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ANIMAL GENETIC RESOURCES - COUNTRY REPORT
FOR SOLOMON ISLANDS

PART 1.

STATE OF ANIMAL GENETIC RESOURCES

1.0 INTRODUCTION

The Solomon Islands consists of a double chain of about 990 islands with six major islands; Choiseul, New Georgia, Isabel, Guadalcanal, Malaita and Makira. The largest island (Guadalcanal) measures 5,336km². The islands are mainly of volcanic origin, and extending from about 155 - 170° E to 5 - 12° S and therefore lie well inside the geographical tropics. The country has a total land area of 30,000 km² within a sea area of 1.5 million km². It is bounded on the west by Papua New Guinea, on the southwest by Australia, and by the islands of Kiribati, Tuvalu, Fiji and New Caledonia on the south and east. There are nine provinces, each comprising a major group of islands. The 1999 census recorded a population of 409,042 people in the country, of whom 197,661 were females and 211,381 males with a national annual growth rate of 2.8%; the projected population in 25 years time will double to approximately 800,000 (‘Report on 1999 Population and Housing Census’, 1999’). Majority of the population are Melanesians. Polynesians and Micronesians and others make up the other minority groups. There are 91 distinct languages spoken in the country including English and Pidgin. With the exception of the area from northern Guadalcanal to the Floridas and southern Santa Isabel, the Solomon Islands can be classed as continuously wet (Fitzpatrick et al., 1966), with most land areas having a mean annual rainfall of 3,000 to 4,000 mm. Temperatures range from 22 to 29° C in the lowlands to within a few degrees of freezing point in the highest mountains (2,400 m) in Guadalcanal.

1.1 Livestock Farming Systems

During the 1970’s a survey of land resources identified 3,381 square km of Agricultural Opportunity Areas (AOAs) which are
distributed throughout the country of which 87% is still unused (Agricultural Policy and Strategies, 1997). Livestock farming in Solomon Islands has always been integrated with crops in the villages and on a larger scale with plantation development. The major types of farms that carry out livestock production in cattle and goats are government (10%), estates or plantations (20%), private companies (10%), smallholders or farmers (50%) and missions & schools (10%). In the current situation pig farms are more significantly divided into 60% owned by smallholders or farmers, 35% owned by institutions and schools and 5% owned by companies and others. Most of the chicken farms 80% are run by smallholders, 15% by institutions and schools and 5% by companies.

Agriculture earns about SI$31.6 million in real GDP in 2002 (Source: Central Bank of Solomon Islands, 2004) of which livestock products contribute approximately 30% to the country’s total food production, the highest being root crops and vegetables except for commercial agricultural products such as copra and oil palm. Livestock has always been an integral part of the agricultural sector and the total food reliance. Livestock production and gardening is however fundamentally important to the average rural Solomon Islands because 80 - 85% of the population relies on subsistence agriculture for survival, especially the production of staple root crops from household gardens integrated with rearing of livestock. The livestock industry is a very important sub sector in the agriculture industry because of the following reasons, 1) about 80-85% of the people participate in the industry, 2) provides vital protein food source for a healthy population, 3) can be a major import substitute producer and contributes cash flow to rural economy. Of all the livestock activities carried out in the rural areas, pig rearing accounts for 85.5%, cattle 8.2%, 6.3% are other livestock, including goats and bees and ducks (Village Resources Survey 1995/96, 1997). Approximately 90% of rural households own some chickens.

The main livestock species in Solomon Islands in order of popularity are pigs, chickens, cattle, ducks, goats, horses and donkeys. The two later species, horses and donkeys are not
commonly eaten. The significance of livestock production increases each year as the population grows, and the problem of land availability becomes more prevalent.

2.0 PRODUCTION SYSTEMS

2.1 Primary Production Systems

The legacy of livestock production systems inherited from early settlers of the islands from centuries before as a way of addressing food security is still used by farmers today. Livestock production was never in isolation. But was done in integration with other crops in a subsistence agriculture system. Livestock farming in that era was productive and conservative of the environment because of the low population density. Obviously some of these methods are not as common or as productive as they had been. Pigs and poultry are the most important and indeed the oldest form of livestock activities in most rural households. Pigs and chickens are quite important, not only as a source of meat and eggs but for cultural ceremonies (Ochetim. S, 1987). The most common system of management used to keep a few pigs and chickens is the extensive system. Of the several different systems of husbandry used they are characteristic of the different parts of the country and environment the people live in.

The main species of livestock were pigs, chickens and much later on in history, goats, cattle, ducks and recently honey bees (Apis mellifera).

Pigs

There are two main line of breeds that exist in Solomon Islands. They are the domestic and the feral breeds. The latter is the native pig of the islands. It is believed to have the same origin as that of the pigs in Papua New Guinea (Sus papuensis). This feral pig breed is found in almost every major island and has managed to maintain its pure genetic
state in a few uninhabited islands by being isolated from human settlements and the threat of being interbred by introduced breeds. This particular breed needs to be conserved so that its genetic values could be ascertained.

The main production systems that have been and are currently used in pig production in the country are:

i) Intensive or Commercial System

ii) Semi-intensive or Semi-commercial System

iii) Earth yard System

iv) Free Range System

v) Tethering System

vi) Palisade System

vii) Slatted Floor system

i) Intensive or Commercial System is a recently introduced system which was first practiced at the BSIP Agricultural Training College in the 1960’s (de Fredrick, D. F, 1971). This system is whereby breeding pigs and their progenies are kept within a house and managed with high inputs. The population density of pigs is very high with feed and water provided. Production of pigs for slaughter is a continuous process. This is the most dominant system in most commercial farms using Improved European breeds as the main breeds.

ii) Semi-intensive or semi-commercial system is a blend between intensive and Extensive or Free Range. This is where pigs are kept in houses within pens but the pigs may be allowed to go out and fend for themselves and wallow in the mud outside and return. The pigs are occasionally fed in the sheds.

iii) Earth Yard System is the most commonly used method in most villages. De Fredrick (1971) recorded about 80% of all village pigs in Solomon Islands were kept in Earth Yard system. The method is to confine pigs in earth yard bordered by logs or stakes. In this system the pigs are fed once or twice a day by owners.
iv) Free Range system is commonly used by villages where there is a small number of people and houses. This system is becoming less practiced as a result of population increase, which reduces land areas for pigs to scavenge. In this system the pigs usually fend for themselves by scavenging for food all over the place.

v) Tethering is still very common in villages in some parts of the country. The pigs are commonly tethered to a tree by a rope of various lengths tied to a leg which allows the pigs to walk around in a restricted area.

vi) Palisade System is commonly used where pigs are enclosed by a palisade covering a wide area of land. The pigs can roam freely within the area where the pigs obtain their food and clean water. Within the enclosure, small huts are built for feeding the pigs especially in the mornings and evenings.

vii) The slatted-floor system is commonly used by saltwater people in the Lau and Langa Langa lagoons on Malaita. The shed is built over the sea and the floor are decked with stakes or timber with a small roof over it.

All of the above production systems have made significant contributions to the production of pig meat and pig breeding stock in the country.

