the reserved forest areas near the Agasthyavanam Biological Park, a proposed plan of the government of Kerala. As per an informant at the forest department:

“Even a leaf blade should not be collected from the reserve forest area. According to the Forest Conservation Act 1980, cultivation of medicinal plants in forest areas is also banned. Cultivation involves digging of forestland etc., which is banned. Clearing forestland or clear felling is also prohibited. So how can we allow cultivation or harvesting? We are ready to allow harvesting for a good purpose of Kanis. But even if we make an attempt with good intention, if someone makes a complaint or case it will be a problem. This is a Supreme Court order, which makes it all the more complicated. Because of this, there should be a special order from the supreme court.”

According to Dr. Gangadharan, the Product Development Manager at Arya Vaidya Pharmacy:

“Tribals are supposed to be the owners of the forest basically. Even if they are not allowed to cultivate in forest areas, why not in nearby areas. We can give money for that. We are only collecting leaves. There is nowhere in the science of botany or biology that by plucking the leaves a plant can die. Instead of that if you pluck leaves the plant will grow more rigorously because of its stress and strain. This is a basic biological fact. We are not uprooting the plant as such. But forest department doesn’t listen to this logic. Tissue culture is not viable. It is very difficult also to cultivate the plant in ex-situ conditions. We tried at Kanjikkode, Tanjapuram, Thirunelveli, Silent valley. But it is not growing properly. After one year we get a second leaf. One leaf is 3 grams and for one bottle we want 9 grams. So if we want to make one bottle, 3 plants have to grow for one year. Our term is only seven years. If we keep on doing the experiments after 7 years we will be the loser. Already we are lost.”

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6 Since 1978 tribal community who live inside the forest are allowed to collect a list of medicinal plants which are notified under the Non-timber Forest Produce (NTFP or Minor Forest Produce (MFP)
TBGRI wrote to the forest department to allow collection of the plant, as they believed that the plant would not be endangered if only leaves are collected.

“Kanis originally use berries. We wanted to conserve the plant. That’s why we did so much of studies on leaves. By plucking only leaves plants will not be endangered.”

During the same time, around 10,500 Arogyapacha plants were confiscated from a private nursery in Vithura, near Thiruvananthapuram that were smuggled from the forest. According to forest department, these are non-tribals who are smuggling the plant. As the popularity of the plant grew plants started appearing in city nurseries mainly through illegal trade. Thus forest department now even prohibits collection of saplings from the wild. During my interview one of the forest officials said:

“If we allow to collect it, within few years Arogyapacha will be completely wiped out. There is lot of illegal collection going on. If we allow them to collect saplings it would lead to illegal trafficking. So now we are quite vigilant.”

Many houses in Kerala especially in Thiruvananthapuram region have saplings of Arogyapacha in their garden. When I visited one of my informants Usha, she asked:

“Do you want to see the plant? I have planted it in my garden (very proudly). I got it from IRDP mela (fair). One plant was costing Rs.50. But I bought one. Now it is available in many nurseries here. But quite expensive. Here it doesn’t grow very well. But not dying.”

Meanwhile there were conflicts between groups of Kanis about revealing their sacred secrets. Supported by Kerala Institute for Research, Training and Development of Scheduled Castes and Scheduled Tribes (KIRTADS), a group of nine Kani healers in 1995 wrote a letter to the government of Kerala accusing TBGRI of stealing tribal knowledge and selling it to a private firm. Many elders among Kanis believe that their knowledge is sacred and should remain exclusive.

“It is our traditional knowledge, it should not be sold, but what to do, we are hungry.” (Martin 1998).

When I visited Eswaran Kani, at Njaraneeli, one of the healers who is trained by KIRTADS who signed a protest letter to Government, he told:

“Arogyapacha is a plant, which is known to many healers among Kanis. We call it with two or three different names - Thenchikka, Chathukodi, Arananakkan. Thenchu in our language is hunger, thus this is used for hunger, chathukkodi means that the flower is like chicken head, leaf looks like the tongue of arana (a local reptile) and thus Arananakkan. Arogyapacha is a new name coined by TBGRI. We usually give it when children have................ 7..This belongs to our secret community knowledge. We should not divulge it to outsiders. They have breached our community’s code of conduct. But may be it is due to their poverty. But see the license money is so low. Why did they sell it to a private firm? The scientists have got lot of

7 Traditional knowledge of usage of plants those were mentioned during the interviews has been purposefully removed from the transcripts.
money for this. I went to Chonampara to know the truth. I understood that now they have given small amounts to few people Rs.100 or 200 each.”

One of the two persons who revealed the knowledge, Kuttimathan Kani, who revealed the knowledge, has a different view:

“If a healer has knowledge it is good for him, but what is the benefit to the community?”

Thus Kanis have taken two sides in a battle fought on their part by two competing government agencies TBGRI and KIRTADS (Martin 1998). KIRTADS is going ahead with its project of identifying effective formulations from tribal medicine. CSIR's Regional Research Laboratory (RRL) in Thiruvananthapuram was helping them in this. In 1996, TBGRI contacted KIRTADS for helping them to get land for Kanis to cultivate the plant. But KIRTADS did not agree to this proposition saying that they cannot do a contractors job to make profit for a private company that has monopoly. (Martin 1998:34). Thus relation between these two government bodies is strained and the bureaucracy that has resulted is affecting the Kanis. According to AVP:

“The most unfortunate thing that has happened in this case is that government has taken a complete negative attitude. Instead supporting this whole pioneering effort made by this country (of sharing benefits to indigenous communities), they have taken a position completely against.”

KIRTADS has an antagonistic view. They want government to protect tribal knowledge from being pirated. They ascertain that this is bio-piracy. Thus they prepared a draft bill for Kerala called Tribal Intellectual Property Rights Bill. According to one of the informants at KIRTADS:

“.......Piracy of the tribal knowledge is a big issue. There should be some law that everyone who is approaching tribal community for any kind of information or material should get permission from the government. Including medical anthropologists like you. There is still no mechanism to protect collective intellectual property. According to the existing IPR laws this cannot be protected. So we have prepared this draft of tribal intellectual property rights. We prepared it only for Kerala. But now it is being discussed at a national forum. Last discussion was at Bhopal.”

A question remained unanswered for long regarding benefit sharing. Whom to give the money? To the two individuals who revealed the knowledge or to the whole Kani community? But after discussions with Mallan Kani and Mathan Kani, the two Kani men who accompanied the scientists to the forest and few other community members of Chonampara area, it was decided that it should be given to the whole community. According to Dr.Rajasekharan:

“We understand that only people from this area, Chonampara, knew about it. But once it became an issue in the media everyone started making claims about it. See now plathis (Kani healers) say that they know about it.”

A trust was formed representing Kani members from Chonampara and nearby areas with Mallan and Mathan as president and secretary respectively. Trust named "All Kerala
Kani Samudaya Kshema Trust" was registered on 12th September 1997. Nine Kani men from the Chonampara area signed Trust deed. The objectives of the Trust are proper utilization of money, welfare activities for Kani community of Kerala, documentation and revitalization of local knowledge of Kanis and monitoring future bio-prospecting deals. Mallan Kani and Mathan Kani were made lifetime trustees. There were also two outside advisors to the trust, an advocate and a social scientist. A bank account was started at the Union bank at Kuttichal. Initially there were only few members in the Trust. Later trustees and TBGRI scientists walked around in Kani hamlets and enrolled several members. Thus, now there are around 1000 members in the Trust from areas like Chonampara, Makad, Vayalpara, Kaithodu, and Pattampara with nine permanent members as trustees. Mathan Kani the president of the Trust claims that the Trust has representation of 40 hamlets.

On June 11th 1998, a group of Kani people arranged a press conference at Thiruvananthapuram demanding that they should be allowed to grow and sell Arogyapacha. Press release hailed efforts of the scientists for protecting the IPRs of the community, bio prospecting and benefit sharing. It had detailed the present impasse in the deal and mentioned about an open strike (protest) if government does not take immediate action to allow Kanis to cultivate the plant. The trustees and TBGRI continue their petition to government at various levels to get support for smooth functioning of the Trust.

As the state remained skeptical the license fee paid by AVP remained with TBGRI till March 1999. Finally, the state government gave the Trust proposal the go ahead and a cheque worth 5.19 Lakhs was handed over to the Trust. (Anuradha 2000:24) As the money was lying idle in the bank for long, it accumulated considerable interest. From the existing interest, rupees 20000 each to Mallan Kani and Mathan Kani and Rs.10000 to Echan Kani were given by end of 1999. Apart from this Mallan Kani and Mathan Kani were given part time jobs in TBGRI. Now they work three days a week in the TBGRI garden.

In 1999, due to some misunderstanding among the Trust members Mallan Kani resigned the post of President. He had a misunderstanding with the secretary Mathan Kani regarding the usage of the Trust letter pad for drafting a letter to the forest department. This was for a request to make a road to the tribal settlement. According to Mallan Kani:

“We cannot use trust office for such purposes. Why should we write this in the trust letter pad? That too to forest department. See, we have to be friendly to the department. We cannot act now that we are big because of the trust.”

These two Kanis who revealed the knowledge are members of two political parties and they have a strained relationship. Mallan Kani remains as a non-active head in his position due to the persuasion of the advisors. According to one of my key informants:

“The problem is these people do not have any directions. They have already started fighting. So we have made two advisors to the Trust. Panchayat president of Vithura is from Kani community. He influenced few Trust members and made them to resign. You know these Kanis are quite scared about the whole issue now. Oor kannurutti kanichal evar petikkum (if someone rolls their eyes they get scared). Another thing is they (Mallan and Mathan) don’t
talk to each other. One is in the Congress party and the other in the Marxist. I told them strictly that they cannot bring politics into the Trust. Trust will be completely out of politics. But it is very difficult. In the community itself there is very less communication now. So outsiders exploit them a lot.”

On enquiry it was understood that money given as a reward to these individuals was spent immediately after it was received. According to one of my key informants:

“.........It is not the way we think. These people are not very organized. When a local non-tribal who has a toady (a country liquor) shop, knew that these three individuals will get the money, he took these people for free drinks regularly. He had kept account of the amount. These people never kept a track of it. When money came they had to pay a huge amount to the shop owner. So they have almost finished the money.”

While I interviewed Mallan kani, he told:

“These people (TBGRI) hads made a deal with Arya Vaidya Pharmacy, Coimbatore. We did not sign any agreement. When the money came they told us. We do not know how much money they have got. I have not got any personal money.”

Trust has decided to keep the 5 lakhs they received as a corpus fund. Now they are setting up plans on how to deal with the interest that they would get from this.

In June 2000, a lady belonging to a near by area was killed by an elephant while she was fishing in the Neyyar dam catchment’s area. The Trust called a meeting and decided to give some money to this family. Trust members are quite enthusiastic with various ideas on utilization of the money. According to Dr. Rajasekharan:

“They are forming new strategies for utilization of funds. Last time when we had a meeting, some people from the trust members wanted an STD (telephone) booth in that area. It seems there is a handicapped person there. He could apply for it. He will manage the booth and community can utilize the income. Another person suggested a community jeep. Now they are carrying their goods to the market as head loads. It is a big strain for them. If they get a jeep it will ease the problem. But you see, all these are just discussions. We have to form clear strategies.”

Arya Vaidya Pharmacy is in a raw material supply demand crisis. According to AVP they get raw materials in small quantities from nurseries. Their production has reduced by a considerable extent. Advertisements have been stopped. According to Dr. Gangadharan:

“We have given one million rupees to them. Every 6 months we give 2% of its ex-factory price to TBGRI and out of which half goes to the Kanis. If they are cultivating Arogyapacha we will offer Rs.500 per kilo for dried leaves. Tell me which medicinal plant has so much price? They would have got much more income. We can also provide advance for starting cultivation. But forest department is taking a very adamant position. Now we are not getting raw materials. We cannot meet the demand. Today our production is only 2000 bottles per month. Capacity of our factory is 30000 per day. Marketing scope is also very high. But without getting raw materials what to do. Now we have kept this in a low profile.”
Even in the midst of the insufficient supply, AVP is exporting small quantities of *Arogyapacha* to a U.S. based firm at Connecticut. According to Gangadharan:

“Nutriscience Inc. has registered Jeevani in the U.S. We cannot sell Jeevani there. It would take lot of energy and time for us to get permission to market it there. These people are already into herbal business. So what we do is we send small quantities of drug to them and they market it there.”

*Arogyapacha* has not yet appeared in the list of drugs banned for exports by Government of India. AVP is making some fast bucks out of *Jeevani*. Time is running out for them as their contract is expiring by 2002. They are not yet sure whether they would make it for a second time.

While the cultivation and harvesting is in a stalemate situation, there are many other parallel processes going on. At present SC/ST department is thinking of making a processing unit in the Kani hamlets involving Kanis. They are planning to take public shares for the same. According to Arya Vaidya Pharmacy:

“SC/ST department has an idea to form a government company to produce and market the drug after 7 years. But the problem is, he (secretary, SC/ST department) wants the cooperation of all the government bodies. They want us also to be one of the partners with 10% share. They asked me whether we could be partner. But you see, 10% of share means I will be investing in a futile thing. I wouldn’t be interested, as I will have no say. And government machinery, we know how government departments work. This project won’t work. There is no private expertise in government sector. We will survive even if we don’t sell Jeevani. We have 450 other products. But how about the government? This is a namesake plan. We know the market very well. We can do better than anyone. We are giving whatever maximum to Kanis as well.”

A proposal was made to make *Arogyapacha* a Minor Forest Produce (MFP) at a meeting in June 2000 organized by forest department. TBGRI scientists, Secretary of the Scheduled castes and Scheduled Tribes (SCST) and various forest officials attended this meeting. According to the forest department, this is now under consideration.

There are many companies approaching TBGRI to get the license for manufacturing the drug after this period of seven years. According to one of my informants at TBGRI:

“Many companies have approached us to get technology transfer once the period of 7 years of AVP is over. Cadila and Alembic had come. A U.S. based scientist who helped Zandu to market that anti-parkinson drug from Mucuna is behind us to get the technology. A Japanese firm was the last to come. What we tell them is to contact the government directly. There are whole lots of politics involved in this. I don’t want to talk about it. If a company wants technology transfer let them let them contact the authorities directly. But the problem is that, they (pharmaceutical companies) have written to the government many times. But the government does not respond to this. There is lot of bureaucracy. Any way I don’t want to get into details. I am already facing lots of problems. I am on trial in two vigilance cases. Somebody complained that I got personal money in this deal.”

Meanwhile the Forest Department of Kerala has initiated a Participatory Forest Management (PFM) program which is also planning cultivation, harvest and semi-processing of *Arogyapacha* in Kani settlements. This program has two objectives. 1. To
conserve biodiversity. To bring complete participation of local community in conservation of biodiversity. But the operation of this project is through the newly formed eco-development units. Thus the role of Kani trust in this remains unclear.

