Chapter 4

BACKGROUND OF THE STUDY AREA

4.1 INTRODUCTION

In order to understand the factors and circumstances that determine the decision to adopt a new technology, it is important to get a general and integrated overview of the area in which the dependent and the explanatory variables are tested. Both Old and New Qwaqwa are mainly livestock producing areas. To ensure a sustainable livestock production system, the use of veterinary surgeon services and a correct use of medication technologies are essential to the small ruminant farmer (Naude, 1998). The non-adoption of medication technologies usually results in poor reproduction levels and high mortality rates (Schwalbach, 1998). It is therefore important to take a look at the natural resources available to the small ruminant farmers and to evaluate the effect of the quality of these resources on herd health.

The intention with this chapter is to give a short historical as well as a geographical background on Qwaqwa. This will be followed by a brief discussion of the land tenure systems, as well as an overview of the agricultural potential, infrastructure and level of institutions in Qwaqwa. In the forth section the diffusion programmes used in the past with regard to the transfer of small ruminant veterinary and medication technologies will be discussed.

4.2 HISTORICAL BACKGROUND OF QWAQWA

According to the Development Bank of Southern Africa (DBSA, 1985) Old Qwaqwa was previously known as Witsieshoek and Basuto-Barborwa and was occupied by two tribes, namely the Bakwena Tribe (1867) and the Batlokwa Tribe (1873). It is the smallest former homeland of South Africa in terms of land area and *de facto* population and is presently the home of the Basuto.

According to Ashton (1955), the Basuto (Southern Sotho) are not agriculturists by tradition. However, livestock farming forms an integral part of their cultural, ceremonial and religious occasions. Small ruminants are also used extensively in ceremonial occasions and in certain religious rites. Sheep are used for celebrations and black sheep and goats in cases of sickness and sorcery.

It is important to look at the political development of Old Qwaqwa in order to understand and follow the circumstances under which the farmer in Old Qwaqwa is farming. They went through different stages of government policies, which had a direct effect on agricultural development as well as the diffusion and adoption of new technologies.

The first stage of self-government was attained in October 1971 with the establishment of the Basuto-Qwaqwa Legislative Assembly. On 1 November 1974 it became the seventh self-governing state in South Africa. During the general elections of 1975 and 1980 Mr Kenneth Mopeli of the Dikwankwetla Party was elected Chief Minister (DBSA, 1985).

Political development in Old Qwaqwa bears the hallmark of Western-orientated government institutions. Before South Africa became a Union in 1910, political development was mainly of traditional nature. The period subsequent to 1910 involved reconciliation between the traditional and Western-orientated cultures, which in turn led to political development in a Western style. Legislation, however, provided for the retention of traditional tribal authorities, according to which every chief retained his autonomous authority and status (DBSA, 1985). Presently the legislation is a mixture of a Western-orientated government form as well as a traditional political system in the sense that the agricultural land use system is a communal tenure system.

Rapid progress was made during the past four decades in terms of constitutional development, with the result that in 1971 Old Qwaqwa became a government with legislative and executive powers. After the General Election in 1994, Old and New Qwaqwa again became part of the Free State province under the legislative powers of the Free State provincial government (Rautenbach & Malherbe, 1994).

Witsieshoek, an area of 50 172 ha, is described as Old Qwaqwa (DBSA, Sec.2, 1985; Vrey & Smith, 1980). New Qwaqwa, an area of 15 342 ha, is the Harrismith portion which became part of Qwaqwa in 1984 and includes 115 farms in the Bethlehem/Harrismith district (see Figure 1.1). The New Qwaqwa farmers started farming in 1991. This area was consolidated and bought from white commercial farmers in 1984 and 1988 by the South African Development Trust. The last section extends over 80 000 ha of which 21 000 ha has been developed as the Qwaqwa National Park. The rest (59 000 ha) was used to settle 115 farmers from 1991 to 1994 (Urban-Econ, 1992).