**Cattle and Goats**

Cattle was first introduced to the Solomons by traders and missionaries in the late 1800’s. Cattle was introduced, firstly, to provide meat and milk for the staff in the missions and secondly as a means of keeping under control the weeds in the coconut plantations, to make picking of nuts easy. The legacy left by the early traders and missionaries of the cattle industry is still seen today. We still see hereditary traits of *Bos Taurus* blood present in the animals, especially the beef breeds of Shorthorn, Hereford and Jersey and the dairy breeds, Friesians and Ayrshires (Livestock Industry in BSIP, 1973). They were numerous notable
importations of cattle made by the government from Australia between the 1970’s and 1990’s. This was when *Bos indicus* cattle was introduced, mainly Brahman and Santa Gertrudis breeds. The three dominant cattle production systems in Solomon Islands are:

i) **Grazing under Coconuts**

Grazing cattle under coconuts is the earliest system where cattle survive on weeds and bushes interspersed with some native and some introduced pasture species which had the ability to withstand shade.

ii) **Open Established Pastures**

The open pastures system of grazing is mostly done by clearing virgin forests or using old garden sites and establishing pastures, using mainly introduced species of grasses and legumes. On Guadalcanal a prominent native species of pasture is widely used for grazing. This native species of Mission grass (*Pennisetum polystachyon*) is common on the grasslands on the northern side of Guadalcanal Island.

iii) **Cattle Tethering**

Cattle tethering is a recently introduced system which confined the grazing of cattle to certain areas at a time. Animals are tied with a length of rope to a bull - nose ring attached to the nose of the animal and the animal is tied to any stake or trees to graze. The major advantage of this system is the farmer has the ability to control his animals, fully utilizing the grasses along the road sides and other areas where grasses are plentiful.

Similar production systems of pasture development are evident in goat farming. Some of the present goats have genetic inheritance from the early goats brought in by missionaries and traders purposely to keep coconuts under-growths low. Similar to cattle farms, pastures used in goat grazing are the same pasture and legume species of both native and improved species as used in cattle farms. Goats are mainly kept for their meat which is slowly gaining popularity. The possibility of using goats as a draft animal has been on trial in some places, mainly to pull light carts.
Horses and Donkeys

There is a group of horses and donkeys that exist in a feral state in Yandina, in the Russell Islands. It is difficult to put an accurate figure on the present population. These animals were descendants of the horses kept for cattle mustering in the plantations and have gone feral. They survive by grazing on pastures and bushes.

Chickens and Ducks

Chickens and ducks are common forms of livestock in the villages, raised in free range system. Chickens and to a lesser extent, ducks, have become an important part of our food security and a reliable source of protein in the villages. As early as 1980’s the commercial production systems of broilers and layers were introduced into the country. These two farming systems depend on imported supply of day old chicks and feed.

Honey Bees

A recently introduced form of livestock was the European breed of honey bees. These were first established in the early 1980’s and thus the industry is now widespread throughout the country. The production is done using established hives and harvesting stored honey in frames within the hive boxes.

Unfortunately, the boom is being threatened at the recent discovery of the *Apis cerana* (Asian Bee) and the Varroa mite which had destroyed most of the productive hives on the islands of Guadalcanal and Savo. The estimated honey production in 1999 was 20 metric tonnes of high quality natural honey of which 12 tonnes were exported mainly to Malaysia and New Zealand.

2.2 Changes in production systems

These production systems have gone through many changes since the adoption of new technologies with the aim to increase production particularly in the commercial systems. The outputs of more agriculture trained people bring in new adopted methods and ideas of farming. Farmers should be encouraged to move from
total household self sufficiency to some degree of specialization that suits the resources available. Most of the changes in the production systems are particularly high in the commercial and the semi-commercial systems. The changes in the livestock production systems are reflective of the changes in lifestyles of the people.

People have come to realise the need for food security but more importantly they look at the possibility of increased production and the financial gains expected. Farmers tend to believe that any system which increases production is the best. Thus, the recent changes which continue to take place are indicative of the socio-economic changes that occur in the country.

The eating habits, the standard of living, the cultural interactions and the shift in the staple diets of being dominantly vegetables and fish to more meat and eggs have encouraged changes in the production systems to take place.

In cattle, the competition for land with food gardens and other developments, and the need for more beef have brought the introduction of a new system of cattle tethering. This system, common in Asian countries was introduced as a means to encourage more families to own two or three animals. It is also seen as a way of utilizing the roadside grasses and coconut undergrowths which are plentiful.

In the years prior to 2000 and the ethnic crisis, about 50% of pig products were produced by commercial growers (intensive systems) especially located in and around urban centres, 30% from semi-intensive and 20% from village systems of palisade, tethering, dirt floor and free range. With 90% of commercial farms destroyed during the ethnic crisis, the semi-intensive and the village systems produced more than 90% of all pig products.

2.3 Main products of animal origin by production system.

Since 1999 up until 2003, the production of meat and milk in the ruminant species of cattle and goats can be ascribed to the efforts of government and plantation farms with 60%, smallholder, missions and school produce 40% of the total country production.
The most productive system in cattle farming is the grazing of cattle under coconuts, an estimated 60% of the total beef production. Open pasture system caters for about 35% and the remaining 5% is from tethering cattle.

In the last decade (1990 – 2000) almost 90% of all chicken meat and eggs was produced from medium sized broiler (250-500 birds) and layer (500-1000 layers) farms. In 2003, the total chicken meat production mainly from the semi-intensive and intensive broiler farms produced 1,235 tonnes. It is difficult to accurately put a figure on the local chicken production. Post 2000 saw a shift in production, since most of the productive farms were destroyed. The largest volume of chicken meat and eggs is still produced by semi-intensive farm sector (40%), followed by missions and schools (20%) and companies (10%). The rural households produce the balance, yet it is difficult to ascertain the actual figure of production in the rural villages.

Duck meat and egg production has yet to make an impact on the market and is insignificant in terms of production figures.

Pig products produced from smallholders using extensive systems (semi-intensive, free range, tethering, and palisade and earth yard) account for about 60% of all pig production with the rest produced by commercial pig farms. The throughput of pig meat in the Honiara butcheries from the local pig farms amounts to 166 tonnes in 2003. Using the Honiara figure, it is therefore estimated that the total country production of pig meat could come to about 315 tonnes in 2003. The demand for pig meat is constantly rising.

Goat meat production has declined since the failure of the goat farming scheme in the 1980’s due to the problem of heavy worm infestations experienced in goats. The remaining goat farms are mostly run by smallholders and these goats have developed some form of immunity to worms. Thus, it is obvious that most of the goat carcasses are being produced and consumed in the rural areas because that is where they are kept.

Horses and donkeys meat is not consumed locally except when some are culled for pet food.
2.4 Percentage of animal products for Domestic and Export Markets

In the current situation, 100% of all livestock products are produced and consumed locally. Chicken products account for an estimated 50%, followed by 32% pig products, 5% of beef, 3% honey and an insignificant percentage of goat meat.

There is no livestock product being exported from Solomon Islands since 1994 when pork and cow hides were exported to Nauru and Australia respectively. This is due to the insufficient production in all livestock species while the demand in the domestic market continues to increase. The immediate concern of the government is to meet the domestic need of livestock products of the country and only surpluses would be exported. It would take many more years and only with immense importations of stock that would immediately increase production.

2.5 Trends (last 10 years and next 10 years)

Livestock activities in the last 10 years have been a combination of successes and failures as far as production and management is concerned. For pigs and poultry, productions have increased especially in the commercial sectors with the introduction of broilers and layers farming systems. There has been a steady decline in the ruminant species of cattle and goats. For beef cattle the country achieved a peak number of 25,000 head in 1977. Since then, this has declined to 9,700 head in 1991 (estimated 4,500 in 2000). Dairy cattle consist of only one herd of about 50 cows and bulls in the whole country. This herd has also declined to only about 20 cows in 2000. The total goat population prior to 2000 came to about 600 head and then a dramatic decline to an estimated total head of only about 200.