Recently, as I was searching on the internet for bio-prospecting case studies, I came across an article titled “Jeevani: The Anti-Stress /Pro-energy Botanical Complex” in the Health and Body fitness magazine (2000 Feb.), published from New York which read like this “Having gone through successful clinical trials, Jeevani will soon be made available in the U.S. as an energizer, adaptogen and immune stimulator”. A company based at Connecticut is already marketing Jeevani in the U.S. Local knowledge of Agasthya’s disciples has had tremendous change in its social life. Fame of black berries of Chonampara has passed seven seas. Even in the midst of this rapid globalization many local questions remain unanswered. But Arogyapacha has only just started its journey......

Chapter 2.
INTRODUCTION
2.1 Background information

India is rich with a diverse traditional medical knowledge which include codified (Indian) Systems of Medicines (ISMs⁸) like Tibetan, Unani, Siddha, Ayurveda and the vast, diverse, non-codified, eco-system and ethnic community-specific local health traditions (LHTs)⁹ which are also called great and little traditions (Leslie 1976) respectively. Apart from specialized traditional medical practitioners, there are also millions of women and elders with traditional knowledge of food and herbal home remedies.

Even though the traditional medical knowledge serves a vast majority of Indian population, the government support for these traditions is very meager. This economic marginalisation, which was present during colonial rule by British in India (Jeffery 1988, Mukhopadhyay 1992, Kumar 1997), has continued in the post-colonial health policies as well. Only 4% of the annual health budget is allocated to the codified systems of medicines (ISMs). The Local Health Traditions (LHTs) have no government support at all (Shankar 1992). After Alma Ata declaration, there have been international recommendations to include traditional medical practitioners and birth attendants in organizing efforts to improve health of the community in roles such as community health workers or primary health care workers. This was an effort to fill in the shortage of health personnel at the level of Primary Health Care (PHC). There has been also an effort to integrate these practices with the western biomedicine. But “at the national level lip service is quite often paid to this passage in the WHO document” (Van der Geest et.al. 1990). According to Manohar and Shankar (1995), except for scattered documentation of anthropologists and ethno-botanists, till now no rigorous statistics has been made of the entire spectrum of LHTs in India. Thus the situation of LHTs has not improved even after Alma Ata. According to a rough estimate, there are around 60,000 village bone setters, 60,000 herbal medicine practitioners (excluding spiritual healers) who are specialized in different diseases like jaundice, paralytic conditions, children’s diseases, eye diseases, poison healers, dentistry and so on and around 700,000 midwives in India (Shankar 1992). Unlike codified systems or great traditions, there has been hardly any effort to recognize, codify and promote LHT knowledge. “As codification of a tradition is crucial threshold for corporate organization” (Janzen 1978) and political support, these healers get absolutely no organizational or political support. There is a large-scale erosion of LHTs since there are no successors.

These local health traditions in India have high contemporary relevance. Nearly 40% of the population is highly dependant on these informal health services (Mukhopadhyay 1992), which are functionally strong in the rural areas. For example, only 6.3% of the rural deliveries are institutional and all the rest are carried out at home by traditional birth attendants. Thus the deterioration of local health traditions has a major negative impact on the access to health care. Another aspect is the strength of LHTs to offer self-reliance in Primary health care (PHC), which is very important for a country like India. These LHTs can also offer easy, culturally compatible, cost effective

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⁸ Indian Systems of Medicine (ISM) is the term used by Government of India to denote codified medical traditions such as Unani, Siddha and Ayurveda. These systems come under the department of Indian Systems of Medicine of central health ministry.

⁹ See also Shankar (1992) for more details on LHTs in India.
at times rare solutions. Apart from this, diversity of choice is at stake due to the erosion of diverse medical cultures like LHTs.

India is one of the most bio-diversity\textsuperscript{10} rich nations of the world. With just 2\% of the world's geographical area, it harbors nearly 6\% of world's plant and animal species. It is estimated that India has around 18,000 species of higher plants alone. As per the All India Co-coordinated Research Project on Ethno-biology (AICRPE), the 4639 ethnic communities in India are using around 8000 species of plants (which is still an incomplete study) as medicine and food (Shankar et.al. 1999:10). This shows the vastness of knowledge in the LHTs about the local flora.

Local health perceptions and practices are gaining high importance in the wake of seeking local solutions for health care. The interests of pharmaceutical industries in herbal drugs (Wilgenburg 1998:219) and subsequent commercialization of the local knowledge are also growing due to increasing demand in the market for natural products. It has been estimated that medicinal plants are going to play an important role in the future materia medica of the world to realize the dream of health for all (Wilgenburg 1998, Anand 1998, Shankar 1998). Bio-diversity has emerged as a major global resource for supplying the raw materials for bio-technological inventions and biotechnology is expected to contribute 30-40\% to the global economy in the 21st century (Ghate 1998:2, OECD 1999:16). Laboratories are increasingly involved in isolating active compounds and identifying bioactive molecules for developing new drugs. Many of these have been clinically tested and subsequently commercialized. Most of this research ends in either a process or product patent. Few important examples of such commercialization from India are plants like Phyllanthus niruri for viral hepatitis, Evolvulus alsinoides and Bacopa monnieri for anxiety, Gymnema sylvestre for diabetes, Garcinia indica for obesity, Taxus wallichiana for breast, lung, ovarian, uterine and prostate cancer, Trichopus zeylanicus as an anti-fatigue, immuno-modulator; Piper longum as a bio-availability enhancer. Anuradha (2000:1) cites various studies such as of Taylor (Plant Drugs that Changed the World), Lewis (Millennium: Tribal Wisdom and the Modern World), Rural Advancement Foundation International (Conserving Indigenous Knowledge), Pat Mooney (The Law of the Seed) and Kothari et.al. (Intellectual Property Rights and the GATT Agreement: How to Address the Conflicts) illustrating contributions of indigenous knowledge for modern drug development. Quoting Farnsworth's work "Screening Plants for New Medicines", she says that there are 111 commercially used plant based drugs out of which 74 \% have been developed based on the leads taken from indigenous knowledge.

Even though there is appropriation of local knowledge in most of these cases, the local healers who are the carriers of this knowledge have no say in this commercialization. The source of this knowledge is seldom acknowledged and there is hardly any effort to share the benefits coming out of this commercialization (Sinha et.al. 1998:183). Another issue is the medical absorption in the process of commercialization. The local knowledge that is validated outside its cultural context with the parameters of another system gets merged into the outside system resulting in a medical absorption (Lee 1982:181).

\textsuperscript{10} Biological diversity refers to the variety of plant and animals, both wild and domesticated. It also refers to the variety of the habitats they inhabit such as forests, grasslands, water bodies, cultivations, habitations and barren areas (see also Ghate 1998).
In the early 1990s, patent rights and rights of indigenous people became a major topic of discussion after the formulation of the Global Agreement on Trade and Tariffs (GATT), Intellectual Property Rights (IPR) and the Convention on Biological Diversity (CBD). After these, the utilization of local health knowledge has taken new dimensions and meanings. The Intellectual Property Rights (IPR) policy, which is part of GATT, does not recognize community-based knowledge. The use of a drug by a community over generations is not considered as scientific. "Most traditional knowledge of indigenous peoples cannot be protected under IPRs because it fails two central tests: traditional knowledge is, by definition, not novel and it has no identifiable author" (Greaves 1993:26). Thus, according to IPRs, traditional knowledge is in the public domain and unprotected, but it protects appropriation of these by others. According to Ghate (1999:16) the economic liberalization and globalization perspective of TRIPs agreement poses serious threats to bio-diversity and related local knowledge.

Strengthening of indigenous communities and their traditional knowledge received public attention after the first international conference on ethno-biology was held at Belem, Brazil in 1988. Indigenous people from different countries met at this conference along with scientists and sociologists to discuss a mechanism to prevent the rapid decrease of bio-cultural diversity around the globe. The conference produced the Declaration of Belem, which outlined the responsibilities of scientists and sociologists in addressing the needs of local communities and acknowledged the central role of indigenous communities in global planning (Posey et.al.1996: 2). Subsequently, at the world congress in 1990 at Kunming, China, a global action plan for people centred conservation was formulated. Following this a major global convention on biological diversity was held.

The Convention on Biological Diversity (CBD) signed at the Earth Summit at Rio de Janeiro in 1992 at the United Nations Conference on Environment and Development seeks to protect the rights of indigenous people and enjoins governments to enact laws for documenting traditional knowledge and preventing its unregulated use. CBD focuses on three major aspects: conservation of biological resources, their sustainable utilisation and equitable benefit sharing. The CBD tries to introduce a balance between indigenous rights and their commercial utilisation. CBD has transferred the ownership of biological resources from the common heritage of mankind to national property (Anand 1998: 24 - 25). According to the Convention on Biological Diversity, the individual member countries have to document their biological wealth and related knowledge of its uses and create a Sui generis system for their protection, define communities and the role they play and finally ensure that an equitable share is collected from the commercial agents (Anand 1998:25). CBD recognises the intrinsic value of biological diversity and its value for evolution.

India was one of the first countries to sign the CBD in 1992. In 1998, India prepared the National Bio-diversity Bill based on CBD. This bio-diversity bill is under

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11 This is part of the Trade Related Intellectual Property Rights (TRIPS) of the General Agreement on Tariffs and Trade (GATT), See Brush (1996:15).
12 The local Non-Governmental Organisations and academic institutions in India have started elaborate documentation system for bio-diversity resources and related knowledge as part of the sui-generis through Peoples Bio-diversity Registers (PBRs) since mid 1990s. For details of PBR see article by Madhav Gadgil et.al. 1996 People’s Bio diversity Register. Amruth 1(5).
discussion now. According to this act, a national bio-diversity authority (NBA) is in the process of formation now. The NBA grants approvals for undertaking activities related to utilization of the resources or related knowledge and frames guidelines for access and benefit sharing. It advises the Central Government on matters relating to the conservation of biological diversity, sustainable use of its components and equitable sharing of the benefits arising out the utilization of biological resources and related knowledge (National Bio-diversity Bill draft 2000). As per the directions of NBA, state and local level bodies in Kerala are in the process of formation now (Kerala State Bio Diversity order 2000).

At present, there are two major focuses in the national level discussions in India on utilization of local health knowledge. The anti-intellectual property rights (IPR) groups stress on the sanctity and diversity of local health knowledge and argue that the local knowledge has to be protected without allowing any outside intervention and monopoly. They argue that outside intervention will threaten the diversity and hence view utilization of local knowledge by outsiders as bio-piracy. These groups think that the IPR regulations only make the north-south gap bigger and protect the interests of multinational companies. Another group who cherishes the ideas of CBD, thinks of the commercial potential of local health knowledge as a means for the development of local communities and consider it as bio-prospecting i.e. utilization of the knowledge in a respectful and useful way. In India, the discussion surrounding local health knowledge has been based on these two ideologies.

In the nineties there have been some efforts to share the benefits with the local communities after the CBD. Shaman pharmaceuticals, an U.S. based herbal company has done considerable work in this area (King et.al. 1996). In the 1990, Shaman began negotiations with groups in Peruvian Amazon, Colombia, Ecuador and Mexico, for long-term supplies of raw materials for their products. Negotiations were about conservation, sustainability and the benefits to the local people. Even though it has made short-term immediate benefit sharing activities, it is yet to make a firm commitment regarding payment of royalties (Posey et.al. 1996:39). Following CBD there have been efforts by various organizations for benefit sharing with the local communities. National Cancer Institute of U.S.A, the International Cooperative Biodiversity Groups and Royal Botanical Garden, Kew, London have taken institutional policies to ensure equitable benefit sharing arrangement for collection of materials and related knowledge from indigenous communities. They have ventured into agreements with different communities. Most of these agreements are based on the immediate contributions of the partners and are mostly short-term benefit sharing agreements.

In this field research, the commercialization of a plant, Arogyapacha (Trychopus zeylanicus) used by the Kani tribal group in Southern India and the attendant issues that followed a benefit sharing agreement were studied. This plant was used by the Kanis to quench hunger and exhaustion. Tropical Botanical Garden and Research Center (TBGRI) at Kerala conducted research on this plant and transferred technology to a South Indian Ayurvedic company called Arya Vaidya Pharmacy (AVP) with a benefit sharing agreement with the Kani community. Kani case is one of the first such attempts in the world where a fixed royalty and percentage of profits was paid to the local community. According to Dr.Pushpangadan, then Director of TBGRI, Kani effort derives from Belem
conference at Brazil in 1988 where he was also one of the participants. Thus this bio prospecting was initiated when the CBD was in the formation phase.

2.2 Justification of the Study
In the CBD article 8 (J) it is stated that:

“Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices”

The idea of bio prospecting derives from this article. In this CBD article “conservation” part relates to the resource base i.e. the bio diversity, “sustainable use” relates to the knowledge base in the community and the “equitable benefit sharing” relates to the community. Based on this Article there have been few attempts in different countries to share benefits. As per CBD, different member countries are in the process of making national legislation at present. As mentioned earlier, Shaman pharmaceuticals, National Cancer Institute, International Co-operative Bio-diversity Groups are few of the organizations, which have already initiated benefit sharing. In India, Kani case was the first attempt.

At present in India, few organizations, including the one I am involved, are showing interest in strengthening LHTs and conservation of resources used by LHTs. There are three focuses in this revitalization such as the resource base, the knowledge base and the cultural base. There is a general feeling among these groups that bio prospecting as per CBD provisions can be one of the mechanisms to protect the large-scale erosion of local health traditions. It is expected that the money gained out of commercialization can be utilized for organizing LHTs.

On the other hand, commoditization of local knowledge raises numerous ethical issues. Use of knowledge that is freely given in one culture when commoditized becomes for private profit in another. In this a crucial question arises on whether indigenous communities can protect their intellectual property and gain equitable benefits. Because anthropologists have played major role in defining and describing indigenous knowledge, their advice and insights about this issue are crucially important in this area (Brush 1993:653).

In a bio prospecting, different cultural, social and political factors influence the resource base, knowledge base and the cultural base. As mentioned in the narration in the beginning, Kani benefit sharing went through hard phases. It became controversial since the beginning. There were several social and cultural and political factors, which influenced these developments.

Bio-cultural diversity is one of the major concerns of CBD. But it is clear from article 8(j) that CBD focuses basically on the resource base. There is still very less investment in revitalization of traditional knowledge base and its cultural base. It is understood that the Local Health Traditions are conceived, valued and policies are
implemented in different ways at different levels of social integration. Similarly ideas of CBD such as conservation, sustainable utilization and equitable benefit sharing are also conceived differently at international, national and regional levels.

Cultural compatibility of CBD ideas is very important. As the cultures are diverse, there cannot be a single mechanism for benefit sharing. If it has to be appropriate, a clear understanding of the social, cultural and political factors is absolutely important. For this purpose, rigorous cross-cultural dialogues are necessary before initiating any such process of bio prospecting. Till now there have been no studies on what is or would be the influence of bio prospecting on Local Health Traditions in terms of its resource base, knowledge base and cultural base.

