The Use of Indigenous Animal Genetic Resources to Promote Sustainable Rural Livelihoods in South Africa

Ellen M. Mahlase and Saliem Fakir
IUCN-SA (World Conservation Union, South Africa), PO Box 11536, Hatfield, Pretoria 0028, South Africa

Abstract
The World Conservation Union’s South Africa Office (IUCN-SA) has developed an agrobiodiversity programme aimed at generating an understanding of agrobiodiversity policy issues and experiences in South Africa, which has been a long neglected field. The objective was to try to find ways to ensure a better policy environment and examine the potential of agrobiodiversity to improve rural livelihoods. The implications and possibilities of commercializing indigenous breeds, which are currently overlooked, even at policy level, were also investigated. A number of case studies were conducted in different parts of South Africa. They demonstrated the constraints and opportunities that prevail in rural communities with regard to the use and conservation of agrobiodiversity. The studies revealed that the value of many indigenous breeds, e.g. marginalized and neglected livestock breeds, was still not recognized. Rural communities were losing interest in indigenous breeds and beginning to farm in the same way as white commercial farmers, i.e. using exotic breeds, which are perceived to be superior. The findings of the research were presented at a national workshop where representatives of government departments, non-governmental organizations (NGOs), farmers, research institutions, and the banking and marketing sectors were present, together with community leaders. It was the first time that such a workshop, which brought together delegates from diverse sectors to discuss the promotion of indigenous breeds to strengthen rural livelihoods, had been held in South Africa. The discussion sessions produced various policy and marketing recommendations. It was recommended that new strategies be put in place to promote indigenous breeds from policy level to community level. For example, incentives, perhaps in the form of tax relief, could be employed to encourage farmers to continue farming with indigenous breeds.

Introduction
IUCN’s South Africa Office is a recently established branch (January 1998) of the Regional Office in Harare. The Office’s work is guided by the IUCN Southern Africa Strategic Plan, which is developed by IUCN members based in southern Africa. The Mission of the IUCN in Southern Africa is “to facilitate and strengthen an integrated approach for the sustainable and equitable use of natural resources and the conservation of biological diversity”. The Strategic Plan also sets out the following key objectives for the secretariat, members and partners:

- Promote the conservation of biological diversity through the sustainable use of natural resources.
- Develop the capacity to facilitate the resolution of resource-based conflicts and to advocate for policy changes.
- Promote a participatory approach to community-based natural resource management.
- Advocate for sustainable land use and the development of effective environmental management.

This paper briefly presents findings of the study conducted by IUCN-SA on the integration of agrobiodiversity into South Africa’s rural livelihoods, gives a brief overview of case studies, particularly the constraints and opportunities that exist in rural areas, and provides a summary of the recommendations made by a national workshop on agrobiodiversity.

The integration of agrobiodiversity into rural livelihoods in South Africa
In July 1999, IUCN-SA submitted a proposal to the Heinrich Boell Stiftung in Germany that was designed to generate an understanding of agrobiodiversity issues in South Africa, as this is a
neglected field. This understanding was to be used to ensure a better policy environment and
examine the potential of agrobiodiversity to improve rural livelihoods. The IUCN-SA study on
agrobiodiversity and livelihoods also examined the implications and possibilities of
commercializing indigenous breeds, which are currently neglected, even at policy level. A number
of case studies were conducted across South Africa, and these demonstrated some of the constraints
and opportunities that exist in rural communities regarding the use and conservation of
agrobiodiversity.

Agrobiodiversity is the result of careful selection and inventive action by farmers, herders and
fishers over millennia. It refers to the variety and variability of animals, plants and micro-organisms
that are important for food and agriculture, which result from the interaction between the
environment, genetic resources and the management systems and practices used by people.
Agrobiodiversity is essential for food security, sustainable livelihoods, agricultural productivity and
innovation concerning food. The important thing to note about agrobiodiversity is that it is very
much intertwined with peoples’ cultures and practices. One could even argue that the two are
mutually reinforcing. It is the authors’ experience that, as traditional cultures are eroded, so are the
social norms and values attached to agrobiodiversity.

Socio-economic status of rural areas of South Africa

The agrobiodiversity programme entailed a case study review of rural areas in order to gain a better
understanding of the prevailing constraints and identify opportunities that exist in such areas. It
seems that the socio-economic circumstances in rural areas have in one way or another imposed
constraints on the further promotion of agrobiodiversity. The main constraints are described here.