4.3 LAND TENURE

The farmers in the sample had two basic land tenure systems, namely communal land and farms on commercial land, which are rented from the government with the option to buy after five years.

4.3.1 Old Qwaqwa

All the farmers in the Old Qwaqwa area are farming on communal land that belongs to different chiefs or headmen. Only people who are residents of the village under the command of the chief can farm in the village area. Farmers can have as many animals as they wish and do not pay an annual rent to the chief or headman for the animals kept on the veld. They only pay R20,00 per animal as registration to the chief or head man (Maloi, 1998).

4.3.2 New Qwaqwa

Between 1991 and 1994 the farmers in New Qwaqwa were settled on consolidated land on the basis that they must pay a yearly rent, which is much lower than the current going rate in the area. They were further settled on the land with the provision that, after five years, they could have the first option to buy the land from the South African Development Trust Corporation Limited (SADTC) (Urban-Econ, 1992). Two of the 36 New Qwaqwa farmers in the sample have already bought their farms and the other 34 are in the process of buying their farms.

The main difference between the two land tenure systems is that the farmers in New Qwaqwa are working towards a goal to buy the farms they are farming on a commercial farming system. The farmers in Old Qwaqwa (communal farming system) know they will never be able to buy the land. The farmers in New Qwaqwa are controlling the livestock numbers to protect the quality of their natural veld (Van der Westhuizen, 1998). These farms also have more and better quality arable land (SADTC, 1988). The geography of New Qwaqwa makes farming easier. The average farm or herd size will most probably be higher than that of the farmers in Old Qwaqwa.

Farmers in New Qwaqwa are farming on land that had been fairly well managed until the late 1980's, while farmers in Old Qwaqwa farm on veld that had been overgrazed over a long period[1].

4.4 GEOGRAPHY

The external environment has a direct influence on the performance of the farming community as well as the diffusion and adoption of agricultural technologies. The landscape and geography, especially the population growth and the effect thereof on the agricultural natural resources, play an important role in the sustainable development of agriculture as well as the diffusion and adoption of livestock technologies in Old Qwaqwa. Approximately 70 per cent of Old Qwaqwa are surrounded by mountains with low nutritional veld (DBSA, 1985).

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[1] Vrey and Smith (1980) has reported a livestock load of 4,8 small stock units (SSU's) per hectare in 1980 in comparison with the official carrying capacity of 1,5 SSU's per hectare.

Census data available on Qwaqwa include only the Witsieshoek area (Old Qwaqwa) up to 1991. In the 1996 census New Qwaqwa was included in the data on Qwaqwa for the first time. The details of this census are not yet officially available. The area data and discussion that follow are applicable on Old and New Qwaqwa as indicated.

Old Qwaqwa has a mountainous nature and a high livestock and human population intensity, which increases every month. Only a relatively small part of this area comprises land available[2] for farming purposes. Although it appears as if a large part of the district consists of grazing land, it is of minor use for agricultural purposes since a large part is either steep mountainous terrain or small units between houses and settlements in villages and informal settlement areas (DBSA, Sec. 2, 1985). According to Fényes (1982) the communal tenure system encourages the build up of animal herds, which makes it very difficult to control livestock numbers and leads to overgrazing. Deterioration (overgrazing) of the natural veld can have a negative effect on the reproduction levels of livestock as well as their medication needs (Katunguka-Rwakishaya, 1994; Ndamukong, Mbomi & Killanga, 1992).

New Qwaqwa has much less mountains and some of the land can be used for crop and fruit production. Livestock numbers are better controlled on these farms owing to a different tenure system and these farmers know the carrying capacity of their farms (SADTC, 1988).

4.4.1 Population

It is important to take population growth into account when policies are formulated for the transfer and adoption of agricultural technologies, because it puts pressure on the economic development as well as the natural resources important for farming. According to Van Rooyen (1982) an area such as Old Qwaqwa is especially vulnerable to this threat as most households in the villages and informal settlements who are not farmers, normally have one or two cattle and a few small ruminants in the urban areas and fodder

[2] Approximately 12 000 of the 50 172 hectare is available for farming purposes, of which a large part is mountain veld.

must be found from somewhere. Squatting (informal settlements) and expansion of houses (urbanisation) on agricultural land normally results in the reduction and deterioration of natural agricultural resources.