Pig numbers have also declined from an estimated 60,000 to a low 25,000 with smallholders owning about 85.5% (Village Resources Survey, 1997) in 2002. Horses and donkeys have also declined except for a feral herd in Yandina with an estimated population of around 100 head. Chickens farms and stocks of broilers and layers have also experienced a marked reduction in numbers.
The ethnic tension related problems have been one of the major causes of the dramatic decline in all livestock species. Bold measures are required to rectify the country’s situation left by the ethnic crisis.

The country is optimistic that the next 10 years will see major developments in the livestock industry. The government is committed to see that steps are taken to increase and improve livestock production in all sectors both private and public. This is directly in line with national food security goals with more emphasis on livestock as one of the targeted area. The country needs to organize and fund importations of livestock in order to immediately increase production. There is a chronic shortage of quality breeding stock in all livestock breeds in the country.

Pigs are the most prolific breeders and the national pig population could increase tenfold within the next 5 years if the country begins to source breeding stock either from overseas or using the pig breeds within the country. The feral pig population in most islands is difficult to estimate but could number into thousands. This pig breed is known for its hardiness to survive with limited feed, and could be used by breeders to isolate the genes for this trait and use it for productivity.

The development of goat production is an appropriate one for the country and should be encouraged. The handling and management of goats is easier for local people and it is also more docile than cattle or pigs.

3.0 STATE OF GENETIC DIVERSITY

3.1 The state of knowledge of genetic diversity

The indigenous people of Solomon Islands first came to these islands with pigs, chickens and other livestock as part of their preparation for survival and livelihood. They would use them to provide meat and eggs for food as well as pets. There are currently wild populations of pigs, chickens, dogs and cats and other animals in the bush. The Animal Genetic Resources (AnGR) awareness has not been given full
publicity and this is one reason why this topic has been overlooked, and the need to conserve breeds has not been highlighted.

The main species and breeds of livestock in the country are as shown on table 1. It is unfortunate that the most recent livestock population figures of the various species and breeds in the country are not available. Livestock census and surveys have not been able to be undertaken in the last 10 years due to lack of resources especially finance and other supporting logistics. The main breeds of livestock in Solomon Islands are cattle, pigs, goats, horses and donkeys, chickens and ducks, bees and other local potential breeds.

<table>
<thead>
<tr>
<th>Species</th>
<th>Cattle</th>
<th>Pigs</th>
<th>Goats</th>
<th>Horses</th>
<th>Chickens</th>
<th>Ducks</th>
<th>Bees</th>
<th>Potential Breeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brahman</td>
<td>Large White</td>
<td>Angora</td>
<td>Origin Unknown</td>
<td>Australop</td>
<td>Muscovy</td>
<td>Apis mellifera</td>
<td>Temotu Wild Fowl</td>
<td></td>
</tr>
<tr>
<td>Hereford</td>
<td>Landrace</td>
<td>Sanaans</td>
<td>Rhode Island Red</td>
<td>Peking</td>
<td>Megapode Birds</td>
<td></td>
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</tr>
<tr>
<td>Shorthorn</td>
<td>Duroc</td>
<td>Anglo Nubian</td>
<td>Anacona</td>
<td>Indian Runner</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Jerseys</td>
<td>Berkshires</td>
<td>Malayan Game</td>
<td>Khaki Campbell</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Friesians</td>
<td>Tamworth</td>
<td>Hampshires</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Ayrshires</td>
<td>Saddleback</td>
<td>Broiler breeds</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Santa Gertrudis</td>
<td>Wild Pig</td>
<td>Layer Breeds</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Limousines</td>
<td>Local Crosses</td>
<td>Village Crosses</td>
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</tr>
<tr>
<td>Simmental</td>
<td></td>
<td>Santa Cruz Wild Fowl</td>
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<tr>
<td>Solomon Island Red</td>
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</tbody>
</table>

The Department of Agriculture & Livestock should shoulder the responsibilities for making available such valuable information.
Valuable government records on herd management, breeding structures and organization of breeds of economical importance were lost during the ethnic unrest on Guadalcanal. Many farming units rarely keep proper records of their herd organization.

At this stage it is very difficult to ascertain what breeds make up a particular herd although common features may standout in the animals. It is also difficult to trace the origin of some herds and flocks. As in many cases several different breeds are commonly, systematically, or randomly crossed without proper herd records. This may be the case in large herds of cattle like RIPEL as well.

Major factors preventing collation of information include;

i. Lack of proper records of AnGR
ii. Lack of funds to implement any programme for purposes of information and data collection.
iii. Lack of policies, objectives and strategies for AnGR.
iv. Lack of trained personnels who can carry out these data collection

3.2 Locally adapted breeds
Locally adapted breeds include the wild and domesticated, pigs and poultry.

Table 2. Showing locally adapted breeds

<table>
<thead>
<tr>
<th>Cattle</th>
<th>Pigs</th>
<th>Goats</th>
<th>Horses</th>
<th>Chicken s</th>
<th>Ducks</th>
<th>Bees</th>
<th>Potential Breeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brahmans</td>
<td>Large White</td>
<td>Angora</td>
<td>Origin Unknown</td>
<td>Village Crosses</td>
<td>Muscovy</td>
<td>Apis mellifera</td>
<td>Megapode Birds</td>
</tr>
<tr>
<td>Hereford</td>
<td>Landrace</td>
<td>Sanaans</td>
<td></td>
<td>Santa Cruz Wild Fowl</td>
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<td></td>
<td></td>
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<tr>
<td>Shorthorn</td>
<td>Duroc</td>
<td>New Zealand Feral</td>
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<td>Jerseys</td>
<td>Berkshires</td>
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<tr>
<td>Friesians</td>
<td>Tamworth</td>
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<td></td>
</tr>
<tr>
<td>Ayrshires</td>
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<td></td>
</tr>
<tr>
<td>Santa Gertrudis</td>
<td>Wild Pig</td>
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<td></td>
<td>Local Crosses</td>
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</tbody>
</table>

13.
Local pigs

The local wild pigs are generally small, black with red eyes and long snout. These types of pigs are generally low producers. It has been a common practice to domesticate this wild breed and later crossed to recently introduced strains.

Local fowls

Common in almost every village in the rural areas and some provincial towns are the domestic, village or local chicken. It is difficult to ascertain when these local stocks were introduced into the country as no information is available on history of local chickens. It is commonly believed that the earliest settlers were responsible for the original stock introduction. Many of these local strains are continuously crossed with recently introduced breeds. The domestic flocks live in villages rather than in the forests.

On the islands of Santa Cruz in the eastern province of Temotu, a strain of Wild fowl exists. This wild population has naturally isolated itself from domestication and lives in the forests. These wild stocks have not even intermingled with the domesticated strains. Attempts by the Department of Livestock to breed these strains with other imported and domestic breeds have not been successful. It is believed that Spanish explorer Alvaro de Mendana introduced this breed.

Cattle

*Bos indicus* were later infused by use of Brahmans and Santa Gertrudis strains. These introductions were important for the industry, as the infusion of these breeds appear to be successful with the local cattle herd improving in vigor and growth rates. A cattle type developed from crosses between the *B. taurus* types and *B. indicus* types was commonly called Solomon Island Red or “SI Red”.