Food insecurity and poverty. The latest estimates are that 72 percent of the poor people live in
rural areas and 70 percent of rural people are poor. Poverty is closely linked to food insecurity.

Land access. Legislation of the previous apartheid regime marginalized communities living in rural
areas. In accordance with the Native Land Act of 1913, black people could legally farm only 8
percent of the country’s farmland reserves. However, land reform is aimed at redressing many of the
land issues that have been inherited from the past.

No agricultural extension support. Rural communities received little or no agricultural extension
support as legislation was skewed towards commercial farmers who were using exotic, homogenous
breeds. Case studies revealed that the previous government supported and promoted the exotic
Bonsmara cattle for commercial beef farming and the indigenous Nguni breeds were severely
marginalized. Local farmers sometimes argued that the knowledge government extension workers
had was too specialized, and the majority have been trained to deal with diseases and pest control
associated with hybrid varieties. In addition, since agricultural research was geared towards white
commercial farmers, funding to research the needs of small-scale and subsistence farmers was
severely limited.

Lack of infrastructure. The majority of rural areas have limited access to good roads,
telecommunication facilities and electricity. Lack of these basic resources exacerbates poverty and
undermines the agricultural potential of rural farmers.

Perceived superiority of exotic breeds over indigenous ones. Because scientific research was not
conducted on indigenous breeds until recently, there has been little or no improvement of these
breeds. Therefore, they still appear inferior. In contrast, the exotic breeds have been improved to
yield higher quantities (high-yielding dairy cows and high-yielding chickens are examples). Hence,
exotic breeds appear superior and more productive than indigenous ones although they are more
prone to diseases and thus require extensive inputs in the form of dipping, etc.

Indigenous breeds have adapted to harsh conditions such as drought and heat, which are prevalent in
rural areas. For example, the Namaqua Afrikaner, which was kept by the Khoi Khoi, is
exceptionally well adapted to hot, dry areas and is able to survive on poor-quality grazing. In addition, indigenous veldt goats are tolerant to internal and external parasites such as heart water. However, despite the lack of a coherent policy, agricultural research institutions, universities and some NGOs have demonstrated a growing interest in indigenous livestock and crops. In addition, South Africa’s national research foundation, which funds academic research, has made significant allocations to the study of indigenous foods and animals, and the use of indigenous knowledge.

Opportunities in rural areas

Some of the opportunities that exist in rural areas are outlined below.

Resource pool of genetic variability. Farmers in rural areas have had to depend on the variety and variability of genetic material to withstand severe agronomic conditions such as disease outbreaks, drought and poor soil fertility. For example, indigenous Nguni cattle are tick resistant and require little or no dipping. In fact, Nguni cattle, if dipped too often, lose their resistance. This breed is also heat tolerant and can be found grazing long after its exotic counterparts have left grazing land in search of shade. It also has exceptional fertility under harsh climatic conditions. Indigenous breeds may not necessarily figure in commercial agriculture but the majority will be found in the backyards of rural households. It is interesting to note that there is growing interest in indigenous livestock among white commercial farmers. There is a growing network of people who deal with early-domesticated animals.

Indigenous knowledge. Rural farmers still possess a great deal of indigenous knowledge with regard to rearing their indigenous breeds. In one case study, a farmer showed the study team the traditional herbs he burned inside the kraal when he wanted the cows and the bull to mate. In one area, a farmer spread special leaves inside his kraal of goats to prevent them from eating poisonous shrubs, which are the first to appear in the fields after the rainy season. To sceptics such as the authors, this may appear to be superstition, but before making hasty judgements, it would be wise to conduct research to validate or nullify such claims. Nonetheless, these practices work for these farmers.

Workshop on agrobiodiversity

The agrobiodiversity programme culminated in a national workshop, which involved key NGOs, government departments, farmers, rural community representatives, universities, parastatal organizations such as the Agricultural Research Council, the National Agricultural Marketing Council, and financing institutions. It was the first time in South Africa that a workshop had been held that brought together representatives of different sectors to discuss the promotion of indigenous breeds to improve rural livelihoods. Some of the objectives of the seminar were to:

- Raise awareness of the value of indigenous resources in promoting rural livelihoods;
- Examine the possibilities that may arise from commercializing such resources so that rural communities would be the beneficiaries;
- Provide recommendations to policy-makers in South Africa regarding the incentives that are required to encourage rural farmers to recognize the value of their indigenous breeds.

