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African indigenous knowledge: dissemination of IK related information in the Onderstepoort Veterinary Institute Library and the Jotello F. Soga Library, Faculty of Veterinary Science, University of Pretoria

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Abstract

In 2008 the South African government released an official policy on indigenous knowledge systems (IKS). After years of Eurocentric approaches in veterinary research, indigenous knowledge was brought to the forefront after 1994. The paper starts with some definitions on the concept of IK. An overview follows on work done within the “Animal Health for Developing Farmers” research project at the Onderstepoort Veterinary Institute (OVI), that draws on indigenous knowledge. The OVI is a division of the Agricultural Research Council (ARC) of South Africa.

The OVI Library had to position itself for service in this field. Aspects to consider were the collection of appropriate information (which was nearly non-existent) and cataloguing and indexing of information (traditional print media and electronic media).

Since 2002, a group of historians from the Wellcome Unit for the History of Medicine, UK has been researching the history of veterinary medicine in South Africa. Their needs are discussed too.

The following types of information are described: information purposely written as IK, sources from which IK can be harvested, and the theory of IKS. The problem that much of the IKS literature is “grey” and therefore not easily available, is discussed.

The role played by the Jotello F. Soga Library of the Faculty of Veterinary Science, University of Pretoria (UP) in locating, preserving and making accessible IK sources in the field of Ethnoveterinary Medicine is described. This includes the digitisation of rare slide items, creating web portals, and providing information support to researchers of the Phytomedicine Programme of the university. This programme is described as it plays an essential role in validating and ensuring the safe use of indigenous plants in human and animal medicine.

Introduction and definitions

The United Nations Environmental Programme defines Indigenous Knowledge as follows:

“Indigenous Knowledge (IK) can be broadly defined as the knowledge that an indigenous (local) community accumulates over generations of living in a particular environment. This definition encompasses all forms of knowledge – technologies, know-how skills, practices and beliefs – that enable the community to achieve stable livelihoods in their environment. A number of terms are used interchangeably to refer to the concept of IK, including Traditional Knowledge (TK), Indigenous Technical Knowledge (ITK), Local Knowledge (LK) and Indigenous Knowledge System (IKS)” (1).

UNESCO proposes several definitions: “IK can refer to the knowledge belonging to a specific ethnic group, for example: Indigenous knowledge is the local knowledge that is unique to a given culture or society. It is the basis for local-level decision-making in agriculture, health care, food preparation, education, natural resource management, and a host of other activities in rural communities. Another useful definition is the following: Indigenous knowledge is the information base for a society, which facilitates communication and decision-making. Indigenous information systems are dynamic, and are continually influenced by internal creativity and experimentation as well as by contact with external systems. Or: Indigenous knowledge is the knowledge that people in a given community have developed over time, and continue to develop. It is based on experience, often tested over centuries of use, adapted to local culture and environment, dynamic and changing” (2).
Within the South African Department of Science and Technology, a National Indigenous Knowledge Systems Office (NIKSO) was established. This office constructed an IKS policy that was adopted in 2004 by Cabinet. Other activities include supporting research in IKS through the National Research Foundation, liaising with higher education institutions to include IKS in curriculum development, a conceptual document on a Recordal System, and developing a strategy for public understanding and awareness of IKS.

Where traditional medicine is applied in the health environment, it is called ethnomedicine. In the animal health environment of the two institutions at Onderstepoort it is called ethnoveterinary medicine.

For a more exact definition, Köhler-Rollefson and Bräunig state: Ethnoveterinary medicine (EVM) considers that traditional practices of veterinary medicine are legitimate and seeks to validate them (3). Validation is the key issue, as the problem is that any medicine or knowledge is generally only accepted as valid after it was subjected to scientific methodology.

Validation is a very western concept though. Local people might have different ways of validating their medicine to the biomedical approach. IK fits into ideas about different cosmologies and ways of knowing.

The relationship between indigenous knowledge and rural development

Rural development in general is used to denote the actions and initiatives taken to improve the standard of living in non-urban neighbourhoods, countryside, and remote villages. In fact, development may be needed in any environment, but it is often administered in rural areas due to real or perceived underdevelopment. Underdevelopment is also often linked to poverty.