As matter of observation Brahmans and Santa Gertrudis cattle adapted very well to the climatic conditions of the Solomons. Brahman and Santa Gertrudis infused stock do
not seek water and shade so often (Livestock Industry in B.S.I.P). The Brahman and Santa Gertrudis strains have become the base breeds for the government herd.

Nothing, or little is taken towards studying factors limiting production and instituting measures to improve diet and husbandry, and to control disease and parasites of local breeds.

Goats
Goats thrive well in the Solomon Islands and have been known to produce five to six kids in one birth (Livestock Industry in BSIP, 1973). There are however, no recent reports on Goats producing more than two kids. In the Government Herd at Tenavatu (now destroyed) initial stock comprised of Angora and Sanaans goats imported from Australia.

Pigs
Initial breeds introduced to the Solomon Islands during the early days include European breeds, Large white, Land Race, Tamworth, Berkshire and Saddleback. These strains are common all over the provinces, in Training centres, provincial farms and small holder farms. These strains have been used extensively to up-grade the local strain of pigs. Berkshire and Saddleback breeds generally perform better in semi –intensive systems than large whites and landrace as they encounter problems relating to skin inflammation (Livestock Industry BSIP, 1973). The white European breeds seemed to be the preference in many small farms. The recent infusion of the Duroc breed in the early 1990s appears to be successful with better vigor and growth rates. Imported strains have been accepted very well in the communities and there remains a high demand for the farming of all strains of pigs.

Other Poultry
Muscovy ducks have been kept fairly successfully in a number of places including villages, and these appear to thrive. Geese have been introduced to the Government herd and have created much interest. Like goats these breeds
thrive well but have not been taken up by farmers in their farming system. It is generally believed that duck meat has a special market amongst the increasing Chinese populace in Honiara. As species with potentials to be an important contributor to dietary protein ducks and geese should be emphasized amongst farmers.

3.3 Recently introduced breeds.

Imported breeds of cattle, pigs, poultry and goats were important in relation to food production. Table 3. below lists the various breeds recently introduced, as recent as 1977.

<table>
<thead>
<tr>
<th>Cattle</th>
<th>Pigs</th>
<th>Goats</th>
<th>Horses</th>
<th>Chickens</th>
<th>Ducks</th>
<th>Bees</th>
<th>Potential Breeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limousines</td>
<td>Duroc</td>
<td>Anglo Nubian</td>
<td>Anacona</td>
<td>Peking</td>
<td>Apis mellifera</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simmental</td>
<td>Malayan Game</td>
<td>Indian Runner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charolais</td>
<td>Hampshires</td>
<td>Khaki Campbell</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Broiler breeds</td>
<td>Layer Breeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The latest cattle importation was made in 1997 by Russell Islands Plantation Limited (RIPEL) of 800 head from Breeders in Australia. Breeds imported included Santa Gertrudis, Brahmans, Limousines and Simmental.

In this chapter, cattle may be referred to as recently introduced specie but its beginning goes back over 100 years.

In pigs, the only recently introduced breed is Duroc.

First Commercial or improved strains of chicken may have only been introduced into the country in the late 1980s and even early 1990s. There are no specific records available to ascertain what 16.
commercial strains made up the initial poultry flock. It seems likely that Australops and Rhode Island Reds were the first. Earlier reports shows that some chicken sighted on some mission stations appear to have the likeness of European breeds.

Owing to the adaptability of Australops and Rhode Island Reds in the village farming systems, the department of Livestock imported more of the same strains. These were raised and multiplied at the government farm. These breeds are used to up-grade local chickens.

The recent importations of live Anglo Nubian goats supplemented with limited straws of frozen semen (A.I) from Australia in 1990 were made to improve the government goat herd at Tenavatu Farm (now destroyed).

Although often regarded as a manageable animal in terms of its size and its ability to withstand local conditions, goats have not found a place in local farming systems. Attempts by local farmers to keep goats have sometimes ended up in angry scenes, and goats got killed without breeding due to goats’ liking for garden produce.

3.4 Continuously imported breeds.

Chickens.

Broiler and Layer chickens are the continuously imported strains. These poultry types are continuously imported to replenish supplies which are sold to farmers, and not replenish a breeding programme. Commercial breeds including white broiler and white and brown layer chickens have been continuously imported. These strains are imported as day old chicks or as fertile eggs and hatched in local hatcheries. These poultry types are important contributors to food production in Honiara and urban centres. Many households on the periphery of Honiara raise these broiler and layer strains in small household units.

A common difficulty in Chicken Farming in the Solomon Islands is the feed cost factor, imported feed is very expensive. Many small Chicken units on the periphery of Honiara and the urban centres in the provinces were forced to close down because of excessively
inflated feed costs.

### 3.5 Trends for each breeds (numbers)

There are systems available to monitor the trends in breeds of each species. The continuous lack of funds has been the major constraint in not implementing or utilizing the available monitoring systems.

It is however noticed that there is generally a steady to sharp decline in the breeding populations nationally. For instance it was estimated that the national cattle population in 1990 was 10,000 heads. Today’s cattle is estimated to be a mere 4,500 heads spread over the Islands, with the largest herd of about 2000 in the Russell Islands (RIPEL). The cattle population can face the serious consequences of further depletion and extermination if not properly addressed. This is generally the case of all species and breeds available in the country, a general decline in numbers.

### 4.0 STATE OF UTILIZATION AND CONSERVATION OF AnGR

#### 4.1 STATE OF CONSERVATION OF AnGR.

Breeding systems could be considered to be the most important method of AnGR conservation apart from AnGR existing in their natural state. But current breeding practices overlook genetic conservation and produce more stock for meat purposes.

All recently adapted breeds are farmed meaning; they are raised in some kind of enclosure whether it be shed or fenced areas. AnGR can be conserved in these farming systems if proper herd management and breeding strategies are adhered to. However many herds lack proper breeding strategies.

On the other hand, there are indigenous breeds of pigs (*Sus papuensis*) and chickens (Santa Cruz wild fowls) which exist in their natural environment, and maintain their genes without contamination by domesticated species, and recently adapted species. These indigenous breeds are not managed, but maintain
themselves in their local population. Wild pigs (*Sus papuensis*) maintain themselves genetically on uninhabited island of Tetepare in the western province. The Santa Cruz wild Fowl exists in the forests of Santa Cruz the Eastern province of Temotu.

Wild population or numbers cannot be ascertained or estimated. But increasing environmental disturbance by humans by way of gardening, deforestation practices and hunting, threaten to reduce the wild population.

AnGR conservation and development is important to food production. This important fact is placed in the hindsight by local animal Scientists, Livestock specialists and farmers. If livestock with economically important traits are utilized, positive impacts can be expected in productivity of breeds and food production. Recently adapted breeds can be utilized to upgrade local breeds or crossed with other recently adapted breeds with desired traits.

Indigenous breeds have great social values in the rural societies; many of these breeds have been taken from the wild and become domesticated. Many have been crossed with imported breeds (recently introduced).

The Livestock industry has no conservation strategies for AnGR although farming and production strategies are part of the industry policies. Conservation of AnGR is not given attention or priority yet. In this context there are no institutions; private companies, research stations or protected zones where AnGR monitor, conservation and development is currently undertaken (generalization).

There is an Environment and conservation section in the Department of natural resources which only deals with conservation of other natural resources including marine life and wild life (fauna and flora).

Conservation of AnGR should be the responsibility of the Livestock department and other livestock stakeholders. The importance of AnGR in food production must not be continuously overlooked. The department of livestock must initiate conservation and development strategies for AnGR. There must be interaction
between Livestock Department and stakeholders on conservation of AnGR. It may even be worthwhile to establish an AnGR conservation office. This office is to be responsible for policies, objectives, programmes, and implementation of programmes for AnGR conservation. Specialist training of Human Resources needs to be facilitated, and funds secured by the Livestock Department to support AnGR conservation.