The discussion session of the seminar produced some recommendations. Policy recommendations included the following:

- Policies should have clear time frames for implementation;
- There need to be clear incentives that will encourage farmers to continue farming with indigenous breeds, e.g. tax relief;
- Policies should not be developed in a boardroom; instead, they need to be designed in consultation with all stakeholders;
Agricultural research on indigenous breeds should be financially supported by the government;
- Extension officers need to be trained regarding the value of indigenous breeds;
- Indigenous knowledge must be protected through intellectual property rights;
- Interdepartmental coordination is required; e.g. the Department of Agriculture needs to cooperate with the Department of Trade and Industry with regard to fair trade and the marketing of indigenous resources;
- Maintenance of gene banks that should include indigenous varieties is imperative;
- Policies should have clear outcomes that need to be monitored and evaluated continuously.

**Conclusion**

The integration of agrobiodiversity into the national agenda is critical if agriculture in South Africa is to be sustainable. Regrettably, agrobiodiversity does not feature in the country’s agricultural and related policies. There is a continuous loss of crop genetic resources as a result of agricultural policies that are focused on a few European species. Indigenous resources are able to survive under harsh climatic conditions, thus resource-poor farmers should be encouraged to farm with these resources as they require low inputs. The authors believe that indigenous crops and livestock can contribute to sustainable livelihoods and ensure that poor, subsistence and small farmers have ways to manage risk and vulnerability.
The Role of Breed Societies and Breed Conservation Non-Governmental Organizations in Community-Based Management of Farm Animal Genetic Resources

Keith Ramsay, Charl Hunlun and Antoinette Kotze
National Department for Agriculture, Private Bag X 138, Pretoria, South Africa
(E-mail: keithr@nda.agric.za)

Introduction
Farm animals have played an important role in the history and development of South Africa and will continue to do so as most of the land available for agriculture can only support some form of animal production. The country has a wide variety of animals – from high-producing breeds of cattle, sheep, pigs and horses, adapted to modern production systems – to a number of indigenous breeds that have supported communities in the traditional/communal areas for many years. South African animal agriculture is, however, facing new challenges. Urban encroachment and a growing demand for animal products are placing increasing pressure on reduced resources and the country can no longer afford the luxury of less-efficient production. Lasting food security will only be possible if all sectors move towards more effective and sustainable management of farm animal genetic resources. This includes the resources in the traditional/communal farming sector.

Farmers and stock owners in this sector are often seen as “resource-poor”. Most of them lack, or have limited access to, some basic resource in the production chain – be it land, capital, information, technology or institutional support.

In the past, reasons for keeping animals, along with the intricacies of communal land tenure and traditional herd structures were seen as barriers hampering progress. Many efforts were made to “improve” animals that were better suited to the total production environment than exotic alternatives, which were often introduced at the expense of local breeds. Failure to understand and appreciate the complexity of livestock ownership and to incorporate traditional knowledge and experience into most of the improvement projects initiated in the traditional/communal sector almost led to the disappearance of a number of economically important breeds and those involved in the promotion of sustainable farm systems in developing areas are now faced with the task of reversing years of negative extension.

The current challenge is to convince stock owners that the animals, which were often seen as inferior, are, in fact, a valuable resource. Information on value-added traits, products and markets is needed to enable stock owners to make a choice based on sound economic principles. To be effective, however, this information must flow to all levels and appropriate and affordable genetic material must be easy to access.

A concerted effort is also needed to rationalize the paradigm of livestock/breed improvement as the magic solution. The best animal recording and improvement schemes imaginable will come to nothing without a sound foundation of veldt and animal husbandry. Despite this, however, it is the rural/communal sector that has the biggest potential to increase production and to conserve South Africa’s indigenous farm animal genetic resources through sustainable use. This, however, requires a well-coordinated effort to identify and quantify the available resources, and to move stock owners in this sector towards commercialization.

It is here that breed conservation non-governmental organizations (NGOs), animal breeders’ societies and clubs can and should play a key role. South African breed societies are recognized by the Livestock Improvement Act, 1977 (Act No. 25 of 1977) and are effectively responsible for the collective interests of their members. This includes promotion and improvement.
The mere existence of stud breeders is an indication that there is a viable market for breeding animals with a certain degree of purity and prepotency for identified traits. Cost-effective production and the improvement of related genetic components in commercial herds is therefore – to a large extent – dependent on the genetic improvement of the relevant traits in the stud herds providing breeding material to this sector (Hunlun, 1999).