Where underdevelopment is linked to poverty, external developing agencies with funding step in. Such an agency may be a government or a non-governmental organisation. For many years colonial governments imposed their views on the areas, and indigenous knowledge was frowned upon. This continued into the post-colonial period. Funders were often Eurocentred, though countries such as Russia and China also played a role in the development of Africa. Therefore many of the initiatives were not successful.

Reasons for this, include:
- Technologies developed were not appropriate to address the problems of the communities.
- failure to fit in with local ideas about agriculture, medicine etc
- lack of knowledge about environmental constraints like climate, and soils. Ideas often based on policies/agricultural methods that might have worked in the northern hemisphere but are unsuitable for the ‘tropics’
- imposed from ‘above’ – so it automatically encountered resistance from communities because they felt dictated to
- failed to take into account the human factor e.g.: perceived development needs, labour supply, access to markets, gender issues etc
- lack of cash
- no clear benefits – so the people didn’t participate.

Later schools of thought included participatory development, which by nature included the use of indigenous knowledge, since the wisdom of the people living in the area under development, is obtained. Eventually actions are based on a mixture of indigenous knowledge and external knowledge.

Animal Health for Developing Farmers Programme

A research programme “Animal Health for Developing Farmers” has been in existence at the OVI for some time. Presently the institute is organized into 5 broader based programmes and development related research is no longer done in a programme with its own name, but there are individual projects within the broader programmes. Coordination of these and other projects in the Agricultural Research Council is done by a corporate programme for Sustainable Rural Livelihoods.

From the original website of this former programme, its aims were stated as:
The Animal Health for Developing Farmers programme at the Onderstepoort Veterinary Institute commenced in April 1998 with the specific aim of developing appropriate and relevant information modules on animal health at a suitable level for small-scale farmers.

The information modules consist of posters, slide presentations, written and cartoon type pamphlets (translated into all relevant languages), videos and electronic information modules.

They are designed to be delivered by those doing extension work with small-scale farmers (government, NGOs, education and research institutes, private sector, commodity organizations and farmers unions).

The programme is also involved in training of trainers (particularly animal health technicians), and identifying research priorities in animal health for small-scale farmers.

A whole range of pamphlets, posters, compact disks and videos were indeed being produced. However, it seems that these publications used mainly western information in its advice to farmers as far as treatment is concerned. There is a great emphasis on good management and prevention of diseases, including condition scoring. These type of practices can be administered by small-scale farmers themselves.

Regarding ethnoveterinary medicine specifically, the following is an overview on what the programme achieved during its existence.

An ethnoveterinary garden that was named after Jotello Festiri Soga was planted. Soga was the first South African professionally trained veterinarian and worked on toxic plants. The garden consists of various plants used in South Africa to treat animals. A steel structure nearby housed 2 posters, one on the plants and the other a biography of Soga. This structure was replaced by a monument in honour of Soga during the Onderstepoort centenary celebrations in 2008, consisting of a bust and a memorial wall.

Some ethnoveterinary surveys were conducted like Luseba & van der Merwe, 2006 (4), Van der Merwe, 2001 (5), and Van der Merwe, Swan & Botha, 2001 (6).

Some related articles by OVI scientists together with UP or other scientists include Spickett, Van der Merwe & Matthee, 2007 (7), Naidoo, Zweygarth, Eloff & Swan, 2005 (8), Luseba, Elgorashi, Ntloedibe & Van Staden, 2007 (9) and McGaw, Van der Merwe & Eloff, 2007 (10).

These complement other South African literature, more focused on ethnobotany and ethnomedicine. Areas studied include Madikwe in Northwest Province, the eastern parts of Limpopo, and parts of KwaZulu-Natal and the Eastern Cape.