Research focus:

Taking Arogyapacha as a case study, I have tried to show how the different social, cultural and political factors influence the resource, knowledge and the community. I also show how meanings attached to community knowledge and resources are changing in the process with both positive and negative impacts. Similarly contrasting this case study with the national and international policies and the ongoing debates in the area of revitalization, I have tried to describe how CBD ideas such as “respecting local knowledge and equitable benefit sharing in commercial utilization” change when it comes to lower levels.

My focus of exploration during this research was the traditional values attached to the LHTs, the commercial value attributed to it in the bio-prospecting process. This was done from the perspective of different stakeholders in the case and with the views of some of organizations involved in the revitalization of LHTs in South India.

My interest in this topic derived from the fact that this is a relatively new, challenging issue in my area of work. This also relates one of my objectives of studying Medical Anthropology i.e. the importance and role of cross-cultural dialogues between medical cultures in revitalization of traditional medicine. As there is absolutely no government support for the Local Health Traditions in India (Shankar 1992), the idea of benefit sharing is quite promising in the area of revitalizing LHTs, but makes different influences on LHTs. It also inspired me that I was not able to locate any anthropological study on impact of bio prospecting and subsequent influence in the Local Health Traditions. The results of this study may be used in the future benefit-sharing activities to familiarize the social, cultural and political complexities of benefit sharing in a cultural context and its impact on the health traditions.

2.3 Objectives

General objective
To describe the social, cultural and political factors involved in a bio prospecting case of Arogyapacha
To describe how these factors influence the resource, related knowledge and the community during the process of bio prospecting
To analyze how this case study relates to the policies at international and national level related to the bio diversity and related knowledge and ongoing debates on revitalization

**Specific objectives**
To describe the process of bio prospecting of this plant (Trichopus zeylanicus) through the perspective of different stakeholders such as community members, healers, scientific community and pharmaceutical industry and related bodies.

To explore the influence of this bio prospecting in the use, cultivation and trade of the plant, *Arogyapacha*, in the process of bio-prospecting

To describe the impact of bio prospecting on knowledge of *Arogyapacha* in terms of change of meaning, codification and collective status.

To explore how this bio prospecting has influenced the community

To explore how local health traditions are conceived at the level of international and national policies

To explore how policies regarding commercial utilization and benefit sharing of local health knowledge are generated and implemented at the level of international and national policies.

**Limitations of the study**
Bio prospecting of Kani knowledge was initiated in 1987, when the Convention on Biological diversity was still at stage of formation. CBD was signed in 1992. The National and local implementation bodies are still in a process of formation in India. Thus this research has brought out issues, which may not have happened if the same effort of benefit sharing was made now. Time constraint was also a limitation of this research. Thus the intention of this research was only to provide a broad holistic picture of issues involved in revitalization of LHTs in relation to bio prospecting.

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**Chapter 3.**

**THE RESEARCH**

3.1 **Study type**
The exact process of how bio prospecting was done was not clearly known. The information compiled when the research proposal was made, were from secondary sources such as newspaper reports, magazines and homepages. It was vaguely understood
that the process of bio prospecting had led to different conflicts in the community and changes in the LHTs. The magnitude of this was also not clear. As I wanted to focus on the perceptions or views of different stakeholders in the Kani case, I did the field research using a qualitative design. The study was exploratory and descriptive in nature. My exploration, included views of different actors involved in the process, such as the community members, community heads, healers, pharmaceutical industry, scientific community who validated the plant-related knowledge. Apart from these, I also included members of few local and national level NGOs, which are involved in revitalization of local health traditions, the forest department of Kerala and another government department for tribal research and development (KIRTADS) (For details see appendix 2: profile of the stakeholders). I tried to explore how this Kani bio-prospecting case relates to the policies at international and national level on bio-diversity resources and related knowledge. This was done through content analysis. For this purpose, I used the multi-level perspective. Thus the study included multi-cited ethnographies to get a detailed picture of the local realities and a multi-level perspective on how the study relates to policies of higher levels of integration such as state, national and international.

3.2 Data collection techniques

During my fieldwork I used four data collection techniques: Already available information on the Kani case, In-depth interviews, informal discussions and participation in seminars.

Using available information: As the first data collection tool, I used already available data on the issue in the form of newspaper items and research data of the scientists to know more about the time linkages of this bio-prospecting process. The scientific data on research by TBGRI was used to understand how the plant properties were translated from quenching hunger to immuno-modulation. I also collected and studied details of the Kani trust, agreement between industry and TBGRI, Industry's product brochures, pamphlets of organizations involved in the case. Policies such as Convention on Biological Diversity, National Bio-Diversity Act and related literature were also studied through content analysis to know how this case study relates to these policies. First two weeks of my fieldwork I tried to collect already existing information. This formed the primary data for the interviews and observation. Apart from this, after interacting with forest department officials, I could collect the socio-economic data of Kani people living in this area from the recently conducted forest department survey report. This survey was done as part of the eco-development program of forest department.

In-depth interviews: Based on the above data, I did in-depth interviews with key informants from community, scientific community and pharmaceutical industry, NGOs and forest department officials. Interviews were other community members, community heads and healers were also done. Since the exact details of the bio-prospecting process were not known, during the interviews I used open-ended and flexible questions. To get the maximum variation in data, I also interviewed healers who are not part of this bio prospecting but members of the community. Interviews were conducted with local NGO members who are involved in Kani community in various developmental activities to know their perception on how this process has affected the community. As I thought it
was important to get the perceptions and views of NGOs who are involved in revitalization of LHTs about bio prospecting and its impact on the community and the LHTs, I did interviews with them.

**Informal discussions:** Wherever formal interviews were not possible informal discussions were conducted with informants. For example, I met one of my core informants Krishnan Kani when I was waiting at the wildlife warden's office at Thiruvananthapuram. He had come there to collect some money allotted for his family from the forest department. As I was waiting for an interview with the wildlife warden, I could not do an in-depth interview with Krishnan Kani. But during an informal discussion with Krishnan Kani, I could get good amount of information about functioning of the trust and changes in the community.

**Attending seminars and policy discussions:** During the period of my fieldwork, I could attend three national level seminars on related issues. I was very fortunate to be an observer in these discussions. This also helped me to get acquainted with some of my key and core informants. Immediately after I reached Thiruvananthapuram, the capital of Kerala, I could attend a National seminar on Non-Timber Forest Produce (NTFPs) organized by the state forest department of Kerala on 25\(^{th}\) and 26\(^{th}\) of June. This seminar also consisted a presentation and discussion on Kani case. Second seminar I attended was a discussion on the National Bio diversity Bill drafted by the Government of India at the Center for Ecological Sciences, Indian Institute of Science at Bangalore on 4\(^{th}\) July. This seminar discussed about various merits and shortcomings of the proposed Indian Bio-Diversity Bill. As this was the final discussion on the bill, I could get the latest position on it. Third meeting I attended, was an Asia regional workshop of few NGOs involved in revitalization of Local traditions conducted at Asha Nivas, Chennai from 11\(^{th}\) to 15\(^{th}\) of July. I attended only the first three days of the workshop. This workshop had useful discussions on commoditization of Local knowledge and their validation and issues involved in bio prospecting.

When the research proposal was prepared, as a data collection technique, I was intending to use observation of healers, to know how they relate to the patients who are members of the community and who are outsiders. Observation of cultivation and collection of the plant and other activities of Kanis were also proposed as a research method. But after going to the field, I could realize that Kani healers are not involved in the bio prospecting and thus it had not made many changes in their healing practices. Instead of supporting, they had taken an antagonistic view regarding the bio prospecting. So as I thought it would not help in my data, I did not do any observations of healing practices. As forest department had banned cultivation and harvesting of *Arogyapacha*, I could not also observe those activities. I visited various Kani hamlets to collect general information on life style and socio-economic data of Kani people.

I could do an individual case study of one healer who was not part of the bio prospecting but had strong opinions on this case. He is a Kani healer supported by the KIRTADS, a group active in revitalizing tribal medicine in Kerala. This individual case study was quite useful to understand his perceptions of Kani community's health knowledge and his views on commoditization of Kani knowledge.
Even though focus group discussions (FGDs) of community members and healers were proposed when the research proposal was made, I could not conduct any due to difficulties in organizing the same. Kani settlements are situated far away. Each hamlet consisting of 3-4 families is situated 1 kilometer apart. Thus it was difficult to arrange a meeting of community members in the same place.

These different data collection techniques were used for checking the validity of the data collected. I could tape record only few interviews. Informants were not willing to record the interviews due to the sensitive nature of the issue and existing conflicts. Few interviews were recorded with prior permission and they were transcribed. I prepared field notes for other interviews. A difficulty faced due to the unwillingness for tape recording was that, I could not record many verbatims used by the informants.

3.3 Study population and Sampling

This study was conducted in the Kani community near Thiruvananthapuram, Kerala, India. Study population included different actors in bio prospecting of local knowledge such as Kani community members, traditional healers, informants from the pharmaceutical industry and scientific community and members NGOs.

I intended to explore the views or perceptions of different actors about the changes in the local health traditions in the process of bio prospecting. For this purpose, interests and views of different actors or stakeholders were collected. Thus I used the maximum variation sampling technique. This purposeful sampling was selected to generate key issues and different perceptions of stakeholders at different levels about bio prospecting. Even though I did not include snowball method for selection of informants, I used this to interview community members and other stakeholders who were not part of the problem statement when the proposal was prepared.

I interviewed Dr. Pushpangadan from TBGRI, Dr. Viswanathan, Vinodkrishnan from KIRTADS, Unnikrishnan and Pradeepkumar from forest department, Darshan Shankar, Dr. Satheesh Chandran, Parvathi, Sebastian from NGOs, Dr. Gangadharan from Arya Vaidya Pharmacy (the pharmaceutical industry) and Sasidharan Kani from the Kani community as my key informants. Apart from this, Dr. Jawahar who was part of the team who got the knowledge of Arogyapacha, Dr. Rajasekharan, Dr. Vinod, scientists at TBGRI, Dr. Ramkumar from Arya Vaidya Pharmacy, Mani, Murali, Najeeb from Forest Department, Mallan Kani, Krishnan Kani, Eswaran Kani, Raju from the Kani community were also interviewed as my core informants.

Even though the target was to include 15 informants including key informants, when I did the data collection total number of informants became 22. With all the informants I could not conduct a formal in-depth interview. Thus some of the meetings with informants were informal discussions. Apart from this, information was also collected from other individuals in an informal way.

A limitation or bias of my sampling is that this highlights the views of members who are actively speaking for or against bio prospecting. I made maximum effort to include the views of individuals who are not speaking for or against commercial utilization but whose interests are at stake due to this process. Another bias is that the informants from the community were selected from the areas where there is some kind of intervention by any of above NGOs of government departments. For example,
Njaaraneeli, a place from where I did the interview of a healer, is an area where KIRTADS has done many training programs for the healers. The healer for the interview selected was belonging to the KIRTADS trained group. Similarly I had selected another member of the Kani community, Sasidharan Kani from the Thenmala area. This is an area where forest eco-development program was ongoing. As I went to these areas with the organization members who are working in that area, the data might have biases due to their presence. I did not select any female core informants, as they were not active in the case.

3.4 Data collection

I started my field data collection on 18th May and it lasted till 30th June. Data processing was done between 1st and 15th of July. First interview was conducted on 19th May with a key informant, the director of the Foundation for Revitalization of Local Health Traditions, Bangalore. After reaching Thiruvananthapuram I had attended a seminar on NTFP in Kerala. After this key informant interviews were done with members from TBGRI, AVP, KIRTADS, forest department and other social workers. Towards the end of my fieldwork I did the interviews with community members. The initial key informant interviews gave a good picture of the situation in the field that made the interviews in the community easier. National and state level policy drafts were collected from the respective bodies. During the period of my fieldwork I could also collect details on international policies from related books and home page of bio-diversity organization.

3.5 Data processing and analysis

Data processing was done based on maximum variety of views or perceptions of different stakeholders obtained during data collection. I also took into account the important shared views. Few interviews, which seemed more relevant for the report, were transcribed. I did the data coding manually as per the themes in the proposal and few new themes that emerged during the data collection. Data processing analysis was also done manually. As I found the Card files from Microsoft outlook helpful for easy retrieval of themes from the collected data I used them. To know how this case study relates to the macro-level policies, the community level data were contrasted with the policies and discussions on the same.

3.6 Experiences and Reflections from the field

“.......Piracy of the tribal knowledge is a big issue. There should be some law that everyone who is approaching tribal community for any kind of information or material should get permission from the government. Including medical anthropologists like you.”

- One of the informants

When I reached the field area Thiruvananthapuram in Kerala, I was surprised to know that the person whom I expected to be my gatekeeper was on vacation for three months. I was really perplexed on how to proceed with my data collection. The same day, there was a meeting organized by the forest department in the city. As I stayed with one of the key informants of the forest department during data collection, he took me to the NTFP meeting. There I was happy to know that the topic of my research was also a major topic
of discussion since it was related with the wild harvest of medicinal plants. During that meeting, I could meet three of my key informants and one core informant there. One of the key informants, Dr. Pushpangadan, of TBGRI, was the person instrumental for the Kani bio prospecting. Thus the meeting with him was quite useful. During the same meeting, I also had informal discussions with three others who are also connected with the Kani case. In the meeting, the main concern of the forest department was on how to switch from the presently existing forest control policy to a more flexible conservation, sustainable utilization frame that is the major focus of Convention on biological diversity. According to the present policies indigenous communities living in the forest areas can collect and sell the minor forest produce for non-commercial purposes. Few of the senior forest officials were antagonistic to the idea of giving more control to the local communities to manage forest through a joint forest management program. A point highly contested in the meeting was about control versus sustainable use of resources. The Kani case became an issue since *Arogyapacha* was an endangered plant growing in a reserve forest area.

One of the scientists of TBGRI, where scientific studies on *Arogyapacha* were conducted, presented the Kani case of bio prospecting in the meeting. This case received lot of attention from the participants, as it was first of its kind in India. The title of the presentation was “medicinal plant of the millennium”. The presentation mainly stressed on the present popularity of the case. Phytochemical and pharmacological reports were flashing through the screen in very colorful way. Generally the presentation appeared like propaganda. After the meeting, many participants hailed scientists for their initiation.

After this meeting, proceeding 3-4 days were quite bad, as I could not contact anyone. I had a feeling that I was trying to do something quite impossible in this short time. After four empty days in the field, a friend of mine Vijayan, a practicing Ayurvedist helped me by giving the news paper reports he had collected on *Arogyapacha* case, when it was a hot debate. He also introduced me to a friend of his, Sebastian, who worked in the Kani community area. Through him I could get a good picture of the geographical location and general lifestyle and other details of the community.