At present, the traditional/communal sector may be less dependent on stud herds for genetic material, but there is an underlying interdependence when it comes to many of the indigenous breeds. At a symposium to celebrate the 50th year of South Africa (SA) Stud Book, Rhys Evans and Evans (1971) listed criteria for assessing the role that stud animals have played in the livestock industry. These were expressed as the following questions:

- How successful have stud breeders been in persuading commercial cattlemen to utilize the advantages inherent in pure-bred registered cattle?
- Have breeds with the basic characteristics necessary to fulfil the specific requirements of various different types of commercial producers been available?
- Have stud breeders been successful in adapting the various exotic breeds to South African conditions?
- Have stud breeders been prepared for changes in demand by first predicting such changes and second, modifying their breeding policies in time and thus being able to meet new demands?

Hofmeyr (1971), speaking at the same symposium, expressed concern about the fact that breed promotion programmes generally showed a lamentable lack of objective evaluation of breed merit and therefore failed to indicate the breeds’ true potential within the framework of the national livestock policy.

Has the situation changed over the past 30 years? And have the relevant breed societies had any effect on decisions taken by stock owners in communal areas? South Africa has used an NGO to assist with the conservation of farm animal genetic resources (AnGR) for the past six years. This NGO was modelled on the Rare Breeds Survival Trust (RBST) in the United Kingdom and on Rare Breeds International (RBI).

RBST and RBI structures and objectives were adapted for local use, without compromising the basic principle of conservation through sustainable use.

The Farm Animal Conservation Trust (FACT) may promote the conservation of some breeds that are often more prolific in the communal sector. But has FACT had an impact, and can this NGO influence stock owners in this sector?

The objective of this study was to review the current and potential impact of breed societies, breeders’ clubs and a local breed conservation NGO (FACT) on rural stock owners in traditional/communal areas – as far as information, availability of breeding stock, access to markets and possible influence on the choice of breed are concerned. The relevance of questions raised by Rhys Evans and Evans 30 years ago was also taken into consideration. SA Stud Book, as the representative of the collective interests of almost 60 breeders’ societies, was also included in the review.

**Methodological approach**

The following criteria were used to evaluate the current activities of relevant breed societies, direct entry clubs, SA Stud Book and FACT, and to discuss ways in which these organizations could be more effective in promoting and supporting the management of AnGR in the traditional/communal sector:

- User-friendly information, extension and training;
- Organized animal identification, evaluation and within-breed improvement;
- Access to suitably improved genetic material;
- Development of products and markets;
- Broadened access to local, regional and global markets;
- Effective veldt management and animal husbandry.

The breeds identified for the study included the more common landrace breeds as well as some locally adapted exotic breeds that have been used for more specific purposes (milk, wool, mohair), or that have become relatively popular in this sector. All the breeds have either breed societies or are direct entry breeds with support services and clubs.

Table 1. Breeds used for the purposes of the study

<table>
<thead>
<tr>
<th>Breed</th>
<th>Classification</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afrikaner</td>
<td>Indigenous (land)</td>
<td>Breed society</td>
</tr>
<tr>
<td>Bonsmara</td>
<td>Locally developed (land)</td>
<td>Breed society</td>
</tr>
<tr>
<td>Brahman</td>
<td>Adapted exotic (comp)</td>
<td>Breed society</td>
</tr>
<tr>
<td>Drakensberger</td>
<td>Locally developed (land)</td>
<td>Breed society</td>
</tr>
<tr>
<td>Jersey</td>
<td>Adapted exotic</td>
<td>Breed society</td>
</tr>
<tr>
<td>SA Holstein</td>
<td>Adapted exotic</td>
<td>Breed society</td>
</tr>
<tr>
<td>Simmentaler</td>
<td>Adapted exotic</td>
<td>Breed society</td>
</tr>
<tr>
<td>SA Merino</td>
<td>Adapted exotic</td>
<td>Breed society</td>
</tr>
<tr>
<td>Dohne Merino</td>
<td>Locally developed (land)</td>
<td>Breed society</td>
</tr>
<tr>
<td>Dorper</td>
<td>Locally developed (land)</td>
<td>Breed society</td>
</tr>
<tr>
<td>Persian</td>
<td>Indigenous (land)</td>
<td>Breed society</td>
</tr>
<tr>
<td>Pedi</td>
<td>Indigenous (land)</td>
<td>Club</td>
</tr>
<tr>
<td>Damara</td>
<td>Indigenous (land)</td>
<td>Breed society</td>
</tr>
<tr>
<td>Angora goat</td>
<td>Adapted exotic</td>
<td>Breed society</td>
</tr>
<tr>
<td>Savannah goat</td>
<td>Indigenous (land)</td>
<td>Direct entry (club)</td>
</tr>
<tr>
<td>Boer goat</td>
<td>Indigenous</td>
<td>Breed society/direct entry</td>
</tr>
</tbody>
</table>