The method used was usually Rapid Rural Appraisal. This consists of a series of techniques for "quick and dirty" research that are claimed to generate results of less apparent precision, but greater evidential value, than classic quantitative survey techniques. The method does not need to be exclusively rural nor rapid, but it is economical of the researcher's time. It is essentially extractive as a process. It usually consists of a prepared questionnaire, to which questions can be added or deleted as the researcher sums up the situation at the place of research during interviews. Field walks, where knowledgeable people point out medicinal plants, are also used. Both farmers and traditional healers were interviewed in the OVI study. It was found that traditional farmers readily transfer knowledge but the healers do not, since their livelihood depends on it.

Research at OVI was done on substances like garlic as tick repellent. Aloe extracts were also investigated.

Luseba, a former researcher at the OVI contributed to a book: Ethnoveterinary botanical medicine: herbal medicines for animal health(11). It covers aspects like:

- Combining chemical and biological information with pre-clinical data to provide complete coverage
- Presenting important information on the chemistry, biology, and toxicology of herbal products
used in veterinary practice

- Discussing issues of access benefit sharing, intellectual property, bioprospecting
- Addressing the gathering, archiving, and retrieval of information

The articles and book provide techniques to evaluate the efficacy of plants used in animal health care, addressing the challenges faced by researchers and practitioners in the field. They will contribute to the scientific foundation of ethnoveterinary medicine.

**Role of OVI library in the service to “Animal Health for Developing Farmers”**

The ARC-OVI Library had to position itself for service in this field. Aspects to consider included the collection of appropriate information (which was nearly non-existent).

Information on ethnoveterinary medicine seems to be scarce. Not so much information on indigenous knowledge systems, but the interface between the two, i.e. applied knowledge. Furthermore there was a total lack of information in general development studies. Some of these publications, covered ethnoveterinary knowledge while others did not, but both were needed.

CTA is an institution of the ACP Group of States (Africa, Caribbean and Pacific) and the EU (European Union), in the framework of the so-called Cotonou Agreement and is financed by the EU. The name is one of those that no longer has any meaning. That body has a wealth of information in the forms of books and electronic media. The OVI Library is a beneficiary. An exchange agreement with KIT (Dutch Royal Institute for the Tropics) also provides valuable literature.

Some books were bought in coordination with the AHDF programme. These were by nature very much the normal scientific type of handbook, just in fields that we had not covered, like pharmacognocy. The latter is the branch of pharmacology that deals with drugs in their crude or natural state and with medicinal herbs or other plants.

A problem was the lack of auxiliary type of information like information on indigenous breeds and practices of rural farmers. Work had been done before in this field, but reports on this seem to be semi-published or unpublished. Attempts are made to procure such documents and archive and index them. Some valuable information was published in former decades in the Onderstepoort Journal of Veterinary Research and the Journal of the South African Veterinary Association. Selected articles are indexed by the OVI Library, whilst the project by the Jotello F. Soga Library to digitize these journals in full text will enhance accessibility.

The resources can therefore be mainly classified into 3 categories: the generic theory of IKS, information purposely written to record ethnoveterinary knowledge, and sources from which IK can be harvested. Often screening broader publications is the only way to obtain information, as this is related to the methodology of history. Bits and pieces have to be joined together to form a picture.

**Wellcome Unit for the History of Medicine, University of Oxford**

Since 2002, a group of historians from the Wellcome Unit for the History of Medicine has been researching the history of veterinary medicine in SA. The first part of the research was a general overview, concentrating on the history of scientific progress in certain veterinary disciplines. A specific large project on rabies is now in progress. A similar project is funded by the British Economic and Social Research Council (ESRC). This will concentrate on the social history of veterinary medicine in South Africa from c1930 to the present. The grant runs until 2011 and one researcher has already paid the OVI an orientation visit and conducted interviews in the Eastern Cape. As from later in 2009, when the rabies project is completed, another investigator will concentrate more fully on the project.

The plan is to conduct a general overview of indigenous knowledge from publications, archives and general interviews and to follow up with a couple of case studies.
Oral history will form part of this project – interviewing local farmers, field veterinarians, dipping inspectors etc, to complement the archival material.