The population density differs drastically between Old and New Qwaqwa. Old Qwaqwa has the city of Phuthaditjhaba as well as 16 towns or villages; whereas there are no towns or villages in New Qwaqwa. Some of the 94 farmers who settled in New Qwaqwa do not even stay on their farms, but travel daily to Old Qwaqwa where they live (Van der Westhuizen, 1998). The *de facto* population figures for Old Qwaqwa are presented in Table 4.1. Urban-Econ (1992) gives a population of 470 000 for 1990, while unofficial estimations are that the current population numbers of Old Qwaqwa are between 700 000 and one million people. Migrant workers are not reflected in these numbers.

Table 4.1: **POPULATION AND POPULATION GROWTH OF OLD QWAQWA FROM 1911 TO 1996**

Year	Population	Average growth rate per year (%)
1911[1]	4 882	
1921[1]	4 644	–0,50
1936[1]	7 879	3,59
1946[1]	7 764	–0,15
1951[1]	6 457	–3,62
1960[1]	11 189	6,30
1970[1]	30 225	10,45
1974[1]	80 400	27,71
1980[2]	163 758	12,59
1985[3]	184 524	2,42
1991[3]	351 936	11,36
1996[4]	416 386	3,42
Average growth over 87 years		5,24

1. Coetzee (1980).
2. Van Rooyen (1982).
3. Central Statistical Services (1985, 1991).
4. Calitz (1998).

It appears that the total *de facto* population increased by an average of 5,24 per cent per year, or increased 85 times over the past 85 years; 6,46 per cent per year over the last eleven years and 3,42 per cent per year over the last five years. If this trend continues, the relatively high livestock population (see Table 4.2) will face increasing nutritional problems, on an overgrazed pasture. This may have a detrimental effect on livestock production, but fortunately, at this stage, medication technologies may be able to improve livestock production.

A factor that had the largest effect in this regard was Old Qwaqwa's political and constitutional development, which, between 1970 and 1980, resulted in large-scale settlement of Basuto in the new self-governing state.

4.4.2 Rainfall

Qwaqwa lies within the summer rainfall region of South Africa with more than 85 per cent of the total annual precipitation occurring in the period between September and March. The highest precipitation (1 300 to 2 000 mm per year) occurs in the mountains with a gradual decrease (700 to 800 mm per year) towards the lower lying areas. Approximately 85 per cent of the rainfall occurs in the period September to March (DBSA, Sec. 2, 1985; Vrey & Smith, 1980:48). The rainfall in New Qwaqwa varies between 650 and 710 mm per year (SADTC, 1988).

4.4.3 Evaporation

Information on evaporation is only available for the lower lying area which is 1 750 mm per year. According to this, these areas can be classified as semi-arid (see Chapter 1, Table 1.1). If one assumes that the evaporation in the mountains is less than 1 500 mm per year, the mountains can be classified as sub-humid (Gouws *et al.,* 1987; Unesco, 1977; Vrey & Smith, 1980). No evaporation data are available for the New Qwaqwa.

4.4.4 Temperature

The average daily temperature in Old and New Qwaqwa varies from 6°C in mid-winter to 19°C in mid-summer. Temperatures are very variable and may drop suddenly by up to 10°C. For an average of 70 nights per year the temperature is below 0°C, and the period during which the area gets frost is approximately 150 days per year (DBSA, Sec. 2, 1985; Gouws *et al.,* 1987; SADTC, 1988). This variation in temperatures is even worse in the mountainous areas where most of the small ruminant farmers keep their herds. Snowfalls during late July normally claim the lives of many animals. Some farmers have lost a large portion and in some cases even their total herds during the heavy snowfall of early July 1996 due to a lack of farming infrastructure such as fences and shelter during these cold blisters.

4.5 AGRICULTURAL POTENTIAL, INFRASTRUCTURE AND INSTITUTIONS

A brief outline of the agricultural potential, disease prevalence, external and internal infrastructure and institutions are needed to follow the obstacles farmers are facing in Qwaqwa regarding medication technology diffusion and adoption. The aspects that will be discussed have a direct influence on the approach needed to encourage farmers to adopt medication technologies in order to improve their management and consequently the production levels of their small ruminant herds.

4.5.1 Agricultural potential

Health starts with good nutrition. That is why the availability and quality of natural veld plays an important role in the usage of medication technologies. An animal that is in a good nutritional condition and well fed is normally more tolerant towards parasites and other diseases and can survive cold spells easier than a weaker animal (Schwalbach, 1998). It is therefore important to look at the grazing potential of Qwaqwa as well as the actual situation regarding animal numbers (total SSU's) and population numbers.

Escalation of human population numbers reduces the area of natural veld available for livestock production. The fast growth of the population of Old Qwaqwa and the accompanying urbanisation and expansion of townships (housing) on the lower lying land, which also has a higher grazing capacity, forced the farmers to move their animals away to the mountainous areas where the grazing capacity and quality of grass is lower and cold spells more severe. The higher livestock population density associated to a lower quantity and quality of the pastures increases the risk of diseases. Under these circumstances the adoption and correct usage of new medication technologies become more important.

According to the DBSA (Sec. 2, 1985), the natural veld of Old Qwaqwa can be classified as Hoëberg Sourveld and can be divided into three subsidised-types with different dry matter production levels that influence the grazing capacity of the natural veld. These subsidised-types are Eragrostis-Microchloa veld (400 kg dry matter per hectare per year), Eragrostis-Hetropogon-Microchloa veld (830 kg dry matter per hectare per year) and Themeda-Eragrostis-Hetropogon veld (800 kg dry matter per hectare per year).

In 1974 a total of 41 278 ha natural veld in Old Qwaqwa was available to livestock farmers with an average carrying capacity of 1,5 SSU's per hectare or 61 917 SSU's. The total livestock numbers in 1975 were 111 498 SSU's, with a stocking rate of 2,7 SSU's per hectare (Vrey & Smith, 1980). Table 4.2 gives the SSU's, natural veld available for livestock farming and population numbers to show the problem Old Qwaqwa is facing with the fast increasing population numbers and consequent decreasing of natural veld resources. Because of the the population growth and the high stocking rate of animals of 7,7 SSU's per hectare which are more than five times the carrying capacity, farmers are forced to move with their herds from the low lying areas with high nutritional veld to the mountains where the nutritional value of the veld is consequently lower. A few authors (Fényes, 1982; Vink, 1986) have referred to the tendency of overgrazing of the communal veld which is also a common perception due to the almost free availability of the veld and no one to control the numbers.

Table 4.2: **POPULATION, HECTARE OF VELD AVAILABLE, SMALL STOCK UNITS AND LIVESTOCK NUMBERS IN OLD QWAQWA FROM 1961 TO 1998**

	1960[1]	1961[1]	1974[1]	1975[1]	1981[2]	1982[2]	1983[2]	1996[3]	1998[4]
Population	11 189	N/A	80 400	N/A	N/A	N/A	N/A	416 386	N/A
Cattle	N/A	6 630	N/A	13 178	14 154	13 178	14 463	N/A	11 126
Sheep	N/A	4 163	N/A	5 735	N/A	N/A	N/A	N/A	12 766
Goats	N/A	8 225	N/A	13 910	N/A	N/A	N/A	N/A	11 436
Sheep & goats	N/A	12 388	N/A	19 645	12 545	11 053	11 827	N/A	24 202
Horses, donkeys & mules	N/A	1 753	N/A	2 557	452	373	384	N/A	319
Total SSU's	N/A	60 933	N/A	111 498	99 729	91 986	100 525	N/A	92 553
Hectare available for agriculture	N/A	N/A	41 278	N/A	N/A	N/A	N/A	N/A	12 000
SSU's per hectare	N/A	N/A	2,7	N/A	N/A	N/A	N/A	N/A	7,7

1. Vrey & Smith (1980).
2. DBSA (1985).
3. Calitz (1998).
4. Estimation by the Department of Agriculture, Bethlehem (1998).
   N/A = Not available.