Analysis

Breed societies and clubs

A total of 61 breed societies are responsible for the collective interests of members and the marketing of certified genetic material. In addition, there are 48 direct entry breeds. These are breeds where no formal society exists and where the SA Stud Book serves such breeders without the involvement of a breeders’ society. In some cases, breeder clubs fulfil part of this function, particularly when it comes to promotion and marketing.

Table 2. Breeds, societies and direct entry breeds in South Africa

<table>
<thead>
<tr>
<th>Species</th>
<th>Breeds</th>
<th>Societies</th>
<th>Direct entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>42</td>
<td>25</td>
<td>17</td>
</tr>
<tr>
<td>Dog</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Goat</td>
<td>11</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Horse</td>
<td>28</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>Ostrich</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Pig</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Sheep</td>
<td>26</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>115</strong></td>
<td><strong>61</strong></td>
<td><strong>48</strong></td>
</tr>
</tbody>
</table>

Source: SA Stud Book
Global awareness of the real value and genetic diversity of adapted minimum care breeds for sustainable animal agriculture off natural vegetation has led to the emergence of local, regional and global markets for such animals. This, in turn, has added impetus to conservation initiatives that are based on sustainable use and added value. To date, however, the pedigree livestock and larger commercial producer sector have benefited the most. Rural stock owners have not always had access to user-friendly information or markets and are therefore often unaware of the value of their animals, or where they could be sold.

Most breed societies are also more concerned about marketing genetic material and seldom have an “after sales service” beyond the commercial farmer sector.

Some landrace breed societies have fairly narrow gene pools as a result of limited resources as far as registered animals are concerned and as a result of tendencies to select for “fancy points” and to sell animals within the stud breeder community, often at prices that are restrictive to commercial producers and stock owners in the communal/traditional sector.

In many cases, communal/traditional stock owners have unrelated animals. These animals have the potential to contribute to much-needed genetic biodiversity in the commercial and stud-breeding sector, and these resources and their owners should be incorporated into mutually beneficial breeding and improvement programmes.

Breed societies that would benefit from such actions could, in turn, assist with information and training on critical inputs such as effective identification, basic recording and sound veldt and animal husbandry. In this way, the stud breeder and related institutions would become an integral part of the total industry and would, in turn, contribute to the improved management of AnGR in the traditional/communal sector.

The Nguni cattle breeders’ society played a major role in the conservation of the breed through the process of commercialization. Most of the foundation stock came from government breeding stations in some of the developing areas of the country and the higher prices paid at sales did influence a few communities to concentrate on pure Ngunis. Some, in fact, sold animals to stud breeders and a few local breeding projects were established. There was, however, only limited continuity with a resultant loss of interest over time.

Communities with pure animals could and should reorganize themselves to form breeder clubs, with direct and mutually beneficial links with the Nguni cattle breed society.

The Afrikaner breed is still fairly prevalent in some areas under communal land tenure. Breed society involvement or stewardship could lead to a much-needed increase in numbers of pure Afrikaners – to the benefit of both the communal and stud cattle sectors.

The Dorper sheep society has an outreach programme at club level. Clubs are usually organized at provincial or regional level and are able to facilitate more effective communication with owners of Dorpers in nearby developing areas.
Table 3. Details and current status of some breed societies in South Africa