Possibilities include comparing a Tswana community in the North West Province with an ethnic group from another province. KwaZulu-Natal is interesting because of the ticks and nagana, and there exist catalogues of plants used for human medicine. However, the investigator already working on the project, used the Xhosa of the Eastern Cape Province as the first community as he is familiar with the area. Both the Xhosa and the Zulu ethnic groups are part of a group of nations called the Nguni. The Tswana may make an interesting comparison to the Xhosa as ethnically they are not Nguni, but part of the Sotho group of nations. They may have a different view of the world to the Nguni and the disease environment is different, like Lamsiekte, and some of the really toxic plants like gifblaar. However, the incoming investigator will still decide on what group to use.

They are also interested in documentation on veterinary policy in the former homelands, and especially veterinary policy since 1994. Dipping policies played a big role in veterinary history, and dipping has been rather uneven and certainly problematic for the livestock owners already interviewed. They are therefore looking for material that clarifies the nature and reasons for the policy. They also want to find out more about issues such as the swine fever measures and anthrax inoculation.

There are significant changes with the approach of the scientists. The Oxford historians will initially draw on the scientific writings cited above, but the rapid rural appraisal approach is not used. They use long, in depth interviews with rural communities, veterinarians and who-ever can contribute. The output will be qualitative rather than quantitative. They further use formats like histories of agriculture and rural development and ethnographies. As for the latter, an anthropologist called Isaac Schapera wrote extensively on the Tswana, for instance.

They are interested in looking at how ideas and practices have changed over time. Not being scientists they can engage more easily in a wider variety of ideas about the nature of disease and its causation. They are more open to ideas of witchcraft, divining etc as methods of understanding disease and medicine, regardless of how alien it may seem to their knowledge about health and disease (which is as western as that of the scientists). Historical analysis is more subjective as there is no assumption about ‘absolute truths’.

The project aims to provide information on such questions as, *inter alia*:

- local ideas about disease e.g.: do the Xhosa and Tswana have different understandings of the same disease? How have these changed as a result of education and veterinary interventions (dipping, vaccines, anthelmintics etc). Do they have concepts of germs and contagion? How are these ideas expressed? What about arthropod transmission – ideas about ticks and other vectors? How do they think dips, vaccines etc work – or do they?
- how have farmers related to the state over time (e.g.: there was a lot of opposition to dipping against East Coast Fever in the 1910s but the current investigator has found farmers in the Eastern Cape are complaining that the state is not doing enough to subsidise dipping and vaccines – so perspectives alter over time.
- who owns medical knowledge? Farmers, traditional healers, women, men, herders etc? How is knowledge passed down? How standard / controversial are particular practices? How specialised? How secretive?
- what plants are used – how are they prepared etc. How has that altered over time? The interaction between ‘local’ knowledge and biomedical practices needs more clarification.
- When do people decide to call out a traditional healer and when a veterinarian? How do they choose what medicine they use?
- changing gender roles in relation to land and animal management
- How did people adapt to land shortages, betterment policies etc and how does this fit into modern questions about land reform, communal land holding etc.
- ideologies of farming – commercial versus cultural ideas (e.g. value of cattle, lobola (a traditional dowry paid to the bride’s family by the groom)).
- ethnographic cosmologies – how does animal medicine fit into this and have ideas changed e.g.: the state of the gallbladder seems to be very important in making diagnoses in the Eastern Cape; but in some communities it is also linked to divining - so this is something they want to explore further.
**Role of OVI Library in the service to the Wellcome Unit**

OVI holds sources that are useful to historians, for example, journals that are not available in Britain, as well as books on the local use of plants. The Onderstepoort archive (that mainly holds correspondence) is rich in material for the period before 1960 and has been an important source of information on scientific research and veterinary policy for the early twentieth century. This, together with veterinary reports, other archival sources and scientific articles has provided a starting point from which historians can analyse changes in veterinary practices and biomedical techniques. All medical systems alter over time, including 'folk knowledge' and it is important to understand state-funded western medicine in order to be able to analyse the ways IK has altered and become hybridised as a result of interactions with state veterinary departments.

At the same time, because there is so little historical data on IK, this project provides significant new challenges to the OVI Library. The Oxford researchers were looking for reports of the former homelands or "bantustans". We learned from the former librarian of the old state department for administration of black affairs (which had many names), that such reports existed. They have made an effort to collect them systematically. The library of that department was disbanded with the department and we do not know where the stock went.

Without specific titles, it is very difficult to locate them in libraries. A keyword search on Sabinet, the South African bibliographic network, retrieved very little. Hopefully a trip to the Government Publication division of the University of the Witwatersrand will cede some useful sources. A further possibility is the archives of the provincial legislatures of the provinces in which the homelands were incorporated. Whilst carrying out field work, the historians will be interviewing veterinarians and perhaps district veterinary offices that may have kept documents which will shed some light on local veterinary practices.

Like the scientific contributions, the Oxford project will contribute to the foundation of ethnoveterinary medicine, but from the historical, sociological, cultural and political angles.

**Phytomedicine Programme, University of Pretoria (UP)**

As described on the webpage of the Programme (12):

The Phytomedicine Programme is a multidisciplinary and collaborative research programme investigating therapeutically useful compounds present in plants growing in South Africa. The programme was started in 1995 in the Department of Pharmacology, Faculty of Medicine, University of Pretoria by Prof J N Eloff. It was transferred to the Department of Paraclinical Sciences, University of Pretoria, Faculty of Veterinary Science, in 2002. In 2007 it was designated as a National Research Foundation Developed Research Niche Area. The programme has grown to one Research Fellow, four Post doctoral fellows, 17 PhD and 9 MSc students in 2008, with a quarter originating from abroad, mainly African countries and Europe.

The following aspects are covered on the webpage:

Research Vision, Justification, Research Areas, Staff, Collaborators, Research Funds Obtained, Industrial Development, Quality Control of Medicinal Plants, Postgraduate Students, Peer-reviewed Publications, Conference Presentations, Patents & Products.

This Programme won a contract from the European Union Centre for the Development of Enterprise (CDE) to produce a set of African medicinal plant standards (AMPS) for 21 Pan-African Herbal Medicines exported to Europe. They work closely with colleagues in the rest of Africa for this project. With funds from the CTA-EU they organized an international workshop in South Africa to evaluate the products of the AMPS project. Based on this workshop the AAMPS Association for African Medicinal Plant Standards was established with the aim to eventually produce an African Pharmacopoeia (13).
One of the first products of this funding was the launch of the African Herbal Pharmacopoeia at the Fourth World Conference on Medicinal and Aromatic Plants in Cape Town in November 2008 organised by the Phytomedicine Programme (14).

As described by McGaw, Van der Merwe and Eloff (10), ethnoveterinary medicine is a broad field covering people’s beliefs, skills, knowledge and practices relating to the care of their animals. A key objective of the scientific study of ethnoveterinary practices is the development and promotion of effective veterinary medicines based on inexpensive locally available plants. It is this scientific study of the researchers in this programme that the information specialists of the Jotello F. Soga Library support with relevant information provision services and products.

**Role of the Jotello F. Soga Library in service to the Phytomedicine Programme**

The role played by the University of Pretoria's Jotello F. Soga Library in locating, preserving and making accessible IK in the field of ethnoveterinary medicine consists mainly of providing information support to the Phytomedicine Programme of the Department of Paraclinical Sciences.

The following specialised services are provided:

**Slide collections**
- digitising unique slides of medicinal as well as toxic plants, and then uploading them in the slide collections of the relevant department in the university’s institutional research repository, UPspace (15).

Slide images of relevant plants are selected by lecturers or researchers in the department and they provide descriptions which will form the metadata. Using a template designed by the metadata editor for the collection on the DSpace repository, the items are submitted by student assistants. The submissions are reviewed by the information specialist for the department to ensure that the metadata fields have been entered correctly and to add information such as keywords and relevant web sites, if necessary. Final editing is then done by the metadata editor.

**Web portals**
- creating focused web portals, in conjunction with the researchers of the Phytomedicine Programme of the Faculty of Veterinary Science. For a description of the web portal for the Phytomedicine Programme see the paper by T. Coetsee and M. Nel, presented at 6ICAHIS on 3 September 2009 (16).

**South African National Veterinary Repository**
- digitising items for the South African National Veterinary Repository, for use of researchers worldwide. This is an open access repository, and only low resolution images are retrievable. Items from the Onderstepoort Veterinary Institute and from the Faculty of Veterinary Science, University of Pretoria are housed in this UPspace repository. Copyright is held by each institution for items belonging to the particular institution, and each item is marked accordingly (17).
  - Rights management is shown on the title page of each object. For example:

    Rights: ©Onderstepoort Veterinary Institute (Original) ©University of Pretoria. Dept of Veterinary Tropical Diseases (Digital) Provided for educational purposes only. It may not be downloaded, reproduced or distributed in any format without written permission of the original copyright holder. Any attempt to circumvent the access controls placed on this file is a violation of copyright laws and is subject to criminal prosecution. Please contact the collection administrator for copyright issues.

Each institution has its own collection within this repository. The SA National Veterinary Repository includes every aspect of veterinary history in South Africa, not only the Theiler period. Content input is given by retired professors of the Faculty and retired directors of the OVI as they have the knowledge to describe the early photos taken in the beginning years when the OVI was founded by Theiler and when the veterinary societies and associations were established. Additional content is added by information specialists as necessary, if they have managed to find more information. Cooperation and collaboration with the community served is very important. Their support is vital in creating a relevant, usable collection, from the initial stage of identifying the topic to be covered, the items to be digitised, their full descriptions, and their marketing to the wider world.
Open Access faculty publications
- digitising research output of faculty for optimum accessibility i.e., full text of their recent publications. These digitised articles are uploaded in the OpenUP collection in UPSpace. Some articles may be under embargo as their research may be at a sensitive stage, but most of the articles are open access, available worldwide (18). UP is the first university in South Africa to implement a policy requiring its researchers and lecturers to make their publications available open access in its institutional repository.

Full text journal collection
- digitising and uploading in the institutional repository, UPSpace, the two South African veterinary journals where the older volumes especially have much valuable information. Indigenous practices in treating animal diseases including the use of plants in Africa were sometimes encountered by the colonial veterinarians of the 19th century, such as Jotello F. Soga. These are referred to in reports published in the early agricultural and veterinary journals in South Africa.

The Onderstepoort Journal of Veterinary Research has been digitised from its beginning publication in 1903 and is in the process of being uploaded with metadata for each article. It will be followed by the Journal of the South African Veterinary Association. Permission had to be granted by the relevant editors and publishing bodies before their digitisation could take place. To achieve a best quality end product, a time-consuming process has to be followed. After the initial scanning of each article, the process of preparing each page for web publication (the derivating process) follows. This is done by student assistants after training by the Digitisation expert of the Library Services. She also does quality control. Submission of each article in the repository UPSpace is done by information specialists using a template designed by the cataloguers who are the metadata editors. The Onderstepoort Journal of Veterinary Research can be viewed at the website cited (19).

Collaboration with parties outside one’s own institution is a special challenge, but offers unique benefits for all concerned. Through digitisation, the preservation of scarce and unique resources is ensured for future use. Marketing of the collections in the institutional repository nationally as well as internationally enhances public knowledge about an information source that might otherwise be lost. These collections showcase the origin of veterinary science in South Africa, the past and present research output of the Faculty and the Institute (OVI), as well as veterinary knowledge indigenous to Africa (20).

Conclusion
Information provision to researchers in the IK / Ethnoveterinary medicine field is a very interesting aspect of an information specialist’s work. It is more challenging than the normal day-to-day information provision of published information, where finances are usually the only hindrance in procurement. It seems that the recording of IK has only started recently, and that a lot should still be done. Recorders and information specialists should cooperate to optimise the dissemination of such information.

As shown in this article, the researchers in the 2 institutions are working together on projects as seen in their recent publications like McGaw, van der Merwe & Eloff (10). This means that their libraries have to collaborate, sharing sources to support their researchers and helping to find information. Besides focusing on historical aspects of IK in Africa and collection of sources, both institutions undertake research to test for the validity of medicinal plants as used in traditional and ethnoveterinary medicine. Their libraries play a vital role in helping them achieve their aims and enhancing the accessibility of their research output.
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