The person whom I was planning to make my gatekeeper works with TBGRI, one of the key players in the Kani case. So when I knew that he was on leave, I was doubtful whether I would get any information from TBGRI. A few months earlier, the director of this organization had resigned due to the allegations made against him in this case. Some of the scientists had to also face vigilance enquiries in connection with the case for allegations against them. Thus, Kani issue had caused lots of problems for TBGRI. But when I contacted the ethno-botany division head, he was kind enough to give me all the information regarding the case. He also helped me with whatever publications he had with him. The same day I conducted an interview with him. Interview questions focused on the history of Kani case. Informant detailed the story since 1987 when the knowledge was disclosed to them. He allowed me to tape record the interview but asked me to turn off the recorder while discussing the sensitive issues related with the state politics and some internal disturbances inside the institute. He also confessed on his failures in making the organizational strength for the Kanis. He had to face lots of operational difficulties in organizing Kanis to form a Trust. An interesting aspect was that he answered some of the questions even before they had been asked which showed the number of earlier interviews he had attended earlier. I felt that he really wanted to talk a
lot about the case. In the subsequent interview with him three weeks later, he sounded bit disturbed due to a book that was released on the Kani case a few days before the interview. The book discussed the case slightly against his organization. It was mentioned that the decision for the deal was taken by TBGRI and they had not consulted the Kani healers (plathis). The book had quoted some of the news reports, which were against TBGRI. During the interview with the ethno-botany division head, he told me:

“You people come here and collect information and will write it in a different way. See this book has criticized us a lot. I cannot stand criticism, which does not have any basis. You quote all the newspaper reports in your study. Newspaper reports just sensationalize the news. They do not have any basis. If quoting newspapers is a method of social sciences, you have to change that.”

But both interviews with him were quite useful. After finishing my interviews with TBGRI and few social workers in Thiruvananthapuram, I went to Kozhikkode, which is around 350 Kms away from Thiruvananthapuram. There I met two people from KIRTADS, Kerala Institute for Research Training and Development for Scheduled castes and Scheduled tribes. KIRTADS had proposed a new Tribal Intellectual property rights bill to avoid bio-piracy according to them. Most of the points discussed during the interviews were related to the issue of bio piracy. When I met the director, who at first disagreed to discuss the matter, but when I explained my purpose in detail, he later agreed. It took quite a bit of persuasion. He criticized my background as an Ayurvedist and being a student of a Dutch university. I also had an interview with one of the research officers in the ethno-medicine department who told me:

“Now we (staff of KIRTADS) have a direction from the director not to give any interviews on behalf of the organization. This follows a direction from the SC/ST department to us (KIRTADS) not to involve in the Kani case.”

Because of this I could not tape my interview with him. From there I went to Arya Vaidya Pharmacy, which is 150 Kilometres away. I could meet the product development manager and executive director of the company. As I had studied in the college managed by this industry, it was not difficult to collect information from there. The core issue in the discussion was about demand of Jeevani and the raw material supply crisis.

After finishing these interviews, I went again to Thiruvananthapuram to meet the community members and finish some follow up interviews by 18th June. During the same period I had interviews with forest department officials. Forest department had started a participatory forest management (PFM) program. Through the people involved in this program, I approached the Kani people in Thenmala, Kanikkuzhi region. Forest department staff also helped me to go to the Chonampa area where Mallan Kani and Kuttimathan Kani, the persons who revealed the knowledge live. I could also visit the Njaaraneeli and Peringamala area to visit the healers. These areas I visited in the community were quite far from each other.

As the days passed I felt that it had been a blessing in disguise that I had not met my gatekeeper, Vinod, in the beginning. Otherwise data might have been biased due to his presence.
I had quite strange experiences with two of my key informants during the fieldwork. Both of them are directors of two important organizations that are against commoditization. When I visited one of these informants, I introduced myself as student of Medical Anthropology at the University of Amsterdam. Both reacted strangely even before I could complete the objective of my study. Then one of them asked me:

“You are from University of Amsterdam? We have history of bio-piracy of Dutch since the 17th century. Hope you know about it - Hortus Malabaricus of Hendrik van Reed.”

Hortus Malabaricus is one of the earliest documentations of local health knowledge and related plant wealth in the West coast of India including Kerala. This is published in 12 volumes. This was done by a Dutch administrator of Malabar, Hendrik van Reed during 17th century with the help of few traditional physicians.

He also asked me:

“Are you a namboodiri (high caste Brahmin)? Yes, I know you are.”

He was referring to the subordination of economically and socially subordinate classes by the high caste communities in Kerala in the past. He also referred to the work of Panikkar (1994), in which the marginalisation of local health traditions by the revitalization movement of Ayurveda in Kerala is detailed.

The following day another key informant of mine as well mentioned the similar reasons for not allowing me to interview him. He was particularly antagonistic towards my Ayurvedic background because of his bitter past experiences with Ayurvedic doctors.

“You are an Ayurvedist. Why are you studying Tribal Medicine? Ayurveda has always been pirating from the folk knowledge here. The people who have folk knowledge are quite poor. Don’t steal from them. Leave them alone. Few years back I had invited Ayurvedic doctors for our tribal healers training programs. You know what they did, once we collected lots of information from the healers, these doctors published it as their own.”

After some time the same person asked.

“I heard that there is a huge tropical botanical garden in Amsterdam. How many Indian plants have you till now sold to them?”

Another statement of his was critical of my past association with Arya Vaidya Pharmacy. The informant asked “Appo jeevaniyude aalanalle? (You are person of Jeevani)”. It was because of the fact that I did my Ayurvedic graduation in the Ayurveda college managed by AVP. He might have thought that I am taking a supporting stand towards AVP. I never expected such statements and tried to figure out what was wrong. I realized that they were reacting aggressively to the idea of bio prospecting. Later when I did interviews with other persons in the community, I found out that there were two parties one supporting the idea of bio prospecting and the other opposing it.
Reflecting on my research, I realize that some of my personal attributes were criticized by the informants. A researcher from a Dutch university and earlier history of Hortus Malabaricus documented by Dutch, my Ayurvedic background, a high caste Brahmin, past education in a college managed by the industry that is involved in this bio prospecting were prominent among them.

I also had to face some practical problems in the field. The most difficult thing inside the forest areas was transportation. The forest department guards had cautioned me about the elephants in the area. Inside the forest, I sometimes had to walk a few kilometers to meet my informants especially in Chonampara, Kanikuzhi and Thenmala areas. Staying in these areas for short period did not seem practical.

After spending a few days for interviews with the community members, I came back to Bangalore. I attended the National Bio-diversity bill discussion held at the Center for Ecological Sciences, Bangalore on 4-07-2000. NGO members, representatives of government, pharmaceutical industry and scientists from different disciplines attended the meeting. A strong theme that came up repeatedly during discussion was conservation of biological resources versus sustainable use.

One of the main hurdles for the fieldwork was the distance between my office, my hometown and the field. Thiruvananthapuram, my field area is around 600 kilometers from Bangalore. Distance between various organizations relating to the study like KIRTADS, TBGRI, Kani community and Forest department were long. As it was a multi-sited ethnography, I had to travel a lot to collect data from the different stakeholders. Lodging and boarding in the field also proved to be a real problem. Incessant rains in Kerala were a hurdle during the fieldwork. When I reached the field, I found that the knowledge of *Arogyapacha* was revealed by a common man. This changed slightly my focus of exploration as the revealing of the knowledge had not much changed the situation of traditional health system in that area.

Lack of understanding between government departments and lack of co-ordination in the Kani case was very clear during the fieldwork. This also created difficulties in contacting persons.

**Advantages:**

Some of the advantages were that everyone wanted to talk or knew about the issue in the local area. Plenty of news reports and other publications have come out on the issue that helped me to familiarize the issue before going to the field. Core informants especially in the field were quite hospitable and friendly. Scientists were also friendly and were familiar with issues discussed. There was also the advantage of working in one’s own home country with a new background as a medical anthropologist student. The medical anthropological background helped me to look at the issues in traditional medical field and especially in bio prospecting from an outsider’s perspective. This was not possible earlier because of my training as an Ayurvedist.

**3.7 Ethical considerations**

As there were objections and critical comments from some of my informants, I became more aware of the ethical issues involved in the study. Local authorities like forest officials were informed about the research work. As the area where the community lives is a reserve forest area, permission from the assistant wildlife warden was obtained to
enter this area. Ethno-botany division head at TBGRI was given a detailed picture of the research and data was collected on research aspects at the scientific institute. Research purpose was explained and prior consent was obtained from the community members and other informants before the interview or discussion. Respect and honor to the local community believes, cultural values, traditions were maintained. As there have been number of reports and publications on this issue, after consulting with the informants it was decided that anonymity of informants need not be kept. Wherever I had to face objections while initiating the interview, a clear description of the research purpose was explained to the informants. In these cases, anonymity of informants is kept in this text by presenting it as only a viewpoint. Permission was also taken before tape recording the interviews and whenever informants objected and only field notes were prepared. No photographs were taken during the fieldwork.
Chapter 4.
FINDINGS AND DISCUSSIONS

Before going to the findings, first I shall explain how this case study was looked at from the anthropological perspective. I had three objectives for this fieldwork. 1. To describe social, cultural and political factors involved in the Kani bio prospecting case. 2. How these factors influence the cultural base (community), knowledge base (Arogyapacha related knowledge) and the resource base (the plant). 3. To analyze how this case study relates to the national and international policies regarding the bio diversity resources and related knowledge. I tried to apply three different perspectives to analyze this case.

Multi-level perspective:
The idea of looking at issues from a multi-level perspective seems to be a holistic and comprehensive approach. This approach can give the details of both vertical, horizontal and time linkages of ideas and phenomena instead of confining into one level of social organization or a cross section in chronology. An underlying assumption of multi-level perspective is that the object or ideas carried from one level to another change their characters during their journey (Van der Geest et. al. 1990). In the Arogyapacha case the vertical linkages I focus on is how this case at a local community level relates to the policies and debates at the higher levels of social integration at the national and international context. This was done by analyzing the Convention on Biological diversity and related literature and also reflecting on my own experiences in the field of revitalization of Local Health Traditions for past five years. My assumption during this exploration was that even though global convention on bio-diversity and related knowledge discusses about respecting local knowledge and sharing of equitable benefits with the local communities when it is utilized for commercial purposes, this idea has different meanings at different levels of social integration. The macro-level policies do not adequately include meanings of this knowledge in its cultural context, and micro-level issues in commercialization and subsequent developments in local communities. Thus, the ideas surrounding local knowledge and benefit sharing seem to be coined from a one dimensional social development perspective. I apply the multi-level perspective with its vertical linkages here as a method to look at the object of research linking to higher and lower levels (Van der Geest et.al. 1990:1026).

Horizontal or lateral linkages I looked at in this case are the role of different stakeholders in the Kani bio prospecting case such as the Kani community, Scientific community, pharmaceutical industry and other government and non governmental bodies influencing the bio prospecting at the local level. I also looked at the influence of the local politics, Kani community’s present social structure and the relation between great traditions and little traditions in Kerala. By looking at these horizontal linkages in this case, I try to bring out the different interests of the stakeholders.

Time linkages in the Kani case are the situation of local health traditions in Kerala, the revitalization movement of tribal medicine to get the broader historical context. I have also looked at the changes in Arogyapacha case those have taken place after the sharing of Kani secrets to the scientists.
Stakeholders’ perspective:

According to the Convention on Biological Diversity, the different parties directly involved in a bio prospecting case are called ‘contracting parties’. Here in this case, I use the term ‘stakeholders’ to look also at the people or bodies who are not directly involved in the deal but whose interests are at stake due to this process. For example, in the Kani case, KIRTADS is not directly involved in the bio prospecting deal. But as tribal community’s development is one of their mandates, they got involved in this case. Even though I am not very familiar with the anthropological perspective of stakeholders I try to apply it here by analyzing different interests and conflicts.

Social life perspective:

Apart from the above, I have made an attempt to look at this case from the ‘social life perspective’ (Appadurai 1986, Kopytoff 1986). Processes like value addition\(^{13}\), codification and medical absorption have influenced the social life of *Arogyapacha*. My contention is that the plant gets new statuses and values in its journey through these processes. “Politics (in the broad sense of relations, assumptions and contests pertaining to power) is what links value and exchange in the social life of commodities. Not all the parties share the same interests in any specific regime of value, nor are the interests of any two parties in an exchange identical (Appadurai 1986:57) I have tried to explain the process of validation of local knowledge as politics of authenticity and of authentification; marketing of *Jeevani* as politics of expertise from this perspective.

In the findings I have selected four themes which seem particularly relevant in terms of changing the social life the plant: bio prospecting versus bio piracy, indigenous community and bio prospecting, local knowledge and bio prospecting and resource rights and bio prospecting. These are also key topics confronted in the revitalization programs such as the cultural base (indigenous community), the knowledge base (local health knowledge) and the resource base (resources in the *materia medica*).

4.1 Bio prospecting versus Bio piracy

During my fieldwork, as mentioned earlier, some individuals were very much willing to talk to me about the case and a few others were not. Some of them did not have any objection for tape recording the interviews, but few others were very resistant. From some people, as mentioned in the field experiences, I had to face some strange comments. At times I felt that, the sociologists or social workers that I spoke to were antagonistic about bio prospecting. But it was not true. I had interviews with NGOs who were very much in favor of bio prospecting. Scientists whomever I interviewed were quite friendly. But later I could make out that not all scientists are supporting the drug development from tribal medicine. There was a group calling it pseudo-science as they thought it was just a hype in the name of traditional medicine. I also thought about the possible political colors to the issue. When the technology transfer was done left parties led by the Communist Party of India (Marxist) had opposed the move. At the same time Indian

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\(^{13}\) Value addition refers to the increase in the value of a product (good) due to improvement in its quality or form, increased storage life (can be stored and used over a longer time period and even during off-season), or due to better transportation facilities (and hence product can be reached to places where it is unavailable). In medicinal plants, this is a relatively new concept. Changing the form (processing) of the plants is the only recognized form of value addition to date (Suneetha 1998).
National Congress that was then ruling Kerala wanted to sign the deal. Even though my thoughts went wild, I could not figure out the interests behind supporting or condemning the bio prospecting. But later when I read all these experiences together, I could get two distinct ideological positions among my informants at all levels. One supporting the idea of bio prospecting and the other calling it bio piracy. Healers of Njaaraneeli were quite antagonistic about selling of their knowledge. Kanis of Chonampara claimed that they have rechristened their health tradition. Similarly TBGRI scientists were very positive about bio prospecting whereas KIRTADS people were not. In the NTFP national seminar too there were two distinct views. Few of the conservation activists in bio diversity bill discussion couldn’t digest the idea of wild harvest and commercial utilization. During the discussion on validation of local knowledge at Chennai too, this came up as a strong argument.