It is also important that regional communication on AnGR conservation should be established and be active in sharing of information and technologies.

Solomon Island has not used collection or storage technologies to conserve any genetic material for conservation purposes.

Important records of breeds, breeding structures and systems of livestock mainly imported cattle, pigs and chickens have been lost during the destruction of the government farm. This means that there are no available records for AnGR purposes.

The country does not have any conservation in ex-situ programmes or facilities that would enhance the development of AnGR.

4.2 State of utilization of AnGR

Government
It is a policy of the Department of Livestock “To promote food security and self-sufficiency in food production where economic in the rural household and at the National level” (National Agricultural Policy Framework NAPF, 1997), through the use of AnGR.

The Department of Livestock is responsible for coordinating and supporting a National Livestock Development Programme, guided by its policies and objectives. Department programmes basically entail providing and facilitating, farm development and strengthening, production, market support and training.

The general use of AnGR is unaffected by any regulation. There are regulations enforced by the Quarantine jointly with the
Department of Livestock on livestock or AnGR, livestock products and animal products. The Department of Health is responsible for laws and regulations which regulate slaughter, processing and farming location of livestock.

The Department of Livestock involvement in the direct use of AnGR is undertaken in the following roles.

1. Breeding.
2. Multiplication.
3. Distribution
4. Advisory and Training

Breeding, multiplication and distribution commence from a nucleus herd at the department farm (Tenavatu). The Department farm or Tenavatu farm as it was commonly referred to, encompass 360 hectares of open pastures and farm infrastructures. Tenavatu farm has a capacity stock of 600 cattle, 480-500 pigs, 200-300 poultry and ducks, and 100 goats. The nucleus parent Stock include 300 breeding cattle, 34 breeding pigs, 150 breeding chickens, 50 breeding ducks and 100 breeding goats.

Livestock breeds include:

2. Pigs: Large white, Duroc, Landrace, Berkshire.

Livestock are multiplied and then distributed by sales to farmers, Rural Training Centers or Provincial farms and other institutions.

Technical Staff from the Livestock department provide technical assistance to farmers, Rural Training centers and Provincial farms. Technical Staff are posted at the Department 21.
Headquarters in Honiara and provincial centers. These technical staff also organizes supportive Farmer trainings jointly with their Agriculture extension counterparts.

**Private Sector**

**a) Livestock Development Authority (LDA).**

LDA (liquidated) was a statutory body established to implement marketing responsibilities in the livestock industry. As a marketing organization it purchases fattened Livestock, more specifically cattle and chickens from its out-grower farmer scheme from Honiara and the provinces. LDA itself is a major user of AnGR itself. LDA AnGR included over 4000 cattle, 5000 pigs and 5000 batch broiler unit. The breeding herd included 2000 cattle and 300 pigs while fertile eggs are imported for the LDA hatchery. LDA mainly produces stock to meet domestic meat demands. Breeding was only under taken to maintain the current breed types utilized

LDA AnGR breeds include:

2. Pigs: Large Whites, Land races, Duroc

**b) Russell Islands Plantation Estate Limited. (RIPEL)**

RIPEL remains a major cattle producer in the country with the capacity to hold over 5000 cattle in its Islands estates. There are approximately 4000 cattle on RIPEL land, with a 1500 breeding herd. All cattle are run and raised under coconuts. RIPEL business objectives are on fattened cattle, to cater for domestic meat demands, while breed development is not in the Business interest yet. RIPEL supplies a small number of breeding stocks to properties in the neighboring Island of Isabel. As a side activity RIPEL also runs a 15-sow unit piggery with the capacity to produce 240 porkers at any production period.

AnGR on RIPEL include: Brahman, Santa Gertrudis and SI Red
c) Rural Training Centers (RTC)

Rural Training Centers or RTCs, are mission-owned and managed centers. There are around 50 RTCs scattered over the Islands. These centers are built to cater for training of young farmers, amongst other disciplines, livestock farming. Vanga Rural Training Center in the western province is among some of the well established and advanced RTCs. Livestock farmed at Vanga includes 60 Cattle (Mainly Brahmans and SI Reds), 40 breeding Pigs (Large white, Landrace) capable of producing 480 porkers per production period. RTCs are the most important source of breeding stock for rural farmers due to their proximity.

Most other Rural Training Centers do not have extensive land areas to concentrate their efforts on farming of pigs and poultry. Each center manages an average of 4 sow Pig unit and 150 poultry unit. All breeding stock at RTC level usually originates from either the Government farm or LDA. Where the RTC is within an urban center, some stock may eventually be retailed as pig meat. The main thrust of RTCs is on Farmer training and distribution of breeding stock.

d) Farmers

Farmers range from very small Livestock raisers to medium scale farm units. Livestock farming around urban and provincial administration centers is encouraged as many farmers are gradually shifting away from the subsistence practice. Many medium scale farm units operate as small business entities, aimed at making profits. Small farmers often or still operate on semi-business basis with minimal investments and low productivity. AnGR used at farmer level are sourced from RTCS in most cases. Farmers are currently the major suppliers of pork consumed in Honiara and the rural areas. Pig and chicken (broiler, layer and local) rearing is popular among the farming communities. Small and medium scale farmers manage 3 – 4 sow units which can produce 40 – 50 porkers at production period. In the perimeters of Honiara, Household broiler production is a popular practice, with
households raising 100-200 broiler birds per unit. Common layer units in and around urban areas would raise about 250 – 300 birds.

In the village setting, there are units of the traditional type AnGR, pigs and chickens in particular. It is common practice that each family or persons within a family owns 1-3 pigs and 5 -10 chickens, raised for social or ceremonial obligations.

Changes in farming practices are influenced by increasing financial obligations in a cash economy and financial benefits in livestock farming. Donor assistance to farm units and opportunities to access exotic breeds are among other reasons for changes in farming practices.

A livestock census needs to be undertaken to determine or ascertain the current number of Livestock farmers and national livestock (farmed) population.

e) NGO

NGOs are currently involved in other development issues other than AnGR use and conservation.

f) Tongs Corporation

Newly operative Poultry egg producer Tongs Corporation is a major supplier for the Honiara demand. Tongs Corporation supplies 40% of consumer demands in Honiara. The Laying Flock comprises of 4,000 laying birds of exotic breeds (recently adapted).

4.3 Breeding improvement strategies.

Straight breeding and systematic breeding are breeding strategies used by the government Tenavatu farm. No records on breeding strategies are available for LDA (now liquidated) and RIPEL, it may be correct to assume that straight breeding and crossbreeding methods have been used in their herds.
In the early history of livestock farming in the Solomon Islands, with particular reference to the government (Department of Livestock) AnGR, different breeds were selected overseas and imported for use in the Islands. Some breeds were selected for the previous performance and better adaptability to climates and environments similar to the Solomon Islands. Other breeds were selected for the economically important traits for instance, better feed conversion, better liveweight gains, and low mortality amongst other traits. Therefore straight breeding was used to conserve the specific traits carried by the different breed.

In the aim of producing a particular breed for Solomon Islands systematic crossbreeding methods were employed in the Government Cattle herd at Tenavatu farm. “Solomon Island Red” a hardy breed of cattle was developed after years of systematic crossing breeding. This was a result of crossings between Herefords and Draught Masters. Similar breeding systems were used in pigs, but unlike cattle no particular breed has been developed.