<table>
<thead>
<tr>
<th>Breed society/club</th>
<th>Formally established / incorporated</th>
<th>Current status</th>
<th>Members</th>
<th>Animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afrikaner</td>
<td>June 1912</td>
<td>J, P, PA, S, E</td>
<td>105</td>
<td>19 149</td>
</tr>
<tr>
<td>Friesland (SA Holstein)</td>
<td>21 October 1912</td>
<td>J, P, PA, S, E</td>
<td>650</td>
<td>110 000</td>
</tr>
<tr>
<td>Drakensberger</td>
<td>1946</td>
<td>N, P, PA, S</td>
<td>120</td>
<td>*</td>
</tr>
<tr>
<td>Bonsmara</td>
<td>1964</td>
<td>J, P, PA, E</td>
<td>342</td>
<td>98 627</td>
</tr>
<tr>
<td>Nguni</td>
<td>1985</td>
<td>J, P, PA, E</td>
<td>174</td>
<td>19 149</td>
</tr>
<tr>
<td>Merino sheep</td>
<td></td>
<td>J, P, PA, S, E</td>
<td>520</td>
<td>150 000</td>
</tr>
<tr>
<td>Dohne Merino sheep</td>
<td>1960</td>
<td>J, P, PA, S, E</td>
<td>564</td>
<td>160 105</td>
</tr>
<tr>
<td>Dorper sheep</td>
<td>19 July 1950</td>
<td>J, P, PA, S, E</td>
<td>15</td>
<td>2 111</td>
</tr>
<tr>
<td>Damara sheep</td>
<td>28 April 1992</td>
<td>J, P, PA, S, E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persian sheep</td>
<td></td>
<td>N, P, PA, S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angora goat</td>
<td>1894</td>
<td>N, PA, S</td>
<td>125</td>
<td>215 000</td>
</tr>
<tr>
<td>Boer goat</td>
<td>1959</td>
<td>J, P, PA, S, E</td>
<td><strong>15 / 300</strong></td>
<td>**3 689 / *</td>
</tr>
<tr>
<td>Savannah goat</td>
<td></td>
<td>N, PA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brahman</td>
<td>11 June 1957</td>
<td>J, P, PA, S, E</td>
<td>527</td>
<td>51 000</td>
</tr>
</tbody>
</table>

*J* - journal; *P* - pamphlets; *PA* - popular articles; *S* - shows; *E* - exhibitions; *N* - newsletter. *Accurate statistics not available. **Registered with SA Stud Book.*

Information from Bonsma, 1971; SA Stud Book, 2001; Breed Societies, 2001

The Merino Society is part of a joint programme with the ARC Range and Forage Institute, the National Wool Growers Association, the Eastern Cape Province Department of Agriculture and a community in the Peddie district to improve wool marketing in the area and to breed improved fine wool animals using a combination of selected local ewes and stud rams. This could be used as a model for other communities with wool sheep.

South Africa Stud Book

The South Africa (SA) Stud Book is an association of almost 60 livestock and animal breeders’ societies and their members. In terms of its constitution, the aims of the SA Stud Book are, amongst other things, to:

- Encourage and promote the breeding, conservation and genetic improvement of the production potential of animals under its jurisdiction;
- Keep records of the pedigrees, production and performance of animals and issue certificates of registration and recording for such animals;
- Safeguard and advance the collective interests of stud breeders and their breeders’ societies and act as a mouthpiece for the stud-breeding industry;
- Represent the collective interest of animal breeders and their societies on various national and international bodies and forums;
- Render technical and advisory services to breeders’ societies, their members and participants in the Integrated Registration and Genetic Information System (INTERGIS);
- Promote the export of animals with pedigrees registered or recorded with the association, and of semen, ova or embryos from animals thus registered or recorded.

In recognition of the situation of emergent livestock producers SA Stud Book has, for some years now, offered an aid package to emergent livestock breeders who wish to make use of the facilities and services of the organization. To date, there has been very little interest, but SA Stud Book has been involved in the activities of other organizations involved in the communal and/or traditional sector in an attempt to publicize the aid package.
The Farm Animal Conservation Trust (FACT)

FACT is an active partner in a national initiative to create awareness and markets and to add value to endangered and indigenous breeds. This partnership includes the National Department of Agriculture, the Agricultural Research Council, the National Cultural History Museum and some universities. FACT activities include the preparation and distribution of farmer-friendly information on lesser-known and endangered farm animals and facilitating conservation through the sustainable use of these breeds in commercial farming systems.

All the available literature, including archaeo-zoological, historical, popular and scientific publications on the origin and development of early-domesticated breeds has been collected, catalogued and stored at the Irene Animal Improvement Institute. This data has been used to produce a number of posters and pamphlets on the breeds in question. These are now regularly used at shows and exhibitions to create an awareness of the importance of South Africa’s early-domesticated farm animals.

FACT has also published a booklet on South Africa’s landrace breeds as part of an initiative to conserve through commercial use. Information on production environments was included to help match animals with effective farming systems. It also serves as a useful reference on value-adding traits that are often overlooked and that could give the breeds in question a competitive edge. The hope is that this will also contribute to the emergence of commercial breeders of landraces in the resource-poor sector and to the long-term stability of breeds.