This is an ideological debate in revitalization of LHTs. Whether to take LHTs to the market, ‘modernize’ as at times referred to or to let it nurture in its own right. But it is not all that simple. There are other layers as well in this debate. Whether to remain as pure systems or integrated, whether to validate through modern science or do internal validation. This is not only a debate in LHTs but in all traditional systems like codified systems as well (Leslie 1992). The same informant who was skeptical about the Hortus Malabaricus asked me-

“You have an Ayurvedic degree. Now why don’t you do a practice in the form of an upasana (a meditative way)? Why do you have to learn medical anthropology? That too in a foreign country?”

He during the discussion mentioned this as a hybridization process. Our discussion went on for long. In gist I could grasp that he was critical of diluting the purity of the tradition. He was of the opinion that Kanis should not be taken into the market. Their culture should be nurtured in its own context.

The Convention on Biological Diversity (CBD) has three major focuses. Conservation of biological resources, sustainable utilization of these resources and equitable benefit sharing with the holders of biodiversity related knowledge when it is used for commercial purposes. The term ‘Bio prospecting’ follows the ideas of CBD of sustainable utilization and equitable benefit sharing. This means the utilization of bio diversity and related knowledge in a way, which is beneficial to all stakeholders. The bio prospecting idea is cherished by a group of organizations or individuals who think that there is lots of commercial potential in local knowledge, which can be used for development of indigenous or local communities. They also think that bio prospecting could help to protect the local knowledge by claiming rights over this knowledge and making it known publicly. These groups think that this is one of the best mechanisms to protect collective community knowledge. “Green capitalism as it is called is the only hope we have to stop the vast destruction of peoples and environments due to the rapidly expanding markets” (Posey et.al. 1994:16).

But as mentioned earlier, another group, thinks that taking out biological resources or related community knowledge for commercial purposes is bio piracy.

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14 Indigenous communities and local communities are the terms used in the CBD article 8(J).
According to them the community knowledge has to be protected without allowing any outside intervention or monopoly. They stress on the diversity and sanctity of cultural knowledge and think that outside intervention will threaten the same. These groups follow an anti-intellectual property rights stand and say that these are free goods in the community and why should there be monopoly rights over that. Economic efficiency argument of IPRs is not appealing to these groups. These groups think that this kind of monopolizing would only make the north-south gap bigger and protect the interest of big companies. Even though CBD is ‘soft marketing’ or ‘green capitalism’ compared to IPRs, the idea of commoditization make them restless.

These two ideological positions seem to be the one of the major roots of interests and conflicts those have been happening in the Arogyapacha case. Clarifying these two ideological positions I go on to the issues in the community (i.e. the cultural base) that are raised in the process of bio prospecting. In this text I have used the term ‘bio prospecting’ not as an ideological standpoint but as a term, which is easily understood in this field.

4.2 Kani community and Bio prospecting

“The enthusiasm shown for these approaches can inflate unreasonable expectations of financial return to indigenous communities. For most of the groups defense of the tribal integrity will be a far greater challenge than the assimilation of unforeseen material wealth because tribal knowledge has been successfully commercialized.” - (Wolf 1994:58)

In the section I shall explain the process that are taking place in the community as part of this bio prospecting. I selected this topic to discuss the issues related to the cultural base of healing traditions. Sub-themes those will be discussed in this section are defining a community, cultural identity and political influences in the community in the process of bio prospecting.

Community definition:

When TBGRI received the money, they wanted to give half of it to Kanis as promised while the information was collected. When the benefit sharing was to be done there were problems. The question was whom should the benefit go? After series of negotiations between TBGRI scientists, the Kani guides who disclosed the knowledge and the Kani tribal community, it was decided that the benefit should go to the entire community. The Kani guides also agreed to this proposition. This community is spread out in a large area of Southern Kerala divided in three districts like Thiruvananthapuram, Kollam and Pathanamthitta. The Kani people also live in the near by state Tamil Nadu. According to the 1990 census, there are around 16800 Kanis living in Kerala state.

Like most other indigenous communities the Kanis have also shifted from their traditional occupations and started merging with the outside world. Thus it was difficult to define the community. For this purpose they had to make a welfare trust named “Kani Samudaya Kshema Trust”. Few families of Chonampara area formed this. When I enquired about representation of the trust Mallan Kani told me that initially the trust had only members from their area and later they made members from other areas too. Now there is representation of 40 villages from Thiruvananthapuram district in the Trust.
When I met a Kani unit president, Raju, he told me that Trust unit in his area is now making maximum people members by approaching each family personally. It was expected that the formation of Trust would become organizational strength to the Kanis. But there were many operational problems. According to one my key informants:

“See the problem with these people (Kanis) is, they are not in a position to take it (the trust) forward. There are very few youngsters with leadership qualities. That is not their mistake. It is due to their education. How can you expect these qualities from them? We give guidance from outside. They do not have any confidence”

There also exist several operational problems of organizing Kani people. Kani settlements consisting of three to four houses are far apart from one another. According to one of the trustees:

“It is very difficult to call all the members for the meeting. Some have to walk nine to ten kilometers to reach a common place. If we call the meeting in the morning everyone will reach in the afternoon. It is also difficult to inform people about meetings. We cannot send letters. Communication is very difficult in this area”

Thus even though the community was defined and trust was formed, it has become a difficult task to make trust activities operational.

As mentioned earlier, there are three focuses of conservation in the CBD: resource base, knowledge base and cultural base. “Indigenous and local communities embodying traditional life styles” affirms CBD’s intention to protect the cultural diversity. In the above case, many of the Kani community members have migrated or got merged with other life styles. Then a question arises whether the CBD considers communities as static entities? After the Kanis were given private land from the government Kanis have become a dispersed group. Each hamlet consists of only four to five houses. Their rituals related with healing like Chattu, Koduthi have become rare events. Plathis have become less important. There is a severe erosion of their cultural base (See appendix 2). According to CBD definitions they do not ‘embody traditional life styles’ any more.

Cultural identity of people who are in the Trust has increased after the formation. When I asked about the participation in the Trust, they were quite enthusiastic about it. The trustees have included number of objectives under the Trust such as proper utilization of existing money, welfare activities for Kani community of Kerala, documentation and revitalization of local knowledge of Kanis and monitoring future bio-prospecting deals. One of the trustees told that Kani Trust would soon become a good support to us.

“We shared our knowledge. For that we got the money. Now we will utilize for our common good. We are already making as many people members of the trust. We feel good that we are able to organize like this.”

His words sounded quite optimistic yet idealistic. On the other hand, on my enquiry I could understand that Kani people from other areas like Thenmala, Njaraneeli, Kanikuzhi, which I visited are hardly aware of such a Trust and its functions. When I asked about this to one of the TBGRI informants he told me that they have gone and
informed every hamlet. But some people are not interested as other groups influence them. This lead to my enquiry of what “other groups” are.

**Political influences:**
The Kani people from Vithura area are not very supportive of the Kani Trust. They with the support of Appukkuttan Kani, the president of the Panchayat opposed the Trust formation. It was later known that KIRTADS had also given support to them. A group of healers wrote to the government about the piracy of local knowledge. Later healers from Njaaraneeli went to Chonampara to discuss the issue of selling their knowledge to outsiders. During my interview one of the Kani healers at Njaraneeli told:

“I went to Chonampara area to convince them about the piracy issue. They do not know about the value of our knowledge. They have sold it to a private firm. I wanted to make them aware of this. But they were not willing to listen. I got offended.”

There are two points he stresses. One, the value and sanctity of the their community knowledge. Second, a resistance towards the idea of privatization. This healer belongs to the KIRTADS trained physician. Few days before I visited him, there was a training program at his house conducted by KIRTADS. Under this training program 125 tribal healers all over Kerala have been trained as healers. Now there is an increasing demand for tribal medicine in Kerala as part of this. I could see that they hold a high esteem about their healing tradition now. While discussing I asked him casually “I read that few days back one of the state minister’s came to preside over a training program here?” Then he exclaimed and told. “Why minister, the king himself came! ” I was surprised. Later I knew that the Travancore king, Uthradam Thirunal, inaugurated this program. In the past, Kanis used to visit the Travancore king every year with some presents. This was continued as part of their tradition. So king’s visit to their hamlet to inaugurate a tribal medicine function had really boosted these healers’ cultural identity. So I could make out that there is a strong group of healers with different view of what their healing traditions should be, who are antagonistic about selling of their knowledge.

Thus there were conflicts among Kanis from different areas. A finding was that basically this was a fight between two government departments, which resulted in two groups in community. The healers were belonging to the KIRTADS group and Kanis from the trust to the TBGRI. KIRTADS is keen on promoting tribal medicine in its own right. They also organize tribal healer’s camps in different parts of the state. Health seekers in these camps are mainly outsiders having chronic problems, which are not solved by western biomedicine or Ayurveda. According to one of my informants from KIRTADS:

“It is not by selling drugs that you promote tribal medicine. You have to strengthen it from within. Let the tribal healers interact with the outside world. In the process they will be strengthened.”

But one of the TBGRI scientists who is also an Ayurvedist has an opposite view:

“There was no tradition among adivasis (tribes in India) of treating non-tribes. Now these people have trained healers and they have made an institution for tribal medicine and given
professorship to some people. Now they are Vaidyars (physicians). I have only one question. What is the legal validity of that? If a patient consuming the medicine given by the tribal healer, if he dies, may not be due to medicine but due to heart attack, where will this vaidya go? Who will give legal support to him? Would this agency that gave them support, back them? If you have to bring up tribal medicine you have to make constitution for that. Today there is no law. Earlier they had a permission to treat those from inside the community. But today they cannot treat even insiders. It was during their old Mootukani (tribe head) system. Now it has changed. They cannot practice."

There is clear marginalization of local health traditions in these statements. The issues arising here are related to license, legal or organizational support. There is also an issue of unwillingness of great traditions to accommodate the Local Health Traditions. This was the reason why one of my informants asked why being an Ayurvedist I should study tribal medicine. These ideological conflicts of revitalization in the national context are affecting the Kani community.

Now even among the trustees there are two factions. One supporting Mallan Kani and another one Mathan Kani. Politics has already entered the Trust. This fight enlightens us on the fact Greaves (1996:29) narrates. He describes how money creates tensions that were not there before and deteriorates the structure of the (native) society in such transactions.

I got another view about the changes in the community when I interviewed one of my key informants, He noted:

“Now the trust has representation of 40 settlements. When there is more income there will be differences of opinions. There will be many political colors and regional politics. Not only that there will be real election. Those things we are going to face in the future. Election will be systematic. Character of the trust will change. It will strengthen its functioning. But it will take time. Because they are tribes. If they were non-tribes it would have been faster.”

Scientists of TBGRI who support the Trust are very optimistic about the future of the trust. In this struggle the value of the knowledge and benefit sharing has transformed from its original CBD article. “Respecting local knowledge and benefit sharing” has become just a transaction.

In these transactions, does the CBD article “respect the indigenous community’s knowledge” still remain valid? Or what does it mean to respect community’s knowledge? CBD goes on further to say “embodying traditional life styles”. CBD article 8 (J) recognizes the links between conservation of biological diversity and cultural diversity. In this case Kanis have changed considerably from their traditional life styles. They have got merged with the market economy. Some of the Kanis own rubber and coffee plantations. To what extent the cultural erosion is accepted by CBD? Erosion of cultural base seems to remain an unresolved issue in CBD and National Bio diversity Bill. Now let us look at the influences on the Arogyapacha and related knowledge in these transactions.
4.3 Local health knowledge and Bio prospecting

“It is our traditional knowledge, it should not be sold, but what to do, we are hungry.”
- One of the Kanis who revealed the knowledge

“Subject to national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous communities embodying traditional life styles........”
- Convention on Biological diversity, Article 8(J)

In this chapter, I shall discuss the changes that happen to the local health knowledge in the process of bio prospecting. From a broader perspective I call this as the knowledge base. The sub-themes will include secret and sacred nature of local knowledge, codification and collective status of knowledge, validation, medical absorption and change of social life. I discuss these topics under the same heading as these topics are interrelated.

Sacred and secret:

“According to Kani myths, their ancestors were exceptionally adept at shooting arrows. The ancient sage Agasthya disarmed a Kani couple to prevent birth of a martial race in his abode of peace and meditation. Instead the couple was given a scroll of herbal remedies and a boon to cure the sick with their chants. Kanis are now well known for their healing tradition malamarunnu, medicine of the mountains”(Martin 1998)

Kani people consider their knowledge as sacred and secret. Plathis are the healers among Kanis. Kani healing techniques contain both spiritual elements and drugs. Plathi’s presence used to be an integral part of all Kani rituals. They did not receive any remuneration. It is believed that if a plathi receives something from an ill person, he cannot cure effectively. When I discussed about their health knowledge with one of the Kani healers, Eswaran Kani narrated different mythological stories related to their healing traditions and the rituals a healer has to follow during initiation and their practice. Thus Kani healing knowledge is intertwined with many mythological stories and sacred nature is attached to it.

According to Dr. Rajasekharan of TBGRI there are four types of secrecy in the Kani community. First type of knowledge is not revealed to anyone. When a healer or knowledgeable person passes away the knowledge also dies with him. The second type of secret is passed on only to a son or daughter. The third type is known to everyone in the family and the fourth is known to all the members in the community. According to a healer whom I interviewed at Njaraneeli:

“This (Arogyapacha knowledge) belongs to our secret community knowledge. We should not divulge it to outsiders. They have breached our community’s code of conduct.”

After the Arogyapacha issue became popular, conflicts started in the community regarding the sanctity and secrecy of their knowledge. Are these sincere arguments? Or were these only rhetorical? It is note worthy that many of the Kani religious practices have become lost with time. When I went to meet Sasidharan Kani, a knowledgeable person in the Kani community at Kanikuzhi, he told that many of their collective rituals
are no more practiced. He said:

“Moottukani used to take decision on all matters relating to Kanis. He used to be revered much. He used to organize all the rituals in our community. But now he does not have any power. Now none listens to Moottu Kani or Plathi. Previously everyone used to get together frequently. But now there are very few community functions …….”

There governance system of Kanis has completely changed (see appendix 2). But, claims about values of culture and sacredness still remain. How can the sacredness only exist for their knowledge? Or if Kani healer of Njaraneeli feels that using their knowledge for commercial purpose or divulging it to outsiders is breaching the code of conduct, is the idea of bio prospecting fundamentally against the code of ethics of the community? There were regrets of selling Kani knowledge to outsiders in the words of the person who revealed the knowledge too. The reason he cites is that they are poor. Erosion of the social and cultural base of Kanis has affected the healing traditions as well. In this context, at present some organizations involved in the revitalization of LHTs is documenting traditional health knowledge. Let us look at the documented knowledge.

**Codification:**

With the word codification, here I mean the documentation of the community knowledge and structuring in the form of databases or manuscripts. Here in the Kani case, the lead for the development *Jeevani* came when the codification of Kani knowledge was in the process. According to TBGRI scientist, Dr.Rajasekharan:

“AICRPE (documentation project on ethno-biology) was done before all these (CBD) came. The intention of AICRPE is to protect the traditional knowledge by identifying and doing research on the traditional knowledge base. The intention was also to make innovations from that. How can we utilize it by documenting eroding knowledge base that was the question.”