The carrying capacity of the natural veld of New Qwaqwa is 0,885 SSU's per hectare. The tendency of overgrazing does not exist in New Qwaqwa due to the commercially orientated attitude of these farmers (Van der Westhuizen, 1998). Each farmer has his/her own farm and can control the numbers according to the natural vegetation available and feed planted. The population growth is restricted because of the fact that there are no towns, villages and informal settlements in New Qwaqwa. The population is further restricted to the farmers and their permanent labour force, which is much lower than that of the white commercial farmers as the farmer tend to make more use of family labour (Nell, Viljoen & Lyne, 1997).

It is interesting to note that the total number of SSU's has remained relatively constant, but that the area available for grazing has decreased. The area for agricultural purposes decreased from 41 278 ha in 1974 to approximately 12 000 ha in 1998, resulting in more

nutritional stress and animals becoming more susceptible to diseases (Naude, 1998). This aspect will have to be attended to, otherwise the agriculture, and especially livestock production and productivity in Old Qwaqwa, will die slowly. The total livestock numbers in New Qwaqwa were 29 188 SSU's on 74 342 ha available in 1998, or 0,4 SSU's per hectare, which is a much lower grazing pressure than that of Old Qwaqwa.

4.5.2 External agricultural infrastructure

The external agricultural infrastructure in the Old and New Qwaqwa is very poor. Roads vary from poor to non-existent and only three of the 99 farmers in the sample have electricity, whilst only 10 farmers have a telephone and the nearest livestock public auction kraal is at Kestell, which is between 20 and 80 kilometres from the farms. Expensive private transport must therefore be used to convey farmers and animals to auctions, veterinary clinics and the cooperative to buy medication, which has a negative effect on the adoption of these inputs and services. There are no roads in the mountainous areas and here the only means of transport is horses and donkeys. A summary of the results from the survey of the infrastructure is presented in Table 4.3.

Table 4.3: **INFRASTRUCTURE AVAILABLE TO FARMERS**

Infrastructure available to farmers	Total number (n=99)
Roads	44
Transport	13
Telephone	10
Electricity	3
Local markets	55
National markets	3
International markets	0

Source: Survey data (January 1998).

4.5.3 Farm (internal) infrastructure

Livestock infrastructure in Old Qwaqwa, i.e. handling facilities such as dipping-tanks and dipping-pens that were build before 1994, are in most cases vandalised, deficient or non-

existing and obsolete (Claassens, 1998). Fencing of the natural veld was done before 1994, but has since also been removed. Except for a few caves in the mountains, there is no shelters available for the small ruminant farmers to protect their stock from thefts and the cold in winter time. The only agricultural infrastructure still used by the small ruminant farmers are the five shearing sheds that are used for shearing woolled sheep and Angora goats. A few community dairies and pigsties are also operational (Claassens, 1998).

The farm infrastructure in the New Qwaqwa, such as fences, sheds on farms, shelters (kraals), livestock handling facilities, water points for the livestock and other operational facilities are in a better condition as these farmers obtained their farms six to seven years ago. The tenure system, in the sense that farmers have an option to buy their farms, has had a positive effect on the maintenance and protection of the facilities (SADTC, 1988). The fact that these farms are relatively far away from Phuthaditjhaba, the urban area of Qwaqwa, also helps to protect the farming facilities against theft.

4.5.4 Institutions

The availability of institutional services to the sample farmers is summarised in Table 4.4. The column "total number of farmers" refers to the number of farmers who indicated that the specific institutional services are available.