FACT held a first show and sale of breeds during 1999. This was based on the RBST show-and-sale concept and is aimed at public awareness, the further distribution of genetic material and broadening the emerging-farmer sector’s access to markets for their indigenous breeds. It is hoped that this will become an annual event and the possibility of two sales – one to serve the predominantly cattle-oriented north and one to serve the mixed small-stock cattle areas in the south of the country – is currently being investigated.

Table 4. FACT activities, 1995 to 2000

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural shows</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Symposums</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Farm festivals/exhibitions</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Ramsay & Kotze, 2000

Availability of information and technical services and assistance

At present, much of the available information is fragmented and often difficult to access for the rural emergent farmer/stock owner. In addition, access to appropriate technology and to markets further complicates matters. Information on often less suitable breeds is more freely available in the popular agricultural media.

Some breed societies have donated genetic material to the emergent-farmer sector, but few have yet become involved in the communal sector. Actions in this sector need to be integrated or holistic, taking into consideration the complexity of stock ownership, communal land tenure and the need for basic inputs such as animal identification, recording and improved veldt and animal husbandry.

The Brahman cattle breeders’ society is currently busy with an integrated project to assist emergent farmer groups in the North West Province with both genetic material (semen) and advice on improved management and marketing.

Such actions could benefit relevant communities in the traditional/communal sector, provided that there is a degree of responsibility to ensure that an integrated approach is adopted, and that attention is given to local breeds and not to breeds that require production and husbandry inputs that would
stretch the natural resources and that are generally beyond the management capabilities of the people.

In principle, the Brahman initiative could serve as a model for other breed societies.

To be effective, however, such models would need strategically placed centres where integrated services could be rendered. This would require a commitment to closer cooperation from the relevant provincial Departments of Agriculture and other role players such as breed societies and donor organizations that may be interested in the concept.

Conclusions

Most of the traditional/communal areas have adapted/indigenous animals in quantities and purity that could lead to owner-driven initiatives with sufficient financial incentives to promote the concept of conservation through sustainable use. These resources often have a high degree of genetic biodiversity and are, as such, of considerable value to the relevant breed societies in the stud-breeding sector. Stock owners in the traditional/communal sector are, however, largely unaware of the value of their own animals and have limited access to information and markets.

There is sufficient information to enable farmers and stock owners to match animals with local environmental conditions and own management inputs, but it is often fragmented and difficult to access. The available information and supportive services and technology need to be converted into a form that is both user-friendly and easy to access at all levels. In addition, more attention needs to be given to research into value-added traits and the development of cottage industries capable of processing hides and skins for leather, fibre for clothing and meat and milk for food industries. Labelling such products could further enhance value and could even lead to potential lucrative contracts with foreign investors.

Breed societies can – and should – become more involved with stock owners in the communal areas, particularly as far as basic management inputs such as identification and recording are concerned. Alternative forms of membership should also be considered – possibly a club category that would enable communities to join and benefit from society – together with stud book services without the expense of individual membership. The SA Stud Book, as the collective representative of most breed societies in South Africa, should become more actively involved in initiatives and should promote the existing outreach programme more effectively. FACT has been fairly effective in creating an awareness of the value of South Africa’s indigenous and locally developed breeds, some of which can be classified as endangered.

A combination of live exhibits, posters and leaflet information that can be set up at strategic events has been effective in generating interest in the breeds and has led to the emergence of satellite breeding and conservation units. However, the most important thing is to remain focused on conservation through sustainable use and to encourage farmers to use the breeds in question as a viable alternative.
References


Access to Biological Resources and Benefit-Sharing Legislation in South Africa

Ellen M. Mahlase
IUCN-SA (World Conservation Union, South Africa), PO Box 11536, Hatfield, Pretoria 0028, South Africa

Background
South Africa is rich in biodiversity and is regarded as the third most biologically diverse country in the world. South Africa has a relatively sound knowledge of its resources, adequate scientific capacity and infrastructure, and managed protected areas. As a result, there have been a number of bilateral agreements between multinational corporations and South Africa’s research institutions regarding access to its indigenous species. These agreements have been reached in the absence of a legislative framework on access and benefit-sharing (ABS). However, South Africa is now drafting legislation that will fill this vacuum. It should be noted that although much has been written on how benefit-sharing should work, most countries lack the scientific expertise to determine limits for the sustainable use of their resources. In 1998, the World Wildlife Fund for Nature (WWF) examined the experiences of ten countries and discovered that many of them were experiencing problems in developing and/or implementing a legislative framework for access to genetic resources and benefit-sharing. South Africa is no exception.

South African legislation on ABS
ABS in South Africa is addressed in the White Paper on Conservation and Sustainable Use of Biological Diversity (1997) and the National Environmental Management Act, known as the NEMA (2000 draft). In November 1997 South Africa ratified the Convention on Biological Diversity (CBD).

White Paper on Conservation and Sustainable Use of Biodiversity (1997)
ABS is one of the goals of the White Paper on Conservation and Sustainable Use of Biological Diversity (1997), which was drafted in accordance with the objectives of the CBD. One of the policy objectives stated in the White Paper is to “control access to South Africa’s indigenous genetic resources through the introduction of appropriate legislation and establishment of institutional structures”. In fact, the overarching objective is to “ensure that benefits from the use and development of South Africa’s genetic resources serve the national interest”. To achieve this objective, the White Paper stipulates that an “efficient permitting system whereby authorization is required for the collection of any biological or genetic resources to be used for research, trade or commercial purposes” be developed and implemented.

National Environmental Management Act (2000 draft)
Regulations pertaining to the institutional framework regarding access and benefit-sharing in South Africa have been outlined in the Biodiversity Chapter of the National Environmental Management Act, best known as the NEMA (2000 draft), and can be found at the National Department of Environmental Affairs and Tourism (DEAT), under the Biodiversity Management Directorate.
Implementation regulations

The objective of the ABS part of the legislation is “to regulate access to biological resources and knowledge, practices and innovations associated with such resources and to ensure the fair and equitable sharing of environmental, economic and social benefits arising from their use”. The ABS regulations apply to indigenous biological resources (wild, domesticated, in situ or ex situ), landraces, knowledge, innovation and practices associated with biological resources and ex situ collections assembled before and after the CBD. ABS regulations do not apply to biochemical or genetic material of human origin, the exchange of biological resources among local communities, or associated knowledge and innovations resulting from non-profit-making practices, uses or customs.

Access to biological resources and/or knowledge associated with such resources for academic research or commercial purposes is prohibited unless a permit has been obtained. The procedure and associated channels that must be followed to obtain such a permit are outlined below. The applicant can be requested to submit additional information. The South African National Bioinformatics Institute (SANBI) evaluates the application and either rejects or accepts it, taking into account the following (and perhaps other) factors:

- compliance with the provisions of the NEMA;
- the extent of the threat faced by the species concerned;
- the benefit to be derived from the use of that species; and
- applicable international laws.

The applicant is required to conduct an environmental impact assessment where the proposed activity may have a potentially negative impact on the environment, socio-economic conditions and cultural heritage. If a permit is sought for commercial purposes, then SANBI, after evaluating the application, refers it to the Bioprospecting Committee. The access permit stipulates:

- the species for which the permit is granted;
- the activity for which the permit is granted;
- the time period within which such an activity is to be carried out; and
- any conditions with which the permitted activity must comply.

Permits for academic research and commercial purposes may only be issued once an appropriate access and benefit-sharing agreement has been developed and concluded. A research permit is valid for five years and is renewable. A commercial permit is valid for three years and is renewable. An access permit is not transferable. Agreements for access to biological resources and associated knowledge shall:

- comply with any criteria and minimum terms and conditions that may be prescribed;
- provide for mutually agreed terms and conditions for the fair and equitable sharing of benefits arising from the use of the resources, including the use of derivatives and synthesized products; and
- serve national interests.

Other regulations in the NEMA include the following:

- Import into and export from South Africa of biological resources is prohibited unless SANBI issues a permit to allow such import or export.
- With regard to tracking and management, the applicant is expected to “make reasonable and sincere efforts to record and maintain data on the acquisition, use and benefits arising from the use of biological resources”.

Shortcomings of the NEMA (loopholes identified during consultation meetings) include the following:

- There is no intellectual property rights (IPR) system to deal with the protection of animal genetic resources.
Monitoring adherence to benefit-sharing agreements can be difficult if the benefits materialize only 10–20 years later.

Guidelines are required to establish mutually agreed terms and prior informed consent.

Measures are needed to minimize the possibility of a research permit being used for commercial purposes.

**Conclusion**

It must be stressed that this text was taken from the first draft of the NEMA, which was only intended for a specific focus group and not for public comment. The bill has not yet been tabled in Parliament. It is still in its preliminary stage and is currently being revised.