It is common to see in pigs, cross breeds of the European and local breeds adapting well to the local environment. These crosses respond well to the husbandry and management of local production systems.

In the case of poultry, straight breeding and systematic crossing have also been used. Parent flocks of pure Rhode Island Reds and Australops have been maintained. Crosses between these two breeds and the village chickens are popular and have been found to improve the village chicken production.

Local breeds will in the future play a very important role in food production, when considering increasing feed cost and expensive feed required by the recently introduced breeds commonly farmed.

Breeding strategies practiced and encouraged include:

1. Straight breeding of Parent stock: to maintain particular important genes or traits.

2. Systematic crossbreeding: between imported breeds and crosses with local breeds for upgrading purposes.
3. In many small units random crossings are commonly used as a means to evade defects associated with inbreeding. Sires are usually brought into the herd from another herd or farm outside, while dams are replaced from within.

4. F1 generations from crosses in the Government herds are distributed to other herds including Rural Training Centers RTCs and farmers. Farmers are encouraged to use unrelated sires and dams to avoid inbreeding.

Larger commercial operations currently lack a define herd management plan or breed improvement strategy. Random crossing is prevalent and in many cases there is little consideration given to the type or choice of breed in use. At the current time there is no programme being undertaken towards breed development.

Natural mating system is predominant in all herds throughout the country. Artificial breeding procedures including artificial insemination (AI) in pigs and cattle have also been practiced. In goats, laproscopic insemination has been undertaken for training purposes only.

PART 2.

1.0 CHANGES IN DEMAND

1.1 Future Demand in animal Products.

The demand for animal products in the country since the 1970’s has continued to change as more people have access to these products especially beef, pork, goat and chicken meat and eggs. These changes in demand obviously came with political, social and economic developments that continue to occur. The introductions of new discoveries and inventions of technologies such as in communications, travel and education have also contributed to the increased demand for animal products. The constant movement of people fueled by improved transport and communication links has prompted the changes to happen. They
also brought changes to the way we live and eat. It is the changes in these standards of living that brought about the changes in demands for animal products.

The successes and failures of past programmes of livestock developments have given the people invaluable experiences about animal products. There have been many livestock programmes conducted in the country by both the government and the private. These programmes have introduced these products to the people.

**Cattle**
The early cattle breeds, introduced were mainly British breeds of Herefords, Short Horns, milk breeds such as Friesians, and much later in the 1970’s Brahmans breed was introduced. The British breeds although mild in temperament did not suit the climate. The milk breeds found the islands’ climate too hot. These breeds have adapted themselves to the climate of Solomon Islands. Solomon Islands Red was a breed developed in Solomon Islands which had Hereford and Brahman blood in it. This breed was well suited to the climate and it was found to have good production values. The demand for cattle products is constantly increasing and projections are that the demand will continue to rise as the population grows.

**Pigs**
Pigs are the most endemic species of livestock in Solomon Islands and it is kept in various types of production systems. Pigs had been interwoven into the traditions and customs of the people of Solomon Islands like elsewhere in the Pacific. It was a source of food and has a value that qualifies it to be used as an item for exchange especially in the traditional activities. It was domesticated and raised to become an important food and wealth source for our people. Pigs exist in herds of feral and domesticated state. Pigs importance both as a food source and as a traditional value item is deemed to increase.

**Goats**
The liking for goat meat has been established since they were first introduced. The small size of the carcass compared with cattle and its affordability for a family meal and its favoured meat with Asians and some religious groups has certainly increased its popularity and demand. The current demand is very high and it is believed that the future demand for goat meat is going to be even 27.
higher. The records mentioned that the breeds first brought in were Angora.

**Sheep:**
Sheep was once introduced to the Solomons in the early 1970s’ as a trial to graze the contour banks of the rice paddies. The breed of sheep used was the Merinos which were obviously unsuitable to the country’ climate. The current exports of New Zealand and Australian sheep products to the Pacific Islands have increased its demand.

**Buffalos**
Buffalos were introduced in to the country in the early 1980’s from Northern Territory of Australia. They were originally from the feral herd in North Territory. The purpose of importing them was to use them as draught animals to assist in the transportation in picking coconuts in the plantation. The few animals that were brought in, lacked fertility and could not breed. Eventually these animals have to be culled. There are currently no buffalos in Solomon Islands.

**Horses**
The first horses were meant to be used as animals to muster cattle. Others were imported mainly from Australia for entertainment and leisure purposes. The off-springs of the first animals are still spread around in the islands, particularly in the Russell Islands. The progenies are all mixed breed. There is no pure breed horse at this present time. Horse meat is not popular for consumption although some people found it acceptable for consumption. The demand for horses mostly for mustering and for leisure purposes is likely to increase.

**Donkeys**
Donkeys were also brought from Australia on the same ship as the buffalos. They were imported purposely to be used as draught animals.

**Rabbits**
Rabbits were introduced in the country in response to the call by the government for livestock diversification and a possible food and protein source. This was not successful as they could not breed. Currently there is no rabbit in Solomon Islands at the present time.
**Chickens**
The demand for chicken products is always on the increase and even in the present time the domestic market is under supplied. Consumers find the size of the chicken and its availability in the market has made chicken a favoured livestock product. The domestic demand for chicken eggs is constantly rising and it will continue to rise.

**Ducks**
Ducks were introduced into Solomon Islands at a later date than chickens. The major breed that has been released in the islands was the Muscovy, Peking, Khaki Campbell and crosses. Duck meat and eggs is popular with Asians.

**Geese**
A flock of geese was introduced at the government farm at Tenavatu in 1990, in an effort to diversify in the livestock species in the country. The effort discontinued as the flock failed to breed.

**Honey Bees**
Honey Bees, the latest addition to the livestock products in the country is a popular farming activity. The trend of its popularity with the people is ever increasing because it utilizes flowers of the trees. The demand for Solomon Islands honey overseas is very high. This is because of its natural quality and is chemical free.

**Feral breeds with high breeding potential**
A feral breed of fowls found on Santa Cruz Island in the Temotu Province could be a major source of genetic resource for future chicken development. The genetic composition of this breed isuntainted with and still intact.

**Megapode Birds**
These are specie of birds that commonly occupy islands of volcanic origin and their use for producing larger eggs is common. The birds have been extensively harvested through an extensive type of management. This bird could be an important contributor to food security, with more emphasis on its harvesting and management. The birds are still in their wild state and continued to be harvested thus.
**Changes in Production Systems**

Changes continue to take place in the production systems as more emphasis is placed on the idea to increase production. In cattle, instead of grazing cattle on the undergrowths of coconut plantations for easy picking of nuts as was the early practice, more improved pastures were planted under coconuts on the advice of pasture researches done under coconuts and on open pastures cleared from virgin forests. More fences were erected to control their movements. The pastures are highly nutritious with more legumes planted with pasture grasses.

In pigs similar trend is evident with increased production being the goal and therefore new systems are adopted particularly in the commercial sector. Only 45% (Solomon Islands Population and Households Census, 1999) of all households in the Solomons keep pigs on subsistence systems is proof that the trend has shifted from the traditional systems to more commercial systems. The traditional systems of tethering, palisade, free-range and earth yard, although still used no longer hold importance as before.

The local or village chickens which have been kept in free-range systems in the villages for centuries are now being fenced to confine them. The “Population and Housing Report, 1999” reported that only 37% of all households kept chickens. This is because people tend to confine chickens now rather than let them roam free. It is also true for ducks with farmers confining their birds and managing them intensively with the aim to improve management and increase production.