Thus the knowledge of thirty-eight indigenous communities in different parts of Kerala was documented. Kani knowledge also got codified. In this process, it has achieved a collective status. The question is whether the community has only collective knowledge. From the description about secrets by Rajasekharan, it is clear that there are four levels of knowledge out of which collective knowledge of the community only belongs to the fourth category. But in the case AICRPE, as there was documentation of all the levels of knowledge in the community it has achieved a collective status.

At the community level, there are claims on whether the knowledge is individual or collective of the community. In *Arogyapacha* case, when I interviewed the person who revealed the knowledge, in answer to my question on whether it was his ancestral property, he told me:

“This (Arogyapacha) is commonly grown here. But none else knows about the property of the plant. This is my personal knowledge. I gave it to them (scientists). I knew about it from my own experience. This is not from my father or grandfather.”

Kani healer at Njaraneeli, who is opposing commercialization, had a different view. His explanations were quite convincing.
“Arogyapacha is a plant, which is known to many healers among Kanis. We call it with two or three different names - Thenchikka, Chathukodi, Arananakkan. Thenchu in our language is hunger, thus this is used for hunger, chathukkodi means that the flower is like chicken head, leaf looks like the tongue of arana (a local reptile) and thus Arananakkan. Arogyapacha is a new name coined by TBGRI. We usually give it when children have.........15. This belongs to our secret community knowledge.”

According to Dr. Rajasekharan:

“We understand that only people from this area, Chonampara, knew about it (effects of Arogyapacha). But once it became an issue in the media everyone started making claims about it. See now plathis (Kani healers) say that they knew about it.”

I got completely different versions from different stakeholders. I was perplexed. Even after asking to three or four persons, I could not get a clear answer about the ownership of Arogyapacha knowledge. What is really at stake here? Here there are different claims about the knowledge. Can we decide whose knowledge is it? It seems to be a very difficult task. Deciding whose knowledge would ease the benefit sharing. But if this is the case in all documented knowledge, what happens if the documented knowledge is used for bio prospecting?

Documenting or codification of local knowledge is one of the key issues many organizations in India are contesting on including the one I am involved in. Whether to document the local knowledge, if documented, how to protect it and how to use it with equitable sharing of benefits arising out of the utilization. During this fieldwork, I realized that knowledge claims would be one of the major issues that these organizations will have to address in the future.

Sui-generis is the mechanism according to IPRs, suggested to protect public domain knowledge. Sui-generis is the process by which all the public domain knowledge is recorded as it is. As per this, in India now many government and non-government organizations are recording the local knowledge through People’s Bio-diversity Registers (PBRs). These registers are intended to protect the public domain knowledge that cannot be protected through IPRs. Sui-generis cannot also protect the individual knowledge from a lineage or tradition, which cannot be called innovations. The recorded information in PBRs mainly includes biological resources of a locality and related cultural knowledge of its utilization. But in most of the cases there is no clear distinction between the individual knowledge and the collective knowledge. Then how can the questions of knowledge claims be addressed? There are other questions like who should document and what is the credibility of those who document? AICRPE documents including those of Kanis are still confidential reports under the custody of government bodies like TBGRI. According to the National bio-diversity bill, the rights of this knowledge are with the bio-diversity authority. They are supposed to work as middlemen between the community and the commercial stakeholders. But as there are many NGOs or private organizations also involved in the process of documentation it becomes difficult to monitor and protect the knowledge from being pirated. The credibility of many such organizations involved in

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15 Traditional Kani knowledge of usage of plants mentioned during the interviews has been purposefully removed from the transcripts and this text to avoid IPR violations.
the documentation is questionable. The Kani case tells us that there should be clear
guidelines for all those who document or codify the knowledge from National Bio-
diversity Authority. There is need of a common material and information transfer
agreement to protect the documented knowledge and maintain a regulated access.

Codification of local knowledge itself is considered as bio-piracy in some circles.
Hortus Malabaricus was referred to by one of my informants after hearing my Dutch
student status. Many groups consider this as an early colonial piracy of plant wealth in
South India. Similarly there are many allegations against foreign funded non-
governmental organizations in India.

As in the case of Arogyapacha knowledge gets reinterpreted after they are
codified. Now let us look at the issues involved in this.

‘Validation’:

‘Validation’ is another issue, which is very much discussed in relation to traditional
medicine. Modern methods are frequently used to experiment and prove efficacy of the
traditional knowledge. The very term frequently used “validation” carries a feeling of
making something invalid, valid.

In the case of Arogyapacha, the scientists who did their research took the lead
from the Kani tribal guides. Later they did experiments on it based on the parameters
phyto-chemistry and pharmacology. Some of the tests conducted were for anti-fatigue
activity, anti-stress activity, hepato-protective activity, immuno-modulatory activity and
so on, which are concepts that are alien to the Kani healing tradition. These experiments
were also done without participation of the Kani people, outside their cultural context. A
subjective experience of quenching hunger was translated into an objective condition
such as immuno-modulation or anti-fatigue effect. How did they do it? When I asked
this question to the scientists there was no clear answer. Later Arogyapacha and the
formulation, Jeevani were also evaluated through parameters of Ayurveda. The reason
cited for this was:

“The stereotype approach of modern medical research is at times inadequate in evaluating
the efficacy of the traditional tribal remedies. So in addition to the routine modern tests, the
drug was also evaluated on the basis of Ayurvedic dravya guna shastra.” - AVP brochure.

I asked Rajasekharan of TBGRI “why should this knowledge be interpreted based on
modern parameters?” and he said:

“Local knowledge, if it is given to the industry they don’t have anything to do with that.
Something can be only done by the scientific community. Only science. There should be
scientific and technical input and value addition if has to be brought to the market. If there
should be value addition, there should be science.”

“Knowledge is the focal point. If they (Kanis) say something is good for a particular
condition, how many possibilities it is connected to. For example they say we have 100 drugs
for fever. That may be anti-malarial, anti viral or may be good for typhoid or filariasis. They
will say only pani or kachil (fever) The role of an ethno-medical expert is to change these
indirect clues into direct clues. If the ethno-medical specialist is an Ayurvedist too, then it is
very good. He can manage very well as he is very familiar with plant drugs. Once you give
the direction rest all can be discovered through scientific investigation. Whether analgesic,
Usage of both modern scientific as well as Ayurvedic parameters to validate the knowledge without in-depth understanding of traditional knowledge has made it a ‘bricolage’ (Obeyesekere 1992:170) like situation. There is no clear answer to how they translated the subjective feeling to an objective one. There is also no clear answer on why it was interpreted through knowledge systems of two different epistemologies. Is there no conflict between these two epistemologies? These are common issues relating to experimentation faced in India in the field of traditional medicine. When I attended a meeting of LHTs promoters during my fieldwork, there was serious discussion on assessing validity of traditional knowledge. There were two groups, one supporting the idea of ‘validation’ through scientific parameters and the other completely objecting to this. CBD does not address these issues related with local health knowledge i.e. the epistemological issues related to documentation and validation. Thus the issue remains untouched. The outcome of ‘validation’ in many instances is medical absorption.

Medical absorption:

“Arogyapacha enters modern pharmacopoeia as a safe, anti-stress, anti-fatigue, appetite promoting and restorative tonic.” – AVP brochure.

In the process of ‘validation’ the drug was interpreted with concepts that are different from those of Kanis. In the AVP brochure it is stated that Arogyapacha has entered ‘modern pharmacopoeia’. What is modern pharmacopoeia? Of course it is not the one of modern science as the product is promoted as an Ayurvedic formula. But then is it a pharmacopoeia used by people having non-traditional life styles?

In the process, there was an effort by the Ayurvedic community to reinterpret this plant as one of the celestial plants named Varahi mentioned in one of the oldest classical texts available Susruta Samhita (300 BC). The Ayurvedic physicians working in the ethno-medical department of TBGRI described the features of the plant in Sanskrit and correlated it to Varahi. According to one of the scientists of TBGRI:

“All the morphological features of Varahi match with Arogyapacha. You may know this sloka (Chants the Sanskrit verse) ..... Krishna sarpa svaroopena varahi kanda sambhava- having the shape of black snake varahi grows from rhizomes.... Ekapatra mahavirya bhinnanjana samaprabha - it is one leaved with full of qualities and the colour is similar to that of anjana. We have substantiated this finding with various pharmacological tests. So now I have a firm conviction that Trychopus is Varahi. You may disagree with this point. But there is no Ayurvedic body to agree or disagree to this proposition. Till 16th century there was a very comprehensive system among Ayurvedists to incorporate new species to pharmacopoeia. Now there is nothing. All the drugs were added to pharmacopoeia by consulting village vaidyas, local healers. Haven’t you read about this Caraka Samhita (Chants the verse)? Ousadhir namaroopabhyam...... But now there is no such work. I see lot of new plants during my field visits. But how can I include all these new ones to Ayurveda. We should start serious work in this direction.”
This was the reason why one of my informants strangely asked me, whether I am an Ayurvedist. There have been many instances where local health knowledge has been absorbed to Ayurveda. It is debatable whether there existed a healthy relation between the loka (local knowledge) and the sastra (Indian sciences as popularly used) in the past. But there are many activists who are antagonistic about the idea of nurturing sastra with loka knowledge. It is quite evident in Kerala that after the revitalization movement of Ayurveda in the early twentieth century, local health traditions have got merged into the classical streams. Two years back the organization I am working in conducted state level local healers conferences in three Southern states of India. More than three hundred people participated in the meeting both in Karnataka and Tamil Nadu. While in Kerala the attendance was as low as 30 people. Thus local health traditions have become redundant and scanty in the state of Kerala. K.M. Panikkar in his work titled “Indigenous Medicine and Cultural hegemony: A Study of Revitalization Movement in Keralam” highlights this issue. He says that the professionalisation and standardization that the movement of revitalization attempted adversely affected the popular medical practices of non-literate groups as they belonged to economically and socially subordinate castes and classes (Panikkar 1994: 34).

Generally there is a feeling that only Western biomedicine absorbs traditional knowledge. But there are many instances where in the traditional streams itself, a system belonging to better structural superiority absorbs the lower ones. This reveals the reinterpretation or medical absorption (Lee 1982:181) of little traditions by the greater traditions. The person who commented me on my Ayurvedic background was involved in the revitalization of tribal knowledge. Later I realized that his past association with Ayurvedic community had given him some bitter experiences of such absorption.

According to the industry it was necessary to reinterpret Arogyapacha as Varahi. One of my informants from AVP told:

“To get a drug license it (reinterpretation as Varahi) was necessary. We have to show the identity of the plants in any formulation if it has to be prepared by an Ayurvedic industry. Who will accept this formula if this is a new plant?”

Later this plant was combined with an existing Ayurvedic group of plants before it was sold to an Ayurvedic industry. This was a conscious step taken, as they wanted to transfer the technology to an Ayurvedic industry. Jeevani, now is being marketed as an Ayurvedic product. It has been promoted as an anti-fatigue, anti-stress, appetite promoting, and restorative tonic. Based on this, TBGRI argues to protect them selves from the accusation of “bio-piracy” that, as the plant is only one of the ingredients in a bigger formulation the tribal people’s knowledge forms only a part of this formulation.

There were also some conflicts regarding the name Arogyapacha as well. Arogya, a Sanskrit term means health and pacha a Malayalam term means green. Thus Arogyapacha means a health green. When I discussed with one of my key informants he told me that it was a term coined by TBGRI. Another key informant of mine who was part of the 1987 team told that it was coined by the team of botanists. But from TBGRI, I got a different version that it is a name in the Kani tradition. But Eswaran Kani told that they call it as Thenchikka, Chattukkodi or Arnanakkan. As mentioned in the story in the beginning, he went into the etymology of these terms, which were convincing. One of the
Kanis who revealed the knowledge said that it is he who put this name. Even though the origin of the word remains an unsolved puzzle, this reveals the reinterpretation of the knowledge in various ways.

**Change of meaning:**

The marketed formulation is quite expensive, Rs. 160 for 75 grams bottle, and can be only afforded by rich. Thus its meaning of local knowledge has changed. This drug has been separated from the knowledge and practice in which developed and have been diffused rather independently (Van der Geest and Whyte 1988:9). The knowledge, which is a free flowing commodity in Kani cultural context has been transformed into a private property of the industry. Mayor (1999:2) in his work “Globalization and Identity” describes this as global flows and cultural closure. The flow of goods out of cultures also leads to cultural closure of its identity.

From a remedy for quenching hunger it has been transformed into an energy boosting, anti-fatigue drug or as a sportsman’s drug. According to Arya Vaidya Pharmacy product development brochure:

“It wouldn’t take long before Arogyapacha starts eating into the billion dollar international market of ginseng. More than $ 375 million worth of raw Korean ginseng are sold every year. We expect our product to do better.”

From the overwhelming statements equating this plant to Korean ginseng and cocaine, we can understand that now it has been promoted basically for its commercial potential. There is a strong argument that products such as Jeeyani are not essential drugs in the market and very basis of their existence seems to be corporate gain (Anuradha 2000:27).

Another issue that should be addressed is valuing the local health knowledge. This is an area in India few organizations are working on. The traditional knowledge is embedded deeply in a cultural context. There are different values attached to it. Is there still a possibility to value this traditional knowledge as an economic resource? Can Arogyapacha knowledge be valued for Rs.10 Lakhs and who will decide this? Can the Kanis negotiate with a corporate buyer on equal terms? According to Kanis they did not have any say in this deal. Memorandum Of Understanding between the TBGRI and AVP does not mention any involvement from the Kani people (Anuradha 2000:14). The clause “fair and equitable benefit sharing” is not clearly defined in CBD (Anuradha 2000:4). This remains one of the big hurdles in bio prospecting.

The issues discussed above have made substantial changes in Arogyapacha related knowledge. Now let us look how this local knowledge related issues are addressed in the International and National policies. In CBD, there is no differentiation between the codified and non-codified knowledge. These are not differentiated in the new National Bio diversity Bill too. Thus in India, if a private Ayurvedic company commercializes the local knowledge that is also present in the Ayurvedic texts, CBD or NBA cannot provide any protection or benefits sharing. In the Kani case, one can see such overlapping of great and little traditions. According to CBD individual or community local knowledge is a national property. According to this before documentation a prior informed consent of the carriers of knowledge system is mandatory. Of course, the bio-diversity and the resources can be declared as a collective
property. But it is questionable how the knowledge at individual or community level can be the property of the entire nation.

As CBD is basically a resource-based mechanism, the knowledge also attains a collective status. CBD clause 8(j) mentions “knowledge relevant for conservation and sustainable use of bio diversity” as a prerequisite for benefit sharing. But CBD does not mention about terms of benefit sharing if the commercialized knowledge is other than which is related with conservation. Another issue is, in case, the local individual or community denies sharing the information what is the mechanism to protect such knowledge? Yet another issue is that as there is no complete inventory of the knowledge in the local communities about the resources, it is difficult to decide the real carriers of knowledge. As in this case if any community in Malaysia and Sri Lanka, where Arogyapacha is grown, makes claims about their knowledge on Anti-fatigue effect of the plant AVP may have to provide benefits to those communities as well.