Table 4.4: **INSTITUTIONAL SERVICES AVAILABLE TO FARMERS IN QWAQWA**

Institutional services available to farmers	Total number of farmers
Government extension system	37
Cooperative extension system	45
Agricultural research	6
Input suppliers (businesses where farmer can buy seed, fertiliser, fuel, etc.)	22
Output markets (institutions such as the cooperative where output can be marketed)	8
Banking services	13

Source: Survey data (January 1998).

Although these institutions of support exist in the urban area, they are not accessible to the farmers due to distance. The only two cooperatives operating in Qwaqwa are Agri-Mark in Phuthaditjhaba and Sentraal Oos Corporate Limited (SOK) in Harrismith and Kestell.

4.5.5 Disease prevalence

The pressure to move to a less valuable nutritional area in the mountains with more climatic extremes (cold in winter and humid in summer), as well as an increasing livestock concentration, results in a higher infection pressure of the environment, which in turn leads to a more contaminated environment and more susceptible hosts (animals) (Erasmus, 1998).

From an economical viewpoint, the most important groups of diseases in Old and New Qwaqwa were identified by Naude (1998) as scab (which is the most important external parasite disease); pink eye (the most common infection); blue tongue, black quarter and pulpy kidney (the most common diseases); roundworm, nasal worm and tapeworm (the most common internal parasites). These diseases are limiting the production potential and reproductive levels of small ruminants in the area.

4.5.6 Small ruminant medication sales in Qwaqwa

Official statistics on medication sales or consumption are not available for Qwaqwa. After an in-depth discussion with Venter (1998) and McDonald (1998), it was concluded that an estimation of small ruminant medication sales or consumption for either Old Qwaqwa, New Qwaqwa or Qwaqwa as a whole is impossible. However, Agri-Mark's sale figures for 1998 indicated that external parasite remedies for small ruminants have the highest sales, followed by general medication, internal parasite remedies and lastly vaccination sales.

4.6 METHODS OF SMALL RUMINANT VETERINARY SURGEON SERVICES AND MEDICATION TECHNOLOGY TRANSFER

4.6.1 Medication technologies

The economic and financial incentives or increased returns on a new technology, according to De Boer, Knipscheer and Kartamulia (1992), are perhaps one of the most important motivations for a farmer to adopt and keep on using a new technology. The possible incentives from medication adoption are perhaps one of the most important factors in the small ruminant production process as they allow the prevention and treatment of disease that may cause mortality, loss of weight, slower growth rates or reduce the quality of the products (meat, wool, hides, milk, etc). Medication technology therefore plays a strategic and economic role in small ruminant production.

The five livestock technology transfer programmes (the use of upgraded Angora goat rams, mutton sheep rams, beef cattle bulls, medication and sheering) were in fact implemented in Qwaqwa before 1994. These programmes were handled by two divisions in the Department of Agriculture, namely livestock production and veterinary services. The livestock production division of the Department of Agriculture handled the breeding and the feeding technologies, while the veterinary services division, assisted by the

extension division, handled the animal husbandry and the medication (herd health) technology transfer programmes (Naude, 1998).

4.6.2 Medication technology transfer (diffusion) programmes

The Department of Agriculture's division of veterinary services originally initiated the medication technology transfer programme. At first they concentrated on programmes to prevent diseases and reduce mortality.

Another objective of the medication technology transfer programme was to provide the small ruminant farmer with the most important remedies at an affordable price (subsidized up to 80%). Another important part of the technology transfer programme was to help the farmers to use the correct medication as well as the correct way of application. The only remedies that the farmers did not pay for, were those used by the Department of Agriculture in compulsory vaccination or dipping campaigns to control a national outbreak such as scab. With the help of the Department of Agriculture, the farmers kept the dipping and livestock handling facilities, which were situated at every sheering shed, in good operational order. The rest of the internal and external parasite remedies and vaccinations were subsidised to their cost price and made available at the sheering sheds (Claassens, 1998).

According to Naude (1998) the National Defence Force used to station at least one veterinary surgeon in Old Qwaqwa on a permanent basis during his compulsory military service. These veterinary surgeons played a very important role in the transfer of medication technology to the small ruminant farmers. This action had the result that before 1994 Old Qwaqwa was never without a permanent veterinary surgeon. There were also six animal health officers, and one government veterinary surgeon who assisted in transferring new medication technologies during Qwaqwa. Private veterinary surgeons were also active in Qwaqwa during the same period. The extension officers and animal health officers played a very important role in medication technology transfer in the sense that they assisted the farmers who are illiterate in Afrikaans or English. They were also the link between the small ruminant farmers and the veterinary surgeons.

Two small ruminant specialists and eight extension officers of the Department of Agriculture managed the medication technology transfer programme in collaboration with the animal health officers from the veterinary services division. The main objective of this programme was to stress the importance of regular dipping, dosing for endo-parasites and vaccination programmes. Other therapeutical medication practices were also attended to, with direct impact on the survival of the animals. The small ruminant farmers were informed on the advantages of correct and regular use of the different medication technologies (Claassens, 1998).

The extension ward officers from the Department of Agriculture later became part of the so-called "joint extension team" for the development and transfer of medication technologies. This programme did not function very effectively due to logistic constraints. The best results were obtained when the area was divided into wards with an animal health officer in each ward directly under control of the veterinary surgeon. This resulted in a closer contact between the veterinary surgeon, animal health officer, extension officer and the farmer. Perhaps the most important action in this transfer process was the demonstrative part (learning by doing) of medication usage (Naude, 1998). Small ruminant farmers formed groups and associations that bought medication in bulk at discount prices.

Most of the technology transfer actions were held at the sheering sheds on farmers' days, which were regularly organised and presented by the different ward extension officers. Specialised people from the Department of Agriculture, veterinary surgeons (private and governmental) and animal health officers were also used to train small ruminant farmers and transfer medication technologies at these service points. The farmers' days were held once a month at the sheering sheds in Old Qwaqwa and every two weeks at different venues in New Qwaqwa. It was easier to get hold of the farmers in New Qwaqwa than in Old Qwaqwa where the farmers are living with their herds in the mountains (Claassens, 1998).

According to Claassens (1988), Agriqwa, a corporation of the Qwaqwa Government, played a major role in small ruminant extension in New Qwaqwa. These farmers were

treated like commercial farmers and extension officers held more frequent farmers' days in this area.

After the general election in 1994 the experienced extension officers, the Defence Force veterinary surgeon, government veterinary surgeons and animal health officers were employed in other capacities in Old Qwaqwa, as the Department of Agriculture felt that it was too expensive to continue their services in Qwaqwa (Olivier, 1998). Qualified experienced extension officers and animal health officers were transferred to other areas and replaced by officers who were less experienced and who were not livestock specialists, although they had a national Agricultural Diploma. The result was that the transferring of technology slowed down and in some wards came to a standstill (Olivier, 1998; Naude, 1998). Sheering sheds are mainly run by sheering associations themselves and visits from extension officers and veterinary people are quite rare (Komako, 1998). The extension officers and small ruminant inspectors still have access to the veterinary surgeons in Bethlehem (some 80 km from Qwaqwa), but this is not enough for these relatively inexperienced extension officers to effectively diffuse and transfer medication technologies to the local farmers.

4.7 CONCLUSIONS

It is clear from the discussions that the resources available, the internal and external infrastructure in Old and New Qwaqwa as well as institutions, are not in place or are not in a well-maintained state to support the efficient diffusion of new technology programmes. The influence of the fast increasing population growth on the deterioration of the natural resources, which are essential for the development of farmers in former homelands, is very serious in Old Qwaqwa but less important in New Qwaqwa. After the 1994 general elections all veterinarians, some of the experienced health officers and some extensionists stationed in Qwaqwa were transferred to other capacities and even other areas of the country. This had a significant slow-down – almost a standstill effect – on the diffusion of livestock technologies to the local small ruminant farmers.