Although goats have been in the Solomons over many decades they have not been taken up by farmers like cattle, although the system of production is similar to cattle.

Honey bees (*Apis mellifera*), the latest introduced livestock in the Solomons is becoming very popular with the local people as being suitable in rural areas. The less intensive labour requirement of the apiaries makes them popular with the local population.

Some of the reasons for these changes of productions to occur include:

- land pressures due to increased population,
ii. land tenure systems (80% of the country’s land is customary owned)

iii. The aims of rearing livestock have shifted as new developments take place.

iv. In many instances local governments have introduced by-laws which banned livestock to roam free in towns and villages.

v. The changes of production is parallel to the population growth of the country.

vi. New technologies and methods adopted have brought in new heights in production.

1.2 Breeds and Production Systems that will cope with new changes

The majority of animal breeds that have been raised in Solomon Islands have been in the country for more than 10 years. These breeds have now adapted themselves to the systems and environment of the country. The productions systems have also adopted variations of changes to their originality in an effort to accommodate the changing demands of livestock products.

In cattle, the major breeds such as Brahmans, Santa Gertrudis, Solomon Island Red, Shorthorn and Hereford crosses and Friesians are breeds that can cope with new changes. Pig breeds of Large white, Landrace, Tamworth, Berkshire can cope with changes.

The unique breeds of the native pigs, the wild fowls on Santa Cruz, the ‘Solomon Island Red’ cattle and the native wild Megapode birds may have to cope with the changes to survive. The fundamental objective of all livestock stakeholders is to make livestock products more available and affordable for the population to use.

To conserve AnGR and increase livestock production, it is obviously essential that we consider using the subsistence systems of productions but may be infused with modern methods. These systems have proven to be productive and have been used over time and therefore it would be proper to continue to use them.
These production systems have to adopt changes to make them more productive.

1.3 Government Orientations
The current Livestock policy (National Agriculture Policy Framework 1997) promotes livestock development with an approach to maintain a sustainable industry and promote food security.

The government policy still encourages participation by all levels of farming to enhance import substitution. To support such aspirations, assistance technical and financial is facilitated by government departments to the farming community at large to enhance production. The department of livestock would like to encourage more local participation in livestock development to face challenges poised by the industry itself.

Currently the Department of Livestock has no specific policy, objectives or strategic programme to address conservation, management and development of AnGR. The Department of livestock also understands the importance of AnGR development in relation to food security and changes in demand for animal products.

In the last 10 years until today the Department of Livestock has greatly encouraged the use of imported species and continues to do so in an effort to meet the domestic demands for lean meat.

Today there are surmountable difficulties that the local livestock industry is facing. These include declining livestock numbers, unmonitored AnGR status and other genetic related problems, and non-genetic related problems of which high feed costs, the most important. No programmes of action were drawn to address these matters due to the continuous unavailability of funds and limited Human and logistic resources.

The Department of Livestock has in place 10 working staff in provincial centres to implement any programme or plan of action drawn up to address major issues in relation to AnGR development and changing demands in meat products. Livestock staff is working closely with farmers to enhance efficiencies in
production. There needs to be definite breeding systems and structures utilized for the development, management and conservation of breeds of stock populations. Emphasis must also be given to the study of our local and wild population especially in pigs and poultry to define their potentials in food production. Programmes need to continue from breeding to address demand attitudes especially when demands are governed by the quality and presentation of products.

The current situation calls for addressing the following matters of urgency,

1. Declining livestock population: Stock importation programme must be drawn and implemented within next 5 years.

2. AnGR Policy: A set of policies and objectives to contain strategies for AnGR conservation, management and development must be drawn.

3. AnGR Development: Considering the better performances and adaptability of certain breeds, breeding programmes must be designed and implemented starting with government and larger herds. Breeds must be developed in pigs and poultry to sidestep demands for high cost compound feeds.

4. Breeding/ Monitor AnGR systems: Definite breeding systems must be developed to use on selected herds or herds which are in danger of extermination. A monitor system to be established where Stock or AnGR use and movement is monitored.

5. Research/study on wild and local type breeds: Research or study must be undertaken on the wild and local species to define their potentials in food production and related nature.

1.4 Identify Priorities (Conservation and improvement)

Solomon Islands government has an obligation toward this important programme to recognize the importance and accordingly draw up policies focusing on the country’s AnGR.
The responsible authorities must invest in AnGR conservation and they need to be aware of the benefits of AnGR.

It is important that the Department of Agriculture & Livestock design government policies to include Animal Genetic Resources of the country. It is imperative for the country to take stock of all our livestock breeds both domesticated and wild. The aim for such an exercise is to identify them and take steps to conserve these genetic resources.

The public awareness programmes concerning these animal genetic resources should be the country’s priority. The programmes would be able to alert stakeholders of the danger of losing our unique breeds. The recognition of AnGR importance is fundamental to the effort of conservation.

Training of staff, farmers, livestock workers, animal breeders, and making available training infrastructures and facilities, is fundamental to our effort.

There have to be researches conducted in animal genetic resources. Thus, it is crucial that we identify research facilities to be able to carry out activities such as breeding selection, recording and reporting.

**PART 3.**

1.0 **BUILDING CAPACITY IN ANIMAL GENETIC RESOURCES.**

1.1 Existing Infrastructure

There is no infrastructure in the country that is specifically built for the enhancement of animal genetic resources. It is true that the country has infrastructures that have been built over the years for various purposes but could be utilised to promote the management and conservation of the animal genetic resources. Some of these invaluable infrastructures and facilities have been virtually destroyed during the ethnic tension crisis which ravaged the country in 2000/2001.
The two most valuable and most equipped government-owned research stations namely Dodo Creek Agricultural Research Station and the Tenavatu Livestock Breeding, Quarantine and Distribution Farms were destroyed completely during the crisis. Dotted around the country are some infrastructures and with facilities that could serve the purpose of AnGR development.

1.1.1 Training
There are training networks operating within the country with infrastructures and facilities that could be accessed if need be to do animal genetic. The following organisations and networks have established training facilities within Solomon Islands:

- Department of Agriculture & Livestock – Training Centres built throughout the provinces for training purposes
- Rural Training Centres – and NGO organisations committed to do training of local people, most in the provinces.
- Churches – Most churches have also established training facilities in most provinces
- Solomon Islands College of Higher Education (SICHE) has training infrastructures and facilities available in the country.
- Republic of China (ROC) farm near Honiara which is developing livestock facilities for breeding, training and research purposes.

1.1.2 Research Facilities
The only notable research infrastructures with facilities that belong to the Department of Agriculture & Livestock are located in some provinces. These were built purposely for horticultural research mainly focusing on crops. The other establishments that may be used as research sites in the unavailability of proper research infrastructures are those listed above as training facilities.

1.1.3 Private organisation
There are private organisations within the country who are stakeholders of the livestock industry, and who have infrastructures and facilities used for livestock
purposes, but may not be directly used for AnGR work. The main areas of livestock taken up by private companies are cattle, pigs and chickens (broilers and layers). The biggest private company livestock developer is RIPEL which has interests in cattle, pigs, horses, goats and chickens. Kastom Garden is an active plant seed group a Non Governmental Organisation (NGO) which is diversifying its activities to include livestock.