According to national act “direct monetary benefits shall be deposited in the National Bio-diversity Fund except in cases were biological resource or knowledge is accessed from specific individual(s), or group of individuals, or organizations, in which case the money could be directly made over to such providers of resources in accordance with the terms of agreement” (NBA 2000). Here there is lack of clarity regarding the individual sharing of knowledge were the transactions are directly with the individual(s). This can cause confusion as this gives freedom to the individual to share the knowledge and benefit from it. But here in the Kani case, the sharing of knowledge was done by only few individuals, but the benefit is transferred to the whole community.

4.4 Access to resources and Bio prospecting

“Even a leaf blade should not be collected from the reserve forest area. According to the Forest conservation act 1980, cultivation of medicinal plants in forest areas is also banned. So how can we allow cultivation or harvesting?”

- One of the informants from the forest department

“The most unfortunate thing that has happened in this case is that government has taken a complete negative attitude. Instead supporting this whole pioneering effort made by this country (of sharing benefits to indigenous communities), they have taken a position completely against.”

-An informant from Arya Vaidya Pharmacy

Rights to resources get great attention, as the major objective of CBD is conservation of resources. In this chapter the issues that came up about resource utilization and rights when the bio prospecting of Arogyapacha was done, will be discussed. I shall discuss five sub-themes such as access to resources, illegal trade, value addition, and social life of resources and conservation of resources. I shall try to relate these issues to the national debates on resources and my own personal experiences working in this field for last five years.

Access to resources:

As stated earlier in the introduction, In Arogyapacha case, the cultivation or wild harvesting of the plant is in a stalemate situation due to the forest department’s ban.
When I discussed with Gangadharan of Arya Vaidya Pharmacy he said that their industry has a capacity to produce 30000 bottles per day but they are now producing only 3000 bottles per month. He also said that there is very high demand for Jeevani in the domestic as well as export market, but they are not able to produce according to the demand because of lack of raw material supply. According to him they are getting Arogyapacha from the nurseries of Thiruvananthapuram. He also mentioned that they are getting the plant from Tamil Nadu area, the adjacent state to Kerala. When I discussed with one of my key informants, Parvathi, I could understand that the Arogyapacha available from the nurseries are mostly illegally traded plants from Agasthyamala area. She was of the opinion that nurseries cannot grow this much quantity outside natural habitat. AVP offered Kanis a good sum of amount for cultivation the plant. But it did not work out. Tissue culture was not successful as the leaves grown through that process are very small. Need of fresh experiments and huge investment for proving the efficacy of tissue-cultured leaves has made AVP lethargic. Even though they tried to do cultivation of the plant, it did not grow well in other areas outside its natural habitat.

Forest department is quite adamant in its position of not allowing the Kanis to collect the plant. Kanis were given financial support from the IRDP project to cultivate the plant. But when they harvested the plants and took it for sale, they were stopped at the forest check posts. The reasons for forest department’s ban for collection of Arogyapacha are manifold. First of all Arogyapacha is an endangered plant. According to Ved, Research Coordinator at the Foundation for Revitalization of Local Health Traditions:

“"Arogyapacha (Trichopus zeylanicus subsp. travancoricus) is endemic to Agasthyamala in India. As per our rapid assessment methods to ascertain threat status of medicinal plants, we have grouped Arogyapacha as a critically endangered plant. We have done this as per IUCN (International Union for Conservation of Nature) guidelines. As per that if the plant grows only in a small area (i.e. less than 1000 square Kilometers) and if there is over harvest of the same, it falls into the category of endangered.”

Secondly, Arogyapacha grows in an area which is a reserve forest called Agasthyavanam biological park in Kerala. Thirdly, Arogyapacha is not a notified plant under the Non-Timber Forest Produce (NTFP) of the forest department. Tribal people who live inside the forest can only collect the government notified medicinal plants. As Arogyapacha does not fall under this, forest department cannot permit collection of this.

Indian laws prior to CBD such as wildlife law 1972, Forest Conservation Act 1980 or Environment Protection Act 1985 do not provide terms on which access to country’s biological resources or related knowledge could be granted to outside agencies like industries. These acts also do not have mechanism for protecting local people's rights to resources. Similarly the Kerala Panchayat Raj Act 1994, the new governance system (see appendix 2) does not contain any specific provisions about means to access resources within a Village Panchayat area (Anuradha 2000:7). Rights to resources for local peoples also form an unsolved issue in the newly drafted biodiversity bill. When I

16 This was a project, which was envisaged in 1980s to make the entire Agasthayamala region a protected forest. This project could not be operationalised as the people living in these areas had to be evacuated. There was wide spread people’s protest against such a move and it had to be called off.
attended the recent final national bio diversity bill (NBB) discussion, I could understand that no move in this direction is taken in the NBB. In the absence of other legal mechanisms bio prospecting in India would have to face such issues.

It is clear here that CBD is based on ideas of resource base revitalization i.e. conservation of bio-diversity resources. From the clause in article 8(j) “relevant for conservation”, it is evident that CBD remains an offshoot of the environmental concern that developed in the late 20th century in the western industrialized countries (Abram 1998:1). But as part of this “green concern”, there has been an effort to re-examine the development ideologies and discourses of the west. CBD only indirectly addresses the related traditional medical knowledge base and the cultural base as part of the conservation process. Hence access to resources is an important subject under CBD.

One of the major handicaps in CBD is that, it does not provide right for communities to control access to their lands and resources. In the case of Arogyapacha the other national or state rules on rights resources and land are not matching with the CBD directions. CBD has also transferred the sovereign rights of biological resources and related knowledge to the nation states by affirming “Subject to national legislation….”. When the nation has the sovereign rights to the resources and related knowledge the indigenous or local communities are powerless.

Illegal trade:
Meanwhile when the collection of Arogyapacha is in a stalemate situation, there is high rate of illegal collection of this plant going on. Two years back a very high quantity of Arogyapacha saplings was confiscated from a nursery at Vithura, Thiruvananthapuram. According to one of my key informants:

“I feel very bad about Kani people. Once forest department stopped from taking Arogyapacha out of the forest areas of Agasthyamala. When I met Sasi Kani at Bonakkad, he told me that the officials destroyed the whole lot of Arogyapacha, which was taken out by Kanis. But according to them (forest officials) they have planted it again in the forest. But see the problem is not that. Now there is very high illegal collection of Arogyapacha going on. You can get plants for a high price from all the nurseries here in the city. Kanis are not involved in this. Now they cannot collect it. But these are non-tribals who are collecting it. Kanis are deprived of their basic rights.”

According to the forest department also the non-tribal people are involved in illegal trafficking. According to one of the forest guards Mani:

“This is a large forest area. How can we monitor people taking head loads of Arogyapacha through some route? If these are big trees then we could trace it. These are small plants. It is very easy to carry them from the forest. It is very difficult to have a policing. Kani people are very poor. They don’t have proper food to eat. At times when I see them taking small head loads, I allow them to take it. It will fetch them small income.”

There are merciful guards and rangers who allow small-scale collection of Arogyapacha. But this does not fetch anything worthwhile to the Kanis. Due to the forest department policies Kani people’s right is taken over by non-tribal people. Another topic of relevance in this context is the exploitation of local people by the non-kani people in this area. When I discussed with the eco-development program staff, they told that there is
high rate of illegal spirit distillation in these settlements. These are promoted by the non-
Kani people.

“Outsiders influence Kani people and do distillation (charayam vattu) in their settlements. Now
80% of Kani settlements have this business. There is high rate of alcoholism in this area. This
has really affected the Kani people’s life. Now they hear whatever outsiders say. They collect
NTFPs including medicinal plants and give it to them (outsiders) for pittance. They also buy
other agricultural products of Kanis like this. There is also religious conversion going on in
this area.”

Kutiyettakkar (non-community members) popularly known in the local language
Malayalam have been exploiting local people like this. This factor is also promoting
illegal trade.

Value addition17:
As the raw material supply is in a crisis, TBGRI and Kani people were persuading
government to allow them to collect the plant and sell it to AVP. While discussing with
one of the forest department officials, he told me that forest department is thinking of
including *Arogyapacha* into the NTFP list. In a meeting in June 2000, forest department
along with SC/ST department and TBGRI members discussed this issue. Shortly it is
expected that Kani people would be able to collect it from the forest.

Meanwhile as the term of Arya Vaidya Pharmacy is expiring in 2002, SC/ST
department is planning to set up a company with public shares to process *Arogyapacha*. 
According to the SC/ST department, Kani people used to get only less money for the
plants they were selling. But if there is some mechanism for semi-processing the material
in the community itself, it can earn more income for the people. Kani people could be
involved in activities such as collecting, drying, pounding, powdering etc. Parallel to this,
the forest department is also planning a Joint Forest Management (JFM) program in
which semi-processing of *Arogyapacha* forms also a major component. But lack of
coordination between the different departments seems to be still causing bureaucratic
delays.

Value addition for the local resources is a major agenda for many non-
governmental organizations in India at present. It is expected that value addition can
provide more income to the local communities. But again a major concern is, as in the
case study, if the community has no access to resources then it cannot be materialized.
The organization I am involved with, has set up a community based enterprise which
would process and market locally available plant resources. It is noteworthy that there is
no mention about value addition in the National Bio-diversity Bill. This was one of the

17 Value addition refers to the increase in the value of a product (good) due to improvement in its quality or
form, increased storage life (can be stored and used over a longer time period and even during off-season),
or due to better transportation facilities (and hence product can be reached to places where it is
unavailable). In medicinal plants, this is a relatively new concept. Changing the form (processing) of the
plants is the only recognized form of value addition to date. It is being increasingly felt that value can be
increased by storing it in forms to increase the shelf life, hence staggered supply is possible even in off-
season and hence better prices can be realized over the time frame (Suneetha 1998).
recommendations during the recent NBB discussion. Value addition is also facing ideological struggles.

**Conservation versus Sustainable utilization:**
Conservation activists of bio diversity are not fully in agreement with the idea of wild harvesting of medicinal plants. This was evident in two of the meetings I attended. During the meeting a conservation activist was blaming the industries for not taking serious steps for cultivation. According to him:

> “Pharmaceutical industries are not interested in the idea of conservation. Ninety percent of the plants today used by industry come from wild harvest and destructive collection. But there is very marginal investment by these people (industries) in conservation. But they are capitalizing and striving on the ideas of green health. At this rate if it goes, our bio-diversity will be gone soon. Already it is in a vulnerable situation.”

Out of the 7500 plants used in the local health traditions around 3500 plants are known to industry (Anand 1998:17) and around 700 are highly traded in the market (FRLHT, personal communication). Propagation techniques or agro-technology is still in a stage of infancy in relation to medicinal plants in India. As in the case of *Arogyapacha*, developing new regeneration techniques are expensive propositions. At the national level only recently conservation of medicinal plants has become an agenda. One of the ongoing programs of the organization where I work is medicinal plant conservation. One of the issues we frequently address in the context of sustainable utilization is a demand supply crisis as there is no regulated market for medicinal plants. Now in medicinal plants, the situation of exchange setting is like a bazaar where the quality and the appropriate valuation of goods are not standardized (Appadurai 1986:43). Last year central government has set up a Medicinal Plant Board, which is expected to formulate strategies for a regulated market. But as in the case of *Arogyapacha* a balance between conservationists and industry is yet to be realized.

**Chapter 5. CONCLUSION**

As mentioned in the story in the beginning, *Arogyapacha* is continuing its relentless
journey. In 1987, after Kani ‘secrets’ were shared to the outsiders, Arogyapacha has gone through different phases. From the forests of Agasthyamala it has reached the crowded shelves of city pharmacies. It has also made its way to the bio diversity policy discussions at national and international level. Arogyapacha has brought much fame to the scientists and the Kani ‘guides’ which would not have been possible through any other means, it has also generated envy and petty egos among scientists and social workers. Arya Vaidya Pharmacy’s altruism to support the indigenous communities has boosted their market appeal. Now Arogyapacha is known to most Keralites. Publication about Arogyapacha has appeared in many national and international publications. Arogyapacha’s fame has crossed frontiers of the country as it has become familiar even to the body fitness magazines in New York and Bangkok. It has received pampering and protection from the forest department. It has also instilled a sense of cultural identity of Kanis at least in Chonampara area. At the same time it has given rise to conflicts too. Arogyapacha has generated litanies on sanctity and sacredness of Kani knowledge. Thus the social life of Arogyapacha has changed in a major way.

Arogyapacha is making an envious journey. It has attracted many people on its way. It was understood that different stakeholders have different interests in the issue. For Kanis, it is a question of livelihood. In the Kani community itself, for those who are well off like the Vithura Panchayat president and Njaaraneeli healer, it is a question of their community’s ‘code of ethics and sanctity’. TBGRI’s interest is to get fame and reputation by developing a benefit sharing ‘model’. AVP is interested in corporate gain, but they are also interested in showing off their ‘conservation vision’. For KIRTADS and forest department this is an assertion of power.

This research has been an effort to describe the social cultural and political factors involved in a bio prospecting case of Arogyapacha and how these factors influence the cultural base, knowledge base and resource base, which are the three major focuses in the revitalization programs. This research also looked at how Arogyapacha case study relates to the national and international policies and debates in the area of revitalization of LHTs.

It was understood that there are two major ideological positions in the revitalization of local health traditions: bio prospecting and bio piracy. This has been observed from the national level debates to the community level conflicts. This has made major influence on the bio prospecting process. Why people take these two ideological positions in relation to LHT revitalization could be an area of future research. It is understood that these views are very much related to the social, political and cultural context. As mentioned earlier these views have many layers that are linked to the issues of medical pluralism in India i.e. the relation between great traditions and little traditions, interaction of Western sciences with the traditional systems, reminiscences of caste system, colonial past and the attitude of colonial rules towards LHTs and so on in India. Arogyapacha bio prospecting was highly influenced by these two ideological positions.

Even though bio prospecting has created an organizational support for Kanis by defining community and forming a trust, the future of this organization is still in ambiguous situation as there is no organizational vision in the trustees or members. In the process of sharing the benefits, there have been conflicts between different factions in the community. During the fieldwork, it was realized that this is not an isolated event which has started from the community, but as a result of the above mentioned ideological views
among the organizations involved in revitalizing LHTs. Bio prospecting of *Arogyapacha* has resulted in very limited per capita economic benefit to the Kani people. Real beneficiary are scientists with an increase in their reputation, research institution-TBGRI, industry with their increased market appeal and the opponents of bio prospecting with increased fame. Kani traditional governance under *moottukani* is no more existing. *Moottukanis* have become powerless as part of the cultural erosion. New governance system under the state government does not provide Kanis a platform for interaction among the community members. Lack of adequate governance structures in the community is one of the major issues observed in this benefit sharing. It was also understood that as ideas like benefit sharing enter into the community, parallel to this some other elements, which are new or alien to the community, also creep in. In this case the best example is the influence of state party politics in the trust and the benefit sharing process.

Bio prospecting came as an outcome of codification of the local health knowledge. Now the knowledge has achieved a collective status. It has also generated conflicts about the sanctity and sacredness of their knowledge and claims on the same. The knowledge has been validated outside its cultural context through parameters of an outside system. This has also resulted in medical absorption. There is also a change in the meaning of their knowledge. It is understood that this process has made tremendous change in the *Arogyapacha* based knowledge. A broad conclusion that can be derived from this is that, in a bio prospecting, local knowledge is absorbed, altered and gets eliminated in its original form and local cultures weaken due to such absorption.

Lack of access to resource has become a major hurdle in production of *Jeevani*. Forest department has made a complete ban on cultivation or collection of *Arogyapacha*. This has generated illegal trade by non-Kanis of *Arogyapacha* from the forest areas of *Agasthyamala*. Outsiders are also taking advantage of Kanis and persuade them to do this illegal trade. Forest department was slightly adamant in their view to protect the plant, but now there is a plan to make it NTFP. They have also a plan to make value addition by establishing semi-processing units in Kani community areas. Here the major issue is the contest between conservationists and people who are involved in utilization. Issues like rights to resources for indigenous communities are not directly under the mandate of CBD. This issue remains unsolved as CBD gives sovereign rights over resources to nation states. As other rules and regulations in the state have not been matching with CBD’s sustainable utilization frame, the issue remains unsolved. Bureaucracies, lacks of co-ordination and misunderstanding among different government departments as well have affected the benefit sharing process. If the national or state level bodies are not working in coordination in connection with CBD guidelines, as in the case of *Arogyapacha* benefit sharing will have many hurdles.

Thus there are varied impacts on the cultural base, knowledge base and resource base in the process of benefit sharing.

At the level of CBD, the focus is much more on resource revitalization. It only indirectly addresses the related knowledge and culture. When I relate this case to CBD, an interesting insight that comes out of the research is that the resources base, knowledge base and cultural base form the priority in the respective order in the national and international revitalization agenda. Both at International and National level, there is lots of investment for protection of resources. Even though to a lesser extent, knowledge base
also gets attention in the form of documentation or codification, validation and utilization. But erosion of cultural base is the last priority. This was clear in the Kani case as well that there is no serious attention given to erosion of culture. But there is lip service paid on this topic in the form of rhetorics on sanctity, sacredness and traditional life styles.

According to CBD, benefit sharing has a pre-requisite of indigenous communities embodying traditional life styles. Due to the erosion of cultural base, there are social changes in the Kani community and it cannot any more be called as an “indigenous or local communities embodying traditional life styles”. If CBD directions were strictly followed Kani benefit sharing would be out of the purview of CBD.

From this it is understood that these three different aspects of local health knowledge is conceived, valued and policies are implemented in different ways at different levels of social integration. At the national level there is very less attention for revitalizing local health traditions. The meanings attached to the culture, knowledge and resources are changing when LHTs move from their cultural context. Similarly the ideas in the CBD such as “respecting local knowledge and benefit sharing” are also changing when it comes to lower levels.

CBD focuses more on commercial utilization and access to industry of indigenous knowledge or traditional knowledge and not concerned with revitalization of local cultures that have sustained bio-diversity for centuries. Much more benefit should come from revitalization of LHTs for the local communities. India has a rich biological diversity as well as diversity of medical cultures. Around 7500 plants and their uses recorded from 4638 ethnic communities in different parts of the country. This should be used not only by industries, but also for strengthening healthcare and self-reliance of local communities. CBD should have not only talked about access to commercial dealers but more importantly the need for these revitalization bodies to invest in local cultures for self reliance and sustainable livelihood of local communities.

As mentioned earlier, it is clear from the study that cultural compatibility of benefit sharing ideas are very important. As cultures are diverse there cannot be a single mechanism. For understanding the cultural context, rigorous cross cultural dialogues are necessary before initiating any such bio prospecting activity.

Convention on Biological Diversity, National Bio diversity Authority and the state level bodies in India are still in the process of consolidation. In this context, Arogyapacha has already revealed many issues that can be taken up for the future benefit sharing agreements. As it continues its journey there will be many more, in the years to come.

Appendix: 1  Definitions of key terms

**Benefit sharing** is the equitable sharing of benefit gained out of commercial utilization of indigenous knowledge, with the indigenous communities as per CBD.

**Bio-diversity** includes the variety of plant and animals, both wild and domesticated. It also refers to the variety of habitats they inhabit such as forests, grasslands, water bodies, cultivations, habitations, and barren areas.
Bio piracy is a term used to denote piracy of biological diversity resources or related knowledge without the consent of the local community who uses it.

Bio prospecting is utilization of bio-diversity related knowledge in a way, which is beneficial to all stakeholders.

Codified Systems of Medicine refers to the traditional systems of medicines like Unani, Tibetan, Siddha, and Ayurveda with written documentation or codified texts. This is also called Indian Systems of Medicines (ISMs) as it is used by the government of India.

Commercialization or commercial utilization here refers to the utilization of local health knowledge for commercial purposes outside its cultural context.

Convention on Biological Diversity (CBD) is the International convention signed at the Earth Summit at Rio de Janeiro in 1992 at the United Nations Conference on Environment and Development seeks to protect the rights of indigenous people and enjoins governments to enact laws for documenting traditional knowledge and preventing its unregulated use. CBD tries to introduce a balance between indigenous rights and the commercial utilization.

Cultural base refers to the cultural factors of a local community that are related with Local Health Traditions.


Knowledge base refers to the knowledge related with LHTs

Local health Traditions (LHTs) refers to the non-codified, oral, eco-system and ethnic community specific, local resource based health traditions.

Local health knowledge refers to the related traditions. LHT is a broad term that includes the knowledge base, resource base and cultural base.

Multi-level perspective is a research perspective studying the same phenomena or concept at different levels of social integration to get a comprehensive understanding of the phenomena or a concept with its vertical, horizontal and time linkages.

National Bio-diversity Bill (NBA) 2000 is the Indian national act based on the CBD. National Bio diversity Authority (NBA) is a national governing body as per the above bill.

Resource base here refers to the plant, animal and mineral resources those are included in the materia medica of LHTs

Value addition refers to the increase in the value of a product (good) due to improvement in its quality or form, increased storage life (can be stored and used over a longer time period and even during off-season), or due to better transportation facilities (and hence product can be reached to places where it is unavailable). In medicinal plants, this is a relatively new concept. Changing the form (processing) of the plants is the only recognized form of value addition to date.

Appendix: 2

Profile of the Stakeholders

Kani community, Tropical Botanical Garden and Research Institute (TBGRI) and Arya Vaidya Pharmacy (AVP) are the main stakeholders in this case. Apart from this Kerala
Institute for Research, Training and Development of Scheduled Castes and Scheduled Tribes (KIRTADS), State Forest Department are also involved in the Kani case.

1. Kani community

The Kanis, also known as Kanikkar, an indigenous tribal community in Southern India, live in the tropical forests of the Western Ghats. The area Kanis inhabit is known as Agasthyavanam, one of the richest forest areas of peninsular India. Kani people are spread out in two South Indian states, Tamil Nadu and Kerala. They speak a mixture of two languages, Malayalam and Tamil. In Kerala state Kani people are spread out in three districts such as Thiruvananthapuram, Pathanamthitta and Kollam. In the Thiruvananthapuram district, according to a 1991 census, Kani population is 16,181. This forms 1.8% of the total population of Thiruvananthapuram district. There are very few houses in most of the Kani settlements. They are spread out in a large area.

Traditional Health Knowledge:

Kanis are now well known for their healing tradition. Pathi (medicine man) is the repository of all medical knowledge. Plathi used to form an integral part of all Kani rituals. The services rendered by Plathis were free. It was believed that if plathi receives something from an ill person he cannot cure effectively (Shashi 1995). Now as the rituals have become less and the government health centers have become more accessible, plathi’s role has become less important in the community.

Socio-economic status:

As part of the recent Eco-development program detailed socio-economic data has been collected from Kani settlements. According to this, each settlement of Kanis has around 100 members with almost equal male, female ratio. Even though these villages are situated in deep forest, this is area is a relatively a developed area. 80% of the houses have electricity connection. Families are small. Around 25% of the families have only 3 members and 50% have 4 members and around 16% of families have 5 members. Children (below 10 years) cover 20% of the population. Youth (between 18-30) cover around 30% of the population. People above 50 years cover 7-8%. 25% of the people in this area are involved in daily wage labor. Around 5% are involved in Agriculture. Around 65% of families have 2-4 acres of land. The houses (around 70%) are built with locally available materials like palm leaves, clay tiles, hay and coconut leaf. Few houses are roofed with asbestos or tar sheets. Radio, tape recorder, T.V, cloaks are luxury items in very few houses here. Yearly income of 60% of houses is below 10,000 rupees. 30% of houses have income between Rs./= 10,000-25,000 (Eco-development program report).

Agriculture:

Main income in this area is through daily wages and agriculture. Kani people in this area were traditionally nomadic agriculturists. They used to do migratory cultivation in hilly areas and in the low land permanent. Main crops were rice, ragi, tubers like tapioca, vegetables and plantain. Now they have switched over to cash crops like pepper, areca nut, rubber, and coconuts. They also rear goats, chicken, cow and pigs. Individual lands were not used to be recognized. But after government provided each family private land, this system has changed. Traditionally Kanis used to practice collective free labor, which is no more practiced (Karunakaran1989, Sebastian 1999).
Illegal spirit distillation is a main activity in Kani villages in nearly 80% of these houses. Fishing in near by dams is also an income for Kanis. Many families lease their lands to the non-tribes for meager amounts. Government gives financial support for constructing houses, building toilets, electricity connection. They also get support for agriculture. Many also collect non-timber forest produces like gooseberry, garcinia, honey and few other species and sell it in the market to medicine making people (Sebastian 1999).

Health status:
Goiter, liver disorders, mental disorders, asthma, eye problems, leprosy, tuberculosis, respiratory disorders are few disease conditions reported in this area. Health services are available in Kani villages.

Governance system of Kanis:
The Kani community structure has traditionally been that of a highly coordinated unit under the control of a tribal chief called Moottukani. He combined the roles of lawgiver, protector and dispenser of justice and priest. However over the years, this traditional system of governance has been eroded and the role of tribal chief is now only a token one. Now the Kani families are dispersed and are not a cohesive unit though they do share some common characteristics. The present local governance system in this area is under the Pachayati Raj system of government of Kerala, a decentralized system of governance. Under this there is no formal mechanism or institutional structure for the Kanis of different areas to interact with one another (Anuradha 2000: 6-7).

In this case study Kani people form an important part. Kani people shared the knowledge about Arogyapacha to the TBGRI scientists. When a product was made out of this know-how and the technology was transferred to AVP, TBGRI made a benefit sharing arrangement between the Kani community and AVP.

2. TBGRI

Tropical Botanical Garden and Research Institute is an autonomous body registered under the societies registration act established by the Government of Kerala in 1979. Ministry of Environment and Forest, Government of India accorded the status of grant-in-aid centre of excellence in Conservation and Sustainable Utilization of Tropical Biodiversity to TBGRI in March 1997. The garden system and the Research and Development system are two functional links of TBGRI. Spread over 300 acres, Garden system of TBGRI reckoned as the biggest conservatory garden in Asia with 7000 tropical plant species. There are special conservatories of rare, threatened and endemic plants. The medicinal plant collection includes wild lesser-known plants used by indigenous communities. Apart from this there is a National gene bank of Medicinal and aromatic plants of tropical region of India established under the aegis of the organization of G-15 countries is located at TBGRI. The over all R&D activities of TBGRI are geared to achieve the most tangible results of conservation as well as development of value added and product oriented sustainable utilization of plant genetic resources of the region. The R & D programs oriented to accomplish these ultimate objectives are therefore integrated and multi-disciplinary in nature, involving the most pertinent components of survey,
exploration, collection introduction, characterization, documentation, conservation and economic evaluation of the tropical plant diversity in India.

Highly co-coordinated multi-disciplinary research system of TBGRI streamlined through the following divisions. Plant systematics and evolutionary science, plant biotechnology, micro-biology, conservation biology, ethno-pharmacology and ethno-medicine, phytochemistry, ecological economics and environmental planning, computers and information technology and eco-education.

Role of TBGRI in this case was to document the local knowledge, to research on the plant *Arogyapacha*, to do the technology transfer and to tie up with the Kani community for benefit sharing.

3. Arya Vaidya Pharmacy:
Arya Vaidya Pharmacy (AVP) is a well-known Ayurvedic drug manufacturing company of South India that is producing Ayurvedic drugs since 1948. Arya Vaidya Pharmacy produces 600 Ayurvedic formulations with a turn over of around rupees ten crores\(^\text{18}\) (100 million) per year. AVP has nearly 400 medicine dispensing outlets all over the country with 12 branches managed directly by the company. AVP has also got an Ayurvedic hospital, research center and an Ayurvedic college offering graduate course in Ayurveda. AVP manages various projects on clinical research, drug research and conservation in collaboration with national and international bodies.

AVP got the technology transfer of *Jeevani*, the product developed from *Arogyapacha* for 7 years starting from 1995 to 2002. They also gave the royalty and a percentage of the ex-factory price to TBGRI of which half had to be given to the Kani community.

4. KIRTADS
Kerala Institute for Research, Training and Development of Scheduled Castes and Scheduled tribes is a government body under the Scheduled Castes and Tribes development ministry. The objective of this body is to conduct research and intensive study on the scheduled castes and scheduled tribes population of Kerala so as to understand the problems and the needs. They also make suitable recommendations that would facilitate speedy process of SC/ST development. Considering the socio-economic and cultural aspects of development, KIRTADS has constituted three separate wings for research, training and development studies. KIRTADS comes under the Scheduled Castes and Scheduled Tribes department of Government of Kerala. Even though it is a state body partly it is supported by the central government.

KIRTADS is quite active in revitalization of tribal medicine in Kerala. As part of this they trained 125 healers from different tribal communities of Kerala and these healers are practicing in different parts of the state. KIRTADS also undertakes research on efficacy of tribal medicines with the help of Regional Research Laboratory.

As KIRTADS objectives are related to the tribal communities in Kerala, they got involved in this case.

5. Forest department

\(^{18}\) Crore is a denomination used in India to denote 10 million.
Arogyapacha is an endangered plant. This is not included in the Non-Timber Forest Produce notified list of forest department. Kanis are living in the reserve forest area. Due to these reasons forest department banned the collection and cultivation of this plant. Thus they got involved in this issue. Now they have initiated a Participatory Forest Management Program in which cultivation and value addition of Arogyapacha is one of the components.
### Details of Informants

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