1.2 National Networking
The government, through its various organisations (Agriculture, Fisheries, Forestry, Business, Medical, Statistics, etc), has established networks throughout the country with offices, equipment and people manning these stations in various locations. The Agriculture Department has in place, extension services covering the whole country. Every province has extension offices and officers manning them, and carrying out general agriculture work including livestock. These networks are usually linked by two-way radios and in some cases, phones, and recently emails as means of communications. The recent introduction of Internet services including emails have been used by some of these offices. Communication and transport links take an important role in the daily lives of livestock farmers and the country as whole, which is an integral part of networking.

1.3 Training in animal breeding
Solomon Islands currently lacks the services of a professional animal breeder in the government and private sector. The importance of an animal breeding specialist in AnGR development is being overlooked, shows the lack of vision and concern by stakeholders. Training of animal breeders is a fundamental requirement to seriously consider, so that the importance of AnGR could be addressed. There is a great urgency in training of specialists, especially to address the management and development of endangered species. Stakeholders must seriously consider this vacuum.

1.4 Needs and priorities.
There is obviously a great need for the country to immediately address this very important part to the livestock industry, and the food security as a whole. It is imperative that all stakeholders of
the livestock industry, particularly the government, look at the needs and priorities and act immediately to try to maintain and conserve our AnGR. There are breeds of animals that are in danger of being lost forever due to the breeds not being considered important because of the differences in priorities.

The following have been identified to be the needs and priorities of Solomon Islands

a) Awareness programmes promoting AnGR and making people aware of the important role AnGR plays in the food security situation in the country.

b) Responsible authority (Agriculture & Livestock) to design policies, specifically focusing on conservation and utilization of AnGR.

c) Identifying and establishing networks that could be used to promote and implement AnGR programmes.

d) Identifying, maintaining and establishing infrastructures such as research facilities, farms, training centres, and sites for research activities for the implementation of AnGR programmes.

e) Training of manpower, establishing education and training facilities.

f) Support logistics such as equipment, tools, information technology, transport and communications etc.

g) Financial support to implement AnGR activities

**PART 4.**

**1.0 IDENTIFICATION OF NATIONAL PRIORITIES IN ANGR MANAGEMENT AND CONSERVATION.**

This report has attempted to identify national priorities in AnGR management and conservation. Throughout the report it is our aim to try and highlight important issues, ideals, facts and priorities.
concerning AnGR. Provided herewith are national priorities of which some are urgent priorities and others are medium priorities.

1.1 National Priorities:

1.1.1 Urgent Needs:

a) Conservation of unique breeds:
The national government needs to take immediate, appropriate, and urgent steps to conserve the unique breeds that we have in the country; (a) Indigenous wild pig population; (b) Santa Cruz Wild fowl; (c) Solomon Islands Red (S.I.R) cattle. These three breeds are unique to Solomon Islands, and losing them through ignorance would be a great mistake and loss to the country’s resources.

b) Plan and design long term breeding programmes for these breeds so that through conservation their breeding potential could be preserved.

c) Identify descendants of early goats with traits which produced 5 kids as was reported in the ‘BSIP Livestock Industry, 1973,’ that some goats reared here in the Solomons in 1960’s had very high production rate.

1.1.2 Other Priorities

a) The government to draw up policies focusing on the importance of AnGR and the likely consequences for the country if ignored or disregarded.

b) Training: Training be conducted to train farmers livestock workers and other stakeholders for the very important part of AnGR and to learn how to do identification, recording and reporting. Public awareness programmes could also be conducted at these trainings to be further taken up by trainees. It is important that these people be taught the proper ways of doing things so that proper records could be kept for implementing, monitoring and evaluation on AnGR.
c) Identify and train livestock staff on data collection, entering, analysis and interpretation. Data collection needs people with skills.

d) Set up a National Livestock Recording System (Data base) so that all information collected could be properly stored and made available when needed.

e) A National Livestock Census and Animal Disease Survey should be conducted as soon as possible and from there onwards be conducted every two years. These surveys would determine the livestock status of the country and provide us information for planning.

f) Training of animal breeding and genetic specialists, utilising them to work on the National AnGR conservation programmes. Manpower trained would implement and support the government policies and legislation. They would plan the programmes by setting objectives, strategies, implement and evaluate progress.

g) Institutional strengthening of human resources, equipment and facilities and infrastructures should be addressed by the government. To identify sites, locations and farms where breeding, researches, selection and recording could be undertaken.

The whole idea of this AnGR report is to identify and promote nationally the importance of AnGR. Animal Genetic Resources are vital for the improvement of livestock production especially in the subsistence and smallholders development where livestock farming is done the most. It is also important that there should be promotion of semi-intensive and intensive systems of production. Conserving AnGR unique to the country is vital.

The flow of information linking research to extension to farmers and vice versa should be always encouraged as this will strengthen the relationship and cooperation between them.
PART 5.

1.0 COOPERATION

1.1 Bilateral
Prior to the ethnic tension years of 2000/2001, bilateral assistance to Solomon Islands directed to livestock activities have been numerous. These bilateral assistances had been involved in cattle, goats, pigs, chickens, ducks and bees. It is worthy to note that almost all of these programmes have been engaged in doing activities not directly addressing animal genetic resources, although they may do breeding and production.

Countries which have offered assistance in the past are United Kingdom, Australia, New Zealand, European Union and Republic of China. A lot of these livestock projects or programmes no longer exist as they have been destroyed in the ethnic crisis.

Currently, the only bilateral assistance involving livestock development come from:

a) Republic of China (ROC);
   This is a small livestock project involving pigs and poultry. The objective of this project is to establish a 30-sow unit piggery in Honiara and use it as a distribution centre to supply breeding stock to the farmers. They are also planning to establish chickens and ducks for breeding stock distribution. The establishment aims to conduct feed trials in the hope of reducing feed costs.

b) European Union through its bilateral aid to Solomon Islands has channeled some funds through the Ministry of Planning to an implementing unit called Micro Projects for small livestock projects. These projects cover pigs, goats, chickens and ducks and bees. Micro Project implements these with some assistance from the Department of Agriculture & Livestock.

c) New Zealand has agreed to co-finance the National Bees Disease Survey with European Union and the Secretariat of South Pacific (SPC) which is currently being 40.
conducted in the country this year 2004. This survey is aiming at determining the bees disease status of the country.

Apart from these countries and organisations listed, no bilateral assistance has been received from any other country. There various planned projects to be implemented for the development and advancement of livestock production in the country but so far very few donors have responded to our call.

PART 6.

1.0 COOPERATION

1.1 Regional
Similarly, several regional assistance programmes have been received by the livestock division in the past. This cooperation that has been developed through many years of close relationship has continued to flourish and we hope that such goodwill gestures will remain solid so that our much needed AnGR and other livestock development plans could be assisted.

Current Livestock Programmes:
a) Secretariat of the South Pacific (SPC) has responded to our request to fund a component of the National Bees Disease Survey. This programme is designed to determine the disease status of the bees industry of the country.
b) Food and Agricultural Organisation is also coordinating and financially assist this AnGR country report. These are the current Livestock programmes that have received financial assistance from Regional organizations.

Conclusion
Past livestock development programmes proposed by the Department of Livestock requesting funding assistance have often been given low priority by both the Regional and Bilateral Aid donors.

The significance of this report is to create awareness on the importance of Animal Genetic Resources. The priority issues outlined in this report are matters for the Government of the
Solomon Islands, Regional and Bilateral governments to seriously consider and proactively address. The benefits of conserving our unique Animal Genetic Resources is not only important to Solomon Islands but to Global Animal Genetic Resources conservation also.
REFERENCES:


