

MINISTRY OF AGRICULTURE

***ETHIOPIAN NATIONAL STRATEGY AND PLAN OF ACTION FOR CONSERVATION, SUSTAINABLE
USE AND DEVELOPMENT OF ANIMAL GENETIC RESOURCES***

DRAFT



BY



INSTITUTE OF BIODIVERSITY CONSERVATION

ACRONYM

| | |
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| ADLI | Agriculture Development Lead Industrialization |
| AGP | Agricultural Growth Program |
| AnGR | Animal Genetic Resources |
| AnGRFA | Animal Genetic Resources for Food and Agriculture |
| AU-IBAR | African Union Interafrican Bureau for Animal Resources |
| BoA | Bureau of Agriculture |
| CBD | Convention on Biological Diversity |
| CSA | Central Statistics Authority |
| CSE | Conservation Strategy of Ethiopia |
| DRMFSS | Disaster Risk Management and Food Security Sector |
| EIA | Environmental Impact Assessment |
| EIAR | Ethiopian Institute of Agricultural Research |
| EMDTI | Ethiopian Meat and Dairy Technology Institute |
| ENSPA | Ethiopian National Strategy and Plan of Action |
| EPA | Environmental Protection Authority |
| EWCA | Ethiopian Wildlife Conservation Authority |
| FAO | Food and Agriculture Organization of the United Nations |
| FDRE | Federal Democratic Republic of Ethiopia |
| GDP | Gross Domestic Product |
| GEF | Global Environment Facility |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit |
| GPA | Global Plan of Action |
| GTP | Growth and Transformation Plan |

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| ha | hectare |
| HLI | Higher Learning Institution |
| IBC | Institute of Biodiversity Conservation |
| ICARDA | International Center for Agricultural Research in Dry Areas |
| IGAD | Intergovernmental Authority on Development in Eastern Africa |
| ILRI | International Livestock Research Institute |
| IPRO | Intellectual Property Rights Organization |
| JICA | Japan International Cooperation Agency |
| kg | Kilo gram |
| LDMPs | Livestock Development Master Plan Study |
| LMA | Livestock Marketing Authority |
| LT | Long Term |
| masl | Meters above sea level |
| MDG | Millennium Development Goal |
| mm | Millimeter |
| MoA | Ministry of Agriculture |
| MoARD | Ministry of Agriculture and Rural Development |
| MoE | Ministry of Education |
| MoEDAC | Ministry of Economic Development and Cooperation |
| MoFA | Ministry of Foreign Affairs |
| MoFED | Ministry of Finance and Economic Development |
| MoJ | Ministry of Justice |
| MoST | Ministry of Science and Technology |
| MoU | Memorandum of Understanding |
| MT | Medium Term |
| mt | Metric tone |
| NAIC | National Artificial Insemination Center |
| NARS | National Agricultural Research System |
| NBSAP | National Biodiversity Strategy and Action Plan |
| NLDP | National Livestock Development Program |

| | |
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| RIR | Rhode Island Red |
| SoW-AnGR | State of the World Animal Genetic Resources |
| SP | Strategic Priority |
| SPA | Strategic Priority Area |
| SSA | Sub Saharan Africa |
| ST | Short Term |
| UNDP | United Nations Development Program |
| UNEP | United Nations Environmental Program |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| UNFCCC | United Nations Framework Convention on Climate Change |
| USAID | United States Agency for International Development |
| USD | United States Dollar |

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1. INTRODUCTION

1.1 Physico-geographic and Climatic Features

Ethiopia is located in the horn of Africa, bordering Eritrea in the north, Djibouti and Somalia in the east, Kenya in the south and Sudan in the west. The country stretches from 3° N of the equator to latitude 15° N and from 33° E to 48° E longitude. With a land area of 110 million hectares, Ethiopia is the ninth largest country in Africa.

Ethiopia is a country of great geographic diversity. Erosion, volcanic eruptions, tectonic movements and subsidence have occurred for centuries in the country and still continue to occur accentuating the unevenness of the surface. As a result, Ethiopia is subjected to wide altitudinal and physico-geographic variations. The altitudinal variation of the country ranges from 110 meters below sea level in the Danakil depression to the highest peak of 4,620 meters above sea level (masl) on Mount RasDashen. The physico-geographic features are composed of high and rugged mountains, flat-topped plateaux, deep gorges, incised river valleys and rolling plains. The western and southeastern highlands are separated by the Great Rift Valley that runs from northeast to southwest of the country. Extensive semi-arid lowlands in the east, south and west are extensions of these highlands.

The Ethiopian highlands cover the central lava highlands, the southwestern plateau and the southeastern highlands. The southeastern highlands have high mountains on their western rims having slopes that run continuously towards the southeastern lowlands.

Macro- and micro-climatic conditions of the country are highly variable. The rainfall distribution is seasonal. The major rainy season lasts from June to September followed by short rainy season that occurs between February and April. The mean annual rainfall ranges from 500 mm to 2800 mm. The southwestern regions receive the heaviest annual rainfall, which, in some areas, goes up to 2800 mm. Rainfall is moderate in the central regions and declines towards northeast and eastern Ethiopia. Annual rainfall in the southeastern and northern regions is about 700 mm and 500 mm, respectively. Similarly, temperature variations are wide. During certain seasons, average temperatures go above 30⁰ C or below 10⁰ C in one place or another. Regimes of relative humidity, influenced by the rainfall patterns and temperature levels, are also highly variable. Because of the combined effects of the above factors, the country is endowed with diverse ecosystems that are inhabited by amazingly great diversity of animal, plant and microbial genetic resources (FAO, 2001).

Ethiopia is comprised of nine federal states and two city councils (Figure 1). Eighty-three distinct languages having 200 dialects are spoken. Amharic is the working language of the Federal government. As per the provision of the Constitution, official languages used in the regional states are those that are chosen by the respective states. English is widely used in business and academic circles (MoA, 2004).

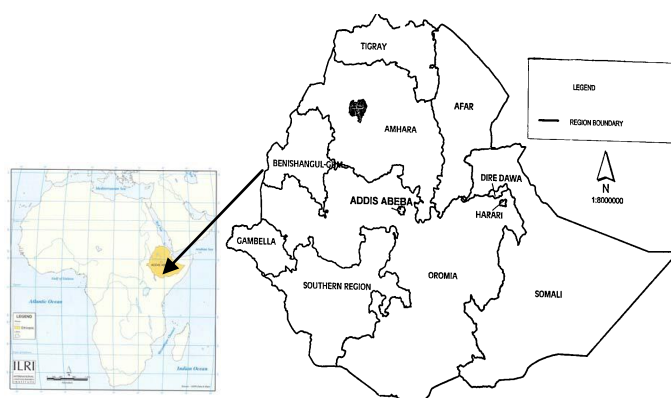


Figure 1. Regional States of the Federal Democratic Republic of Ethiopia

1.2 Population

The human population estimate of Ethiopia in 2007 was 73,918,505 with an average annual growth rate of about 2.6% (CSA, 2008). The projected human population is estimated at 84, 106 and 129 million in 2010, 2020 and 2030, respectively. The majority of Ethiopians dwell in rural areas. The proportion of urban dwellers until about 1940s was less than 3%. Over the years, this proportion increased reaching 9.7, 11.4, 13.8 and 15.0% in 1970, 1984, 1994 and 2004. According to projections made by Genet Mengistu (2004) the proportion of the urban dwellers in 2010 and 2020 will be 17.2% and 19.9%, respectively. Today, Ethiopia is the second most populous country in Africa, next to Nigeria.

The recent study conducted by the Ministry of Finance and Economic Development, Dynamics of Growth and Poverty in Ethiopia (2008) shows that a 1% per capita GDP increase will result in a 1.7% decrease in the poverty head count index. Based on the identified relationship between economic growth and its elasticity to poverty, it is calculated that the poverty head count ratio and the food poverty ratio have declined to 29.2% and 28.2% by the end of the year 2009/10, respectively (MoFED, 2010).

2. BACKGROUND

2.1 Livestock Resources Base

Agriculture is the main stay of the Ethiopian economy. It accounts for about 45% of GDP, almost 90% of exports, and 85% of employment and livestock are integral parts of the country's agricultural fabric.

The most common farm animals of the country can be categorized into mammalian, avian and honeybee species. Cattle, sheep, goats, camels, donkeys, horses and mules are the major farm animals that lie under the mammalian category. The numbers of breeds of cattle, sheep, goat, camel, donkey, horse, mule and chickens breeds identified so far are 27, 13, 15, 4, 6, 2, 2 and 5, respectively (IBC, 2004). Under the avian category are chicken (poultry), ostrich and turkey. The latter two avian species are not widely used in the country. Honeybee species are economically the most important species in the country.

More than 99% of the livestock breeds that are found in the rural sedentary areas of the country are indigenous. Their number is estimated at 50.8 million cattle, 25.9 million sheep, 21.9 million goat, 42 million chickens, 1.9 million horses, 0.3 million mules and 5 million donkeys (CSA, 2009/10). According to MoFED (2005), the population of camels of the country is estimated at 2.3 million.

Cattle

Indigenous breeds: major cattle breeds identified so far are Arsi, Begayit, Ogaden, Borena, Goffa, Arado, Nuer, Gurage, Jidu, Karayu, Afar, Harar, Horro, Simada, Fogera, Mursi, Raya-Azebo, Adwa, Jem-Jem, Sheko, Ambo, Jijiga, Bale, Hammer, Medenece, Irob and Abergelle.

Out of the 27 indigenous cattle breeds, the Borena, Horro, Fogera, Karayu, Arsi and Nuer breeds are the widely used breeds.

Exotic breeds: The purpose of importation of exotics into the country was to improve milk and/or meat production and for research. The breeds so far imported are Holstein-Friesian, Jersey, Brown Swiss, Hereford, Brahman, Angus and Simmental. Out of these, only Holstein-Friesians and Jersey and their crosses are being used in medium input production system and for research and teaching purposes.

Out of the exotics, Holstein-Friesians and Jersey, and their crosses with different indigenous breeds occupy the lion's share. Crossbreeds used under medium input production system are those produced from crossings between exotic sire breeds and five indigenous dam breeds, namely: Borena, Horro, Fogera, Arsi and Begait.

Sheep

Indigenous sheep breeds: Major sheep breeds found in Ethiopia are Begayit, Abergelle, Begi-Degu, Farta, Horro, Arsi, Ille, Menz, Tukur, Bonga, Afar, Dangila and Black Head Somali (formerly known as Black Head Ogaden). According to the recent studies (Solomon Gizaw, 2008), however, the breeds have been reclassified into nine breeds, namely: Simien, Short fat tailed (Sekota, Farta, Tikur, Wello and Menz), Washera, Gumuz, Horro, Arsi (Arsi-Bale, Adilo), Bonga, Afar, Black Head Somali. The later study puts the sheep breed of the country into 14 populations.

Exotic sheep breeds: Exotic sheep breeds introduced into the country for their wool and mutton production as well as for research are Awassi, Hampshire, Blue-de-main, Merino, Romney, Corriedale and Dorper.

Goats

Indigenous goat breeds: Major goat breeds existing in the country are Begayit, Ille, Afar, Hararghe Highland, Arsi-Bale, Short-eared Somali, Woyito-Guji, Long-eared Somali, Central Highland, Abergelle, Western Highland, Widar, Western Lowlands, Maefur and Keffa. Moreover, Felata, Arab, Gumuz, Agew and Oromo sub-types of the western lowlands have been recently reported. Recent studies (TesfayeAlemu-Tucho, 2004) classify goat breeds into eight breeds. These are Arsi-Bale, Gumuz, Keffa, Woyto-Guji, Abergelle, Afar, Highland Goats and the Somali Goats.

Exotic goat breeds: The aim of introducing exotic goat breeds was to improve milk or meat production of the local goat breeds. Anglo-Nubian and Toggenberg are exotic goat breeds that were introduced by Farm-Africa and higher learning institutions. Thus, crossbreeds between Anglo-Nubian and Hararghe Highland and Anglo-Nubian and Somali are being used for milk production by smallholders in central, eastern, southeastern, and southern parts of the country. Toggenberg and their crosses with Hararghe Highland are used for research purposes at the Haramaya and Hawassa Universities. Recently, Boer goats' semen and live animals have been imported from the United States of America and the Republic of South Africa for multiplication and crossbreeding purposes to improve meat production of local goats. Boer goat's semen was also imported initially from the United States of America and lately from the Republic of South Africa along with the live animals for the purpose described above.

Equine

Donkey populations that exist in the country are the Abyssinian, Afar, Haraghe, Omo/Hamer, Ogaden and Sinnar(Kefena, *et al.*,2011). Major breeds of horses that have so far been well recognized are the Oromo and Dongola. In Ethiopia, crossing of Asses with mares to produce mules dates back to centuries. Except for two well known, namely; Sinnar and Wollo Mule breeds, there are no other well-defined hybrids in the country (IBC, 2004).

Camel

Attempts to classify Ethiopian camels have not been satisfactory so far. Wilson (1984) has classified and described major camel breeds in the country as the Afar, Borena, Anfi and Somali/Ogaden breeds.

Poultry/chicken

The current status of Chicken population in the country is estimated at 42 million among which 98% is indigenous/local breeds, 2% is pure exotic and cross breeds which are used in the commercial sector. Importance of chicken production is for egg, meat, and manure. Average production capacity is still low, amounting to 60,000 mt meat, 74,000 mt eggs national production per annum. The low level of production restricted the consumption rate to 1kg of egg and 800gm of meat /capita/year. The gross contribution of total meat consumption is equivalent to 14%, in comparison with cattle meat 50%, sheep and Goats 35% and other meat sources 1%(MoA, 2012).

Indigenous chicken breeds: Indigenous chicken identified so far are Horro, Jarso, Tililli, Tepi and Cheffe breeds that are found in the central highland areas (Tadelleet *et al.*, 2003), and the naked-neck breed found in most parts of northern, northwestern, western and southern lowlands of the country.

Exotic chicken breeds: Several layer, broiler and dual-purpose exotic chicken breeds or hybrids introduced into the country are being used for food and agriculture. Rhode Island Red (RIR), White Leghorn, Lawman Brown, Cobb-500, Fayoumi, Bovans Brown, Arob Acre and Bubcocks, PotcheftsroomKoekoek, Dominant Brown D102, Lahlman Silver, Hubbard Classic, Hubbard JV and ISA Brown are reared by small and large-scale commercial producers in urban and peri-rban areas. Besides, RIR, White Leghorn, Bovans Brown and PotcheftsroomKoekoek, as well as their crosses with indigenous chicken are used by rural smallholders for egg and meat production.

Apiculture

Ethiopia is endowed with diverse species of flowering plants. Most of the plants are honeybee flora comprising trees, forage plants, horticultural and cultivated crops. These resources coupled with variable climate, edaphic factors, huge water resources & other favorable ecological factors enable the country to sustain large numbers of bee colonies. Estimates by different institutions indicate that there are more than 7 million bee colonies in the country (Livestock Development Master Plan Study, 2007).

Genetic resource base of bees: Different attempts were made to identify honeybee races in the country (Ayalew K. 1990, Radolf *et al.*, 1996 and Amssaluet *et al.*, 2004). According to recent works (Amssaluet *et al.*, 2004), five geographical races of honeybees (*A. m. monticola*, *A. m. jemenitica*, *A. m. bandasii*, *A. m. scutellata* and *A. m. woyi-gambela*) are known to exist in the country, delineating different geographical places.

Beekeeping is an inherited tradition, and is estimated that one in 10 smallholders keeps bees. National production is estimated at 40,700 tones of honey & 4,200 tones of beeswax per annum (updated from Livestock Development Master Plan Study, 2007)

There are three types of beekeeping production systems in use by the bee-keepers in Ethiopia, namely: the traditional, transitional (intermediate) & modern system. More than 95% of Beekeepers use traditional system, with individual farmers owning an average of five hives that yield about 5kg of crude honey per hive annually whereas the modern framed hives can produce more than 30kg/hive/year.

Other than honeybees, there are bee species in Ethiopia, which make honey. These are called stingless bees or “Tazima nib”. Stingless bees (meliponini) form an important group among the social bees and are rich in species. Currently, worldwide, about 400 species of stingless bees are

distinguished, belonging to 50 genera, of which 10 genera (50 species) are assumed to exist in Africa (Velthuis, 1997).

Stingless bees play a vital role in providing medicinal and high priced honey in Ethiopia and the honey of the stingless bees worth 5-15 times more than the common honeybee honey. Despite this, no study has been conducted so far on the population, distribution, characterization, nutritional, socio-economic and pollination services of stingless bee species in the country. Honey harvest is done in a brutal way simply through hunting, destructing, and robbing the nest and the colonies.

In general, apiary in Ethiopia serves as a source of income for household and the country, plant pollination, natural resource protection, job opportunities, social values, food security and poverty alleviation.

2.2 Roles of Livestock

About 80% of Ethiopian farmers use animal traction to plough their fields. Both the mean area cultivated by a farm household and their yields per hectare are positively associated with cattle ownership and ploughing, in comparison to hand cultivation. The value of the animal draught power input into arable production can be estimated at 26.4% of the value of annual crop production. This calculation transfers 26.4% of the value of the production of annual crops from the arable to the livestock subsector. Based on these figures, nearly a third (31%) of the total gross value of livestock output is represented by the value of animal draught power as an input into crop cultivation. As a livestock service (albeit one provided by agriculture for agriculture) rather than a livestock product, ploughing services are classified for GDP purposes as animal husbandry service activities under the agricultural sector of national accounts (IGAD, 2011).

The contribution of livestock to agricultural GDP is the most commonly quoted single measure of livestock's contribution to the overall national economy. It is therefore a very important figure (IGAD, 2011). In 2008-09 according to MoFED the gross value added of crop production was 6.385 billion USD. This figure does not include all of the intermediate costs of crop cultivation, now estimated at an additional 1.229 billion USD for animal traction. When these cultivation costs are deducted from the gross value of crop output, the revised estimate of the gross value added of crop production is 5.156 237 billion USD billion birr. In the same year, the gross value added by all branches of livestock production (ruminant livestock, poultry and bees) was 4.248 billion USD (including the value of ploughing services) at prices at that time. Total re-estimated agricultural gross value added in 2008-09 was therefore 9.404 billion USD. If we include the value of ploughing services, livestock provided 45% of agricultural GDP in 2008-09. 2008-09 MoFED estimates for place livestock's contribution at about 25% of total agricultural GDP. The gap between MoFED estimates of the contribution of livestock and the estimates in this report suggests that the significance of livestock relative to crop production has been considerably underestimated in past calculations of agricultural GDP (IGAD, 2011).

Accounts of agricultural GDP examine the direct use value of livestock output – the immediately useful products and services, both traded and for home consumption, that livestock provide. Livestock also provide less tangible but no less important economic benefits. For rural smallholders, the most commonly cited economic functions of this kind are the use of livestock as savings, as assets that provide interest-free credit, and as insurance to mitigate risk. Without access to formal financial institutions, many farmers and pastoralists depend instead on their livestock for these important financial services (IGAD, 2011).

The value of official livestock and meat exports has fluctuated widely over the decades. Official exports of hides, skins and leather have, in comparison, been both more stable and more valuable. The LDMP (2007) provides annual export figures for the value of live animals, meat and hides/skins from 1984 to 2004. According to these figures, hides and skins averaged a

yearly export value of \$52,160,000 USD, livestock averaged \$3,390,000 USD, 29 and meat \$2,380,000. Over this twenty-one year period, hides and skins provided on average 90% of official livestock sector exports, live animals provided 6% and meat 4%. For a time in the 1990s, hides, skins and leather were Ethiopia's second largest export earner, after coffee. Export of live animals, meat and hides, skins and leather products has held steady at about 11% of the national total, with declines in the value of skins, hides and leather being offset by roughly comparable increases in live animal exports. By 2008-09 the position of hides, skins and leather exports had declined to the point where these constituted less than half of the livestock sector's contribution to official exports (IGAD, 2011).

Including cross border trade, live animals were the second most important national export by value in 2002-03, following, coffee and the third most important export in 2008-09, following coffee and oilseeds. The revised total value of livestock and their products now stands at about 20% of all national exports, up from 11%, according to official calculations of LMA (IGAD, 2011).

Even including the cross-border trade, the vast bulk of Ethiopia's livestock output is consumed domestically. Household expenditure on livestock products was estimated in 2008-09 at 1.086 billion USD. Generous estimates of the total value of livestock sector exports places their value at slightly more than 0.229 billion USD in that year. Domestic consumption outweighs exports by a factor of nearly five to one. Based on the relative importance of livestock related manufactures to each scale of enterprise, manufactures using livestock products contributed approximately 4.9% or 0.035 billion USD to total manufacturing GDP in 2008-09 (IGAD, 2011).

Transportation of the harvested crops to and from threshing sites, threshing itself, transportation to and from the market is conducted by the farm animals. Similarly, transportation of water, firewood, mobile houses, construction materials and other goods is conducted by farm animals and they are the main means of human transport. Their role in cultural and social ceremonies is significant. They are also used for cultural issues such as

dowry, racing and spiritual offerings. In some rural areas, they are main indicators of cultural prestige.

For the vast majority of small-holders, nutrient recycling through manure compensate for lack of access to chemical fertilizer, and help to maintain the variability and environmental sustainability of production (National Livestock Development Program, 1997; Steinfeld *et al.*, 1998).

A wide variety of animal breeds supply important ecosystem services in specific landscapes, in particular grazed ecosystems and difficult terrains, that otherwise cannot be used for other uses such as crop production. Such productive links between breeds and landscapes need to be maintained and better managed, through appropriate land-use policies and strategies.

Livestock play a significant role in maintaining soil fertility. When spread on cropland, animal manure increases soil organic matter, and improves soil texture. For the vast majority of small-holders, nutrient recycling through manure, compensate for lack of access to chemical fertilizer. While global fertilizer use increased from 81 to 96 kg/ha of cropland, fertilizer use in Sub-Saharan Africa in 1988 to 1990 was estimated to be only 11 kg/ha of harvested land. A rate projected to increase to only 21 kg/ha harvested land by 2020 (Animal Agriculture and Global Food Supply, 1999).

2.3 Trends in Livestock Resources Base

Ethiopia has limited capacity and resources for designing and implementing conservation programs to its domestic animal genetic resources at risk. These breeds often possess unique genetic traits that enable their survival in a diverse range of production environments with intense stresses, such as severe feed and water shortages, and diseases and drought.

Despite, *inter alia*, the uncompromising contributions the livestock sub sector plays in the livelihoods of the majority of Ethiopians and in the overall national economic development, the attention given to develop the sub sector has not been so significant. Needless to say, this is despite their huge diversity and intrinsic capability to adapt to adverse and ever-worsening environmental conditions and the future implications of this potential. Thus, the fate of production and productivity of the sub sector is still left to depend on the scarce and ever-declining marginal and commonly used lands. Provision of health facilities and services are far below the required minimum. They have been left to undergo untraceable levels of inbreeding and crossbreeding. And yet, depicted as the "low performers", they are expected to gradually give way to other "best performing" genotypes. Consequently, if indiscriminate distribution of the "best performing exotic genotypes" to different parts of the country, without delineating areas for keeping and maintaining high producing farm animals, is to continue at the current pace, the gene pool of the indigenous animal genetic resources would be lost in the near future before they are even fully described and understood (IBC, 2004).

2.4 Livestock Products and Services

Milk

Despite the large livestock resource base and an ecological setting suitable for dairy production, the country is not yet self sufficient in milk production. The growth in milk production has been slow. Although the total amount of milk produced has increased due to increases in cattle and human population, the per capita milk production appears to have declined from 26 liters per annum in 1980 to 22 liters per annum in 1993 and 19 liters per annum in 2000, one of the lowest in the world. Milk is produced in all agro-ecological zones of the country and mainly from cattle followed by goats and camels (MoA, 2007).

Milking cows in the traditional sector have an average lactation length of 190 days and an average milk yield of 1.9 liters per day, excluding what the calf has suckled (MOA, 2005). Although the figures represent very low levels of productivity, the genotype of these cows cannot be totally blamed for such a limited level of productivity under the present standards of feeding and management. The milk thus produced is a function of climate and its interactive influence in the quantity and quality of feed, the presence of disease and parasites, and initialization of technology to alleviate nutritional and health limitations (MoA, 2007).

Four main dairy production systems can be identified in the country: a small commercial sector consisting of large private and state farms; small urban/peri-urban systems raising cross-bred or both cross-bred and local cattle and having access to milk collection centers or co-operatives; smallholder mixed farming systems in the highlands using indigenous breeds; and pastoral/agro-pastoral system in the lowlands. Reliable figures on the relative importance of these systems in terms of number of farms/herds, dairy population or share of milk produced are not available. However, a rough estimate indicates that currently, out Dairy Development in Ethiopia 27 of about 1.43 billion liters of milk produced annually, 900 million liters (63.3%) is produced by rural small-scale mixed farms in the highlands, 205 million liters (14.3%) by small urban/peri-urban farms in the highlands, 320 million liters (22.4%) by pastoral/agro-pastoral producers in the lowlands and 5 million liters (less than 0.03%) by large private and state farms (Ahmed et al. 2003; Feleke and Geda 2001).

Extrapolating the labor requirement figures per 1000 liters of milk produced to the systems level, the urban/peri-urban system, which produces 205 million liters of milk a year, creates annually 4.4 million person days of work or 14,760 full-time jobs (assuming a 300 day working year). The figure increases to 16,400 full-time jobs if it is assumed that 270 days are worked per year. The small-scale mixed farming systems, which produce 900 million liters of milk annually, can create 166 million person days of work, equivalent to 553,500 full-time jobs at 300 days per

year (615,000 jobs at 270 days per year). Employment figures for the pastoral livestock system, which produces 320 million liters of milk, could not be calculated due to lack of information.

Meat

According to FAOSTAT (2006), red meat production in Ethiopia showed a steadily rising trend over the 13-year period 1993-2005. Availability per person increased marginally over the same period from about 6.5 kg per person per year to about 6.8 kg per person per year 14. Beef production increased by about 46% over the period and was equivalent to more than 80% of all red meat both at the end and the beginning of the period. Beef availability per person increased by about 5% from 1993 to 2005. The production of poultry meat increased by about 45%; between 1993 and 2006 and its availability per person by about 4.5%. Beef production in Ethiopia had better performance than world production over the review period but poultry meat performance was very much worse. Total meat availability in relation to the national stocks of domestic animals remains, however, derisory in comparison to the capability (FAOSTAT, 2006). There is a paucity of reliable data on meat production in Ethiopia over the stipulated 30 year reference period and the poor situation is compounded by the granting of independence to Eritrea in the early 1990s. FAO data, which may not be exactly correct are nonetheless indicative of quantities and trends and are here used as a proxy for reliable national data. 14 These figures are calculated from FAO data: within Ethiopia it is generally considered that consumption per person has declined in recent years; World Meat Production Trends and Overall per Caput Availability in the 30-year Period 1976-2005 (FAOSTAT, 2006).

2.5 Trends in Livestock Products

Output of meat and milk in Ethiopia is low and growth in productivity has been lagging behind population growth rates. As a consequence, the trend in per caput output of livestock products has been negative. Between 1995 and 2000, total milk and meat production increased by 2.6%

and 1.4% per year, respectively. The picture for milk appears much worse than for meat. Proportion of per capita intake of calories (5.8%) and proteins (13.7%) as compared to 6.3% and 19.5% in SSA and 26.5% and 56.1% in developed countries is also relatively smaller (FAO, 2001).

Additionally, demand for livestock products is expected to increase as a result of urbanization. The proportion of urban population in Ethiopia has increased from about 13.8% in 1994 to 15.0% in 2004 and is expected to reach 19.9% in 2020. Accordingly, the rural agricultural sector is expected to feed 21.2 million urban population in 2020 compared to about 9.0 million in 2000. While the overall population increase suggests that overall food supply has to increase greatly, higher urbanization would mean a shift in dietary preferences towards higher quality food items such as meat, milk and eggs.

2.6 Threats to Livestock Resources

Ethiopia has long been recognized as a center of diversity for domestic animal genetic resources. It appears that the country has served as a gateway to genetic material from Asia to Africa and its diverse ecology gave rise to further diversification and thus contributed to develop the large number of genotypes the country host today.

Loss of local breeds will cause cultural erosion and diminish the ability of communities to maintain their cultures and livelihoods. Structural changes in the livestock sector may result in a situation where the previous keepers of a breed are no longer in a position to maintain it: In such circumstances, other ways need to be identified to preserve the breed, as part of the country's and global heritage of animal genetic resources.

The main factors compromising the genetic integrity of local indigenous domestic resources of Ethiopia are: scarcity of feed and water; increasing focus on a few high-output exotic breeds by, so often, transforming traditional systems into external input-oriented systems; inbreeding and

indiscriminate crossbreeding (with exotics and among locals); shrinking of grazing areas through bush encroachment and expansion of cultivated agriculture; outbreaks of diseases and parasites; climate change; lack of animal breeding policy; poor coordination between stakeholders, lack of participatory approach to involve pastoralists and farmers in planning and decision making. Without strategically planned interventions that involve both *in situ* and *ex situ* conservation approaches genetic erosion of domestic animal genetic resources of the country will continue and may even accelerate.

Loss of animal genetic resources reduces opportunities to develop rural economies. It may also have negative social and cultural impacts, given the long history of domestication and the resulting incorporation of domestic animals into community cultures. Replacement of indigenous breeds could result in the loss of products and services preferred by local people, and the conservation of local breeds must therefore be considered within the broader context of sustaining rural communities and their existing economic foundations. Moreover, such losses may limit future development options, based on animal products and services from specific breeds, that otherwise could have added considerable micro- and macro-economic values as consumer demands become more varied.

The loss of local breeds may have negative environmental impacts in some production environments, especially in dry lands and mountainous areas. Locally adapted breeds play significant roles in landscape management, vegetation control and rangeland ecosystem sustainability.

2.7 Strategies, Plans and Policies

2.7.1 National

The Constitution of the Federal Democratic Republic of Ethiopia (No.1/1995)

The Ethiopia Federal constitution (August 21, 1995) stipulates that current and future legislation and the conduct of the Government of Ethiopia should conform to a Bill of Rights. The basics of sustainable development and environmental rights are entrenched in Articles 43 (The Right to Development) and 44 (Environmental Rights). The establishment of a Federal Body to oversee environmental health of Ethiopia, i.e., the Environmental Protection Authority (EPA), has emerged from the requirements of the Constitution itself (Proclamation No. 9/1995). In view of the potential impacts of certain social and economic development on environment and responsibilities vested on all to safeguard a healthy environment, (Environmental Pollution Control Proclamation (Proclamation No. 300/2002) was placed as required by Article 55(1) of the Constitution of the Federal Democratic Republic of Ethiopia.

National Economic Development Strategy (1993)

The guiding strategy under the National Economic Development is known as the 'Agricultural Development led-Industrialization' (ADLI). This strategy further developed into sectoral strategies that include Agriculture, Industry, Mining, Population growth, technological progress, Economic and Social infrastructure, etc. The following can be identified as the core elements of the agro-industrial development strategy component of ADLI (MoFED, 1993).

Growth and Transformation Plan

The Growth and Transformation Plan (GTP) is based on a previous plan, namely, a Plan for Accelerated and Sustained Development to End Poverty (PASDEP), the guiding plan for 2005/06-2009/10 strategic framework and was built up on Sustainable Development and Poverty Reduction Program. GTP is a five year plan (2010/11-2015/16) and is directed towards achieving Ethiopia's long term vision and sustaining the rapid and broad based economic

growth anchored on the experiences that has been drawn from implementing development policies and strategies and undertaking policy measures for the challenges that has been surfaced in the course of implementation. The overriding development agenda of GTP is to sustain rapid and broad-based growth path witnessed during the past several years and eventually end poverty.

Ethiopian strategy for sustaining the rapid and broad-based growth path hinges on seven pillars, namely: sustaining faster and equitable economic growth, maintaining agriculture as a major source of economic growth, creating favorable conditions for the industry to play key role in the economy, enhancing expansion and quality of infrastructure development, enhancing expansion and quality of social development, building capacity and deepen good governance, and promoting women and youth empowerment and equitable benefit. The objectives and activities of GTP are, *inter alia*, linked to environmental issues in Ethiopia National legal frameworks.

The Conservation Strategy of Ethiopia (1997)

The Conservation Strategy of Ethiopia (CSE), approved by the Council of Ministers in 1996, provides a comprehensive and rational approach to environmental management in a very broad sense, covering national and regional strategies, sectoral and cross sectoral policies, action plans and programs as well as providing the basis for development of appropriate institutional and legal frameworks for the implementation (MoEDAC, 1996). It also deals with providing a strategic framework for integrating environmental planning into a new and existing policies and projects. It mainly recognizes the importance of incorporating environmental factors into development activities from the beginning so that planners may take into account environmental protection as an essential component of economic, social and cultural development.

Proclamation on Environmental Impact Assessment (No. 299/2002)

This proclamation makes EIA mandatory for specified categories of activities undertaken either by the public or private sectors. The EIA must be prepared by the proponent, and reviewed by either the Federal EPA or the regional environmental agency, depending on the situation, who approves or rejects it. The EIA guidelines prepared by the EPA put the projects into three categories, namely: projects that may have significant environmental impacts and therefore require detailed field investigation and a full EIA Schedule 1), projects whose type, scale or other relevant characteristics have potential to cause some significant environmental impacts but are not likely to warrant full environmental impact study and those projects which generally do not require environmental analysis because they have negligible or minimal direct disturbance on the environment (schedule 3).

According to the EPA 2000 Environmental Study Procedural Guidelines, Schedule 1 projects include construction of dams and man-made lakes with surface area of 250ha or more, surface water fed irrigation projects covering more than 100ha and groundwater fed irrigation projects more than 100ha.

Proclamation on Environmental Pollution Control (No. 300/2002)

This proclamation provides the basis for the development of relevant environmental standards and to make violation of these standards a punishable act based on the polluter pays principle. Environmental Inspectors are to be assigned by the EPA or regional environment offices and thresholds have been set for industrial, agricultural and domestic wastes (EPA 2003).

Industrial Pollution Regulation (No. 159/2008)

The Council of Ministers recently approved Regulation No. 159/2008 to prevent industrial pollution in accordance with Article 20 of the Environmental Pollution Control Proclamation No. 300/2002. The Regulation provides a gestation period of five years for existing industries during

which they are expected to reduce the strength of their effluents to lie within the industrial standards (EPA, 2003).

Proclamation on Rural Land Administration and Use (No. 456/2005)

This law defines the state ownership of rural land and the tenure rights of the land occupant including rights to 'property produced on his land', rights of inter-generational tenure transfer, and rights of exchange land and limited leasing rights. Provisions are made for the registration and certification of tenure rights. The rural land administration and land use laws are being implemented by the regional states.

Proclamation on Wildlife (No. 192/1980)

This law defines conservation areas that are specifically demarcated by law for the protection of wildlife. There are four major categories of conservation areas, namely: National Parks, Wildlife Sanctuaries, Wildlife Reserves and Controlled Hunting Areas.

National Policy on Biodiversity Conservation and Research (1998)

The then Institute of Biodiversity conservation and Research (now Institute of Biodiversity Conservation) is to undertake conservation and promote development and sustainable utilization of the country's biological resources, namely: plants, animals and microbial genetic resources as well as associated traditional knowledge and the ecosystems. On the basis of national legislation, the institute has the responsibility and duty to implement international conventions, agreements and obligations on biodiversity to which Ethiopia is a party.

National Biodiversity Strategy and Action Plan (NBSAP, 2005)

The National Biodiversity Conservation and Research Policy (1998) provides guidelines for conservation, development and sustainable use of biodiversity. The policy objectives are ensuring that genetic resources and essential ecosystems of the country are conserved, developed and sustainably used, asserting national sovereignty over genetic resources,

enriching the country's biological resources through restoration, integrating biodiversity conservation with sectoral and cross-sectoral strategies and programs, recognizing and protecting traditional knowledge, ensuring that the local communities share benefits arising from the use of genetic resources and indigenous knowledge and promoting regional and international cooperation.

Access to Genetic Resources and Community Knowledge, and Community Rights Proclamation (No. 482/2006) and Regulation (169/2009)

After ratifying the Convention on Biological Diversity (CBD) and International Treaty on Plant Genetic Resources for Food and Agriculture, as well as adopting international model laws and guidelines, Ethiopia has issued Access to Genetic Resources and Community Knowledge, and Community Rights Proclamation (No. 482/2006) and Regulation (169/2009). The legislations focus on prior informed consent, material transfer agreement, Multilateral System of Access and how to implement relevant activities.

Plant Breeders Right (Proclamation No. 481/2006)

Plant Breeders Right was one of the significant developments for the conservation and sustainable utilization of the country's plant genetic resources that was issued by the People's House of Representatives of the Federal Democratic Republic of Ethiopia in 2006. The proclamation deals, *inter alia*, with the protection of their traditional knowledge that is relevant to the plant genetic resources, obtaining an equitable share of benefits from the use of plant genetic resources, exchanging and selling farm-saved seed or propagating material of the farmers' varieties; as well as the new plant varieties protecting under breeders' rights, and to collectively save, use, multiply and process farm-saved seed of protected varieties.

Ethiopian Water Resources Management Policy (1998)

The Federal Government of the Democratic Republic of Ethiopia issued a comprehensive & integrated water resources management policy in 1998. The policy document outlines the several policy objectives (FDRE, 1998:1). Conserving, protecting and enhancing water resources and the overall aquatic environment on sustainable basis one of its major objectives.

A water Supply and Sanitation Master Plan framework was completed in 2003, which, among other aspects reviewed the targets of the Water Sector Development Program and developed strategies for prioritization based on analysis of opportunities and constraints in physical, financial and institutional aspects (Ministry of Water Resources: 2003).

Forestry Policy of Ethiopia

The forest policy has a target that the forest cover should increase to 9% within five years; satisfying the demand for forest product, protecting and conserving natural systems reducing foreign exchange expenditures on imported forest products and reducing soil erosions. Managing and utilizing the country's forests scientifically and sustainably in accordance with management plans as well as the expansion of training in forestry.

Forest Conservation, Development and Utilization Proclamation (No. 94/1994)

Forestry Conservation, Development and Utilization Proclamation prohibits utilization activities of forest without legal permit. Prior consultation and approval is required from the Ministry of Agriculture and Rural Development (now Ministry of Agriculture) or the appropriate regional body in order to conduct large scale farming, mining operation, construction of roads, water drilling, irrigation and dam works and other similar activities, or to give license for such operation within state or regional forests.

Forest Proclamation (94/2002)

Forest Proclamation deals with participatory forest management system and provides the term sustainability of forest and for local livelihoods.

2.7.2 Other national sectoral policies and strategies

Other policies and strategies that entertain f AnGR issues directly and/or indirectly include Education policy, Conservation strategies of regional states, Millennium Development Goals, Agricultural Growth Program/Livestock Growth Program and .Regulation and control on the introduction and export of domestic animal genetic materials

2.7.3 International

- Growing commitment of FAO on sustainable utilization, development and conservation of AnGR, particularly for developing countries and economies in transition
- Growing international interest on the area of AnGR utilization, development and conservation, climate change, and other crosscutting issues

2.8 Gaps and Constraints

Up to now, low attention is given to inventory, characterization and conservation of the domestic animal genetic resources of Ethiopia. Some of the policy drawbacks are:

- Absence of National survey and census program to identify and quantify animal breeds
- Absence of National Animal Breeding Policy
- Limited resource mobilization towards animal genetic resource conservation activities and production of the required technical expertise
- Absence of National Animal Genetic Resources Center with cryo-conservation facility
- Lack of centralized database on information on the classification, description and identification of local breeds/strains for each domestic animal species and the main production systems and environments under which they are maintained

- Lack of understanding, of the traditional domestic animal genetic resources husbandry practices in the context of indigenous knowledge
- Limited information on the geographic distribution and structure of the genetic variation in the existing breeds/populations to develop sound production and conservation strategies
- Lack of adequate information on the responses of most local breeds to improved husbandry practices.
- Lack of properly stratified species based, commodity oriented and production system directed domestic animal genetic resources utilization strategy and management plan
- Absence of monitoring and evaluation system on indiscriminate use of genetic material in the form of Artificial Insemination and distribution of exotic live animals for crossbreeding purposes
- Lack of interest and incentives to promote the use of indigenous breeds for production or conservation and undervaluation of the genetic diversity.

3. PROCESS AND RATIONALE OF PREPARING THE ETHIOPIAN NATIONAL STRATEGY AND PLAN OF ACTION

3.1 The Process

In 1990, the Food and Agriculture Organization of the United Nations (FAO) initiated the preparation of a comprehensive program for the sustainable management of animal genetic resources at the global level. In 1993, it launched the Global Strategy for the Management of Farm Animal Genetic Resources to guide national, regional and global efforts to strengthen the contribution of domesticated animals and their products to food security and rural development, and to prevent the erosion of animal genetic resources.

From 1997, FAO's Intergovernmental Commission on Genetic Resources for Food and Agriculture was assigned to guide a country-driven process for the preparation of The State of the World's Animal Genetic Resources for Food and Agriculture. In 2001, FAO invited all countries to submit Country Reports on the status and trends of their animal genetic resources; the current and potential contributions of farm animals to food, agriculture and rural development; and the state of national capacity to manage these resources; and provide lists of priority actions.

Accordingly, Ethiopia prepared its Country Report and submitted to the FAO in 2004, a report that has become part of the State of the World Animal Genetic Resources Report, produced by the FAO in 2006. The Report on Ethiopia's State of Farm Animal Genetic Resources, incorporated into "The State of the World's Animal Genetic Resources" provides a comprehensive national assessment of the roles, values and status of animal genetic resources and highlights the importance of the livestock sector within agriculture. It also indicated the full

potential of animal genetic resources is far from being realized and confirmed serious erosion of farm animal genetic diversity in the country as well as causes of the genetic erosion.

Preparation of Ethiopian National Strategy and Plan of Action for Animal Genetic Resources for Food and Agriculture is the follow up of preparation of Ethiopia's Country Report on the same and consequent development of GPA that were coordinated by the Food and Agriculture Organization of the United Nations (FAO). Global Plan of Action for Animal Genetic Resources was developed involving 169 countries and was adopted by 109 country delegations at the International Technical Conference on Animal Genetic Resources, held in Interlaken, Switzerland, from 3 to 7 September 2007. Ethiopia was an active participant of the development process of the Global Plan of Action, and was one of the countries that adopted it. Global Plan of Action for Animal Genetic Resources is comprised of four Strategic Priority Areas and twenty-three Strategic Priorities aimed at combating the erosion of animal genetic diversity and using animal genetic resources sustainably. Its implementation will contribute significantly to achieving the Millennium Development Goals 1 (to eradicate extreme poverty and hunger) and 7 (to ensure environmental sustainability).

Reference materials that were used to prepare Ethiopian National Strategy and Plan of Action for Animal Genetic Resources for food and agriculture were, *inter alia*,:

- Country Report on the State of Ethiopia's Animal Genetic Resources,
- Global Plan of Action,
- A Guideline for preparation of national strategies and action plans for animal genetic resources by the FAO (2009),
- A note on "Implementing the Global Plan of Action for Animal Genetic Resources" by Hoffmann and Scherf (2010),
- A note in "Notification to the First Call for Proposals under the Funding Strategy for the implementation of the Global Plan of Action for Animal Genetic Resources" by the FAO,

- Policies, strategies, plans guidelines and/or programs that are relevant to the sustainable use, development and conservation of animal genetic resources of Ethiopia such as Millennium Development Goals, Growth and Transformation Plan, Agricultural Growth Program, Livestock Growth Program, National Biodiversity Strategy and Action Plan, Convention on Biological Diversity: Ethiopia's 4th Country Report and Guideline for Import and Export of Animal and Animal Genetic Materials.

Ethiopian National Strategy and Plan of Action for Animal Genetic Resources for food and agriculture was drafted after a series of consultations with stakeholders.

The Institute of Biodiversity Conservation (the Focal Institute) organized a committee to draft Ethiopian National Strategy and Plan of Action for Animal Genetic Resources for food and agriculture. The committee comprised of eight members that belong to four critical stakeholding national institutions members namely: the Institute of Biodiversity, Ministry of Agriculture, Ethiopian Institute of Agricultural Research (the then member of the Country Report Drafting Committee), National Artificial Insemination Center and two senior experts (one of them, the then member of the Country Report Drafting Committee and the second, who served as the National Coordinator to Ethiopian SoW-AnGR process and also a member of the Country Report Drafting Committee), was formed to draft the document. A stakeholders workshop will be organized to discuss the draft document. Prior to the workshop the draft strategy will be made available to potential participants through the website of IBC. Participants representing regions will be asked to fill questionnaires on the status and trends as well as associated risks to animal genetic resources, conservation, sustainable utilization and development of animal genetic resources in their respective regions. Comments and/or suggestions from the workshop as well as responses to the questionnaires will be analyzed and incorporated into the document by the drafting committee. Finally, the document will be endorsed as the official Ethiopian

National Strategy and Plan of Action on Animal Genetic Resources for Food and Agriculture by the Ministry of Agriculture..

The structure of Ethiopian National Strategy and Plan of Action for Animal Genetic Resources conforms to that of the Global Plan of Action. The Global Plan of Action is comprised of four Strategic Priority Areas, namely: 1) Characterization, Inventory and Monitoring of Trends and Associated Risks, 2) Sustainable Use and Development, 3) Conservation and 4) Policies, Institutions and Capacity-building). Without altering the framework of the Global Plan of Action, some of the contents and number of the Strategic Priorities of Ethiopian National Strategy and Plan of Action for Animal Genetic Resources for food and agriculture have been adjusted into national context, based on the existing realities of the country.

Ethiopian National Strategy and Plan of Action for Animal Genetic Resources for food and agriculture is comprised of 15 Strategic Priorities that aim at ensuring conservation, sustainable use and development of animal genetic resources for food and agriculture; poverty alleviation, ensuring food security; rural development as well as guaranteeing fair and equitable sharing of the benefits from the use of animal genetic resources for food and agriculture.

The main components of the document are introduction, background, the national strategies and plans of action as well as a system for evaluation and monitoring. It details out lead institutions for executing specific actions, partner institutions for the execution, indicators for the specific actions, possible sources of budget, expected outputs, mechanisms of progress reporting as well as monitoring and evaluation, and the time frame of implementation.

3.2 The Rationale

The implementation of Ethiopian National Strategy and Plan of Action for Animal Genetic Resources for food and agriculture will contribute significantly to achieving the Millennium Development Goals 1 (to eradicate extreme poverty and hunger) and 7 (to ensure environmental sustainability), and to realizing of the Growth and Transformation Plan of the Federal Democratic Republic of Ethiopia. Its implementation will also reverse the ongoing trends of erosion and underutilization of the genetic resource. Strategic priorities and actions contained in the National Strategic and Action Plan document are in line with the Growth and Transformation Plan of Ethiopia.

The rationale for preparation of Ethiopian National Strategy and Plan of Action for Animal Genetic Resources for Food and Agriculture not only recognizes the significant role of animal genetic resources for food and agriculture in the national food security and overall macroeconomic development of the country but also reflects Ethiopia's commitment in meeting its international commitments and obligations.

3.3 Vision

Conserving animal genetic resources for food and agriculture and promoting its use in support of national food security and sustainable development for present and future generations.

3.4 Goals

1. Promote sustainable use and development of animal genetic resources for food security, sustainable agriculture and human well-being,

2. Ensure conservation of animal genetic resources diversity for present and future generations and halt loss and erosion of these crucial resources,
3. Recognize and promote the role of indigenous knowledge, innovations and practices relevant to the conservation of animal genetic resources and their sustainable use,
4. Ensure a fair and equitable sharing of the benefits arising from access/use of animal genetic resources and associated indigenous knowledge,
5. Put in place effective policies and legislative measures to ensure use, sustainable development and conservation of animal genetic resources for food and agriculture,
6. Meet the needs of pastoralists and farmers, individually and collectively, within the framework of national law, to have non-discriminatory access to genetic material, information, technologies, financial resources, research results, marketing systems, and natural resources, so that they may continue to manage and improve animal genetic resources and benefit from economic development,
7. Promote agro-ecosystems approaches for the sustainable use, development and conservation of animal genetic resources,
8. Assist national regional states and institutions to establish, implement and regularly review national and regional priorities for the sustainable use, development and conservation of animal genetic resources,
9. Strengthen Federal and national regional states' programs and enhance institutional capacity, namely education, research and training to address the characterization, inventory, monitoring, conservation, development and sustainable use of animal genetic resources,
10. Promote activities aimed at raising public awareness and bringing the needs of sustainable use, development and conservation of animal genetic resources to the attention of concerned stakeholders.

4. THE ETHIOPIAN NATIONAL STRATEGY AND PLAN OF ACTION

4.1 Introduction

The action plan provides guidance that will assist in synthesizing all available information and identifying strategic priorities and actions for the National Strategy and Plan of Action. The set of strategic priorities and actions will provide and form the core element of the final National Strategy and Plan of Action. Steps of analysis and synthesis as per the global guideline were followed in the preparation of this draft strategic priorities and action plans. The country report for Ethiopian AnGR was used as a starting point in identifying national priorities for achieving the sustainable use, development and conservation of animal genetic resources. The report was further used for updating national strategic priorities and actions for inclusion in the National Strategy and Plan of Action.

Table 1. National strategic priorities

| Strategic Priority Areas of the Global Plan of Action | National strategic priorities as contained in the Country Report or other relevant Strategies | Status of implementation of each strategic priority | | |
|---|---|---|-----------|--------------------|
| | | Completed | Initiated | Remains a priority |
| Characterization, inventory and monitoring of trends and associated risks | 1. Identification and description of breeds of farm animals | | X | X |
| | 2. Molecular genetics characterization and classification into breeds | | X | X |
| | 3. Breed level census | | | X |
| | 4. Conduct survey on breeds bio-geographic distribution | | X | X |
| Sustainable use and development | 1. Devise effective research and development programs geared towards better utilization of AnGR | | X | X |
| | 2. Collaborate and network with various national, regional and international institutions. | | X | X |
| | 3. Form breed societies and breeders associations | | | X |
| Conservation | 1. Effective research and development programs geared towards better conservation of AnGR | | X | X |
| | 2. Collaboration and networking with various national, regional and international institutions. | | X | X |
| | 3. Implementation of <i>in situ</i> and <i>ex situ</i> conservation of threatened breeds such as Sheko. | | X* | X |
| Policies, institutions | 1. Developing institutional set up and | | X | X |

| | | | | |
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| and capacity building | strengthening of coordination between stakeholders. | | | |
| | 2. Capacitating of institutions engaged in AnGR. | | X | X |
| | 3. Promoting the roles of professional associations, civil societies and private sector. | | | X |
| | 4. Promoting formation of breeds and breeders associations. | | | X |
| | 5. Capacity building in animal breeding, reproduction, nutrition, health and other related disciplines. | | X | X |
| | 6. Development of human resource in areas of characterization, utilization and conservation. | | X | X |
| | 7. Develop database management system, information network and early warning system at a national level. | | | X |
| | 8. Establishment of a national recording system. | | | X |
| | 9. Establish systems to monitor the status and trends of breeds. | | | X |

- Awareness raising on threats facing Sheko cattle breed is under way and projects are being developed to secure fund for implementation of both *in situ* and *ex situ* conservation.

Table 2. Relevant provisions of the GPA applicable to NPA

| Strategic priorities | Actions | Status of Action | |
|---|---|------------------|-----------------|
| | | Achieved | To be addressed |
| PRIORITY AREA 1: Characterization, inventory and monitoring of trends and associated risks | | | |
| 1. Inventory and characterize animal genetic resources, monitor trends and risks associated with them, and establish country-based early warning and response systems | 1. Conduct or complete inventories of the location, population status, trends and characteristics of animal genetic resources. | | X |
| | 2. Expand characterization and monitoring of trends and risks to animal genetic resources. | | X |
| | 3. Encourage the establishment of institutional responsibilities and infrastructure for monitoring trends in animal genetic resources, including identification, registration and pedigree systems. | | X |
| | 4. Promote participatory approaches to characterization, inventory and monitoring of trends and associated risks that foster collaboration among all stakeholders, including livestock keepers and researchers. | | X |
| | 5. Undertake international cooperative monitoring of trends and associated risks, inventory and characterization activities among countries sharing trans-boundary breeds and similar production systems. | | X |
| | 6. Strengthen national and regional information systems and networks for inventory, monitoring and characterization. | | X |
| | 7. Establish breed endangerment early warning and response systems, through development of national, regional and global risk monitoring mechanisms. | | X |

| STRATEGIC PRIORITY AREA 2: Sustainable use and development | | | |
|---|---|--|---|
| 3. Establish and strengthen national sustainable use policies | 1. Review existing national policies on sustainable use to assess their impacts on animal genetic resources management. | | X |
| | 2. Develop national policies that incorporate the contribution of animal genetic resources to sustainable use, which include setting strategic objectives for breeding and sustainable use; conducting economic and cultural valuation of animal genetic resources; and developing approaches, including mechanisms, to support wide access to, and the fair and equitable sharing of, benefits arising from the use of animal genetic resources and associated traditional knowledge. | | X |
| 4. Establish national species and breed development strategies and Programs | 1. Develop long-term planning and strategic breeding Programs which, include efforts to improve underutilized breeds, especially within low to medium external input production systems; assessments of the impact of exotic animal breeds and the development of measures for producers to realize positive impacts and prevent negative impacts; training and technical support for the breeding activities of pastoralist and farming communities; and the integration of improved husbandry practices in animal genetic resources development programs. | | X |
| | 2. Assess breed development programs, with the aim of meeting foreseeable economic and social needs and market demands. The | | X |

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| | information about breeds and production systems should be made available to consumers. | | |
| | 3 Establish and develop organizational structures of breeding programs, especially breeders' organizations and breeding schemes, including recording systems. | | X |
| | 4 Incorporate consideration of the impacts of selection on genetic diversity into breeding programs and develop approaches to maintain the desired variability. | | X |
| | 5 Establish recording schemes to monitor changes in production and non-production traits, and develop and periodically adjust breeding goals accordingly. | | X |
| | 6 Encourage the development of backup collections of frozen semen and embryos to ensure genetic variability. | | X |
| | 7 Provide information to farmers and livestock keepers to assist in facilitating access to animal genetic resources from various sources. | | X |
| 5.Promote agro-ecosystems Approaches to the management of animal genetic resources | 1. Assess environmental and socio-economic trends that require a medium- and long-term policy development and/or revise in animal genetic resources management. | | X |
| | 2. Integrate agro-ecosystem approaches in national agricultural and environmental policies and programs of relevance to animal genetic resources particularly those directed towards pastoralist and rural smallholder communities, and fragile environments. | | X |

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| | 3. Establish networks to enhance interaction among the main stakeholders, scientific disciplines and sectors involved. | | X |
| 6.Support indigenous and local production systems and Associated knowledge systems of importance to the maintenance and sustainable use of animal genetic resources | 1. Assess the value and importance of indigenous and local production systems to identify trends and drivers of change that may affect the genetic base, and the resilience and sustainability of the production systems. | | X |
| | 2. Support indigenous and local livestock systems of importance to animal genetic resources, including through the removal of factors contributing to genetic erosion. | | X |
| | 3. Promote and enable relevant exchange, interaction and dialogue among indigenous and rural communities and scientists and government officials and other stakeholders, in order to integrate traditional knowledge with scientific approaches. | | X |
| | 4. Promote the development of niche markets for products derived from indigenous and local species and breeds, and strengthen processes to add value to their primary products. | | X |
| STRATEGIC PRIORITY AREA 3: Conservation | | | |
| 7. Establish national Conservation policies | 1. Set and regularly review conservation priorities and goals. | | X |
| | 2. Assess factors leading to the erosion of animal genetic resources and formulate appropriate policy responses. Establish information systems on animal breeding approaches, in order to enable breeders make appropriate choices in improvement | | X |

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| | programs. | | |
| | 3. Establish institutional structures and policies, including specific measures to conserve breeds at risk of extinction, and to prevent breeds from becoming at risk. | | X |
| | 4. Provide and catalyze incentives for producers and consumers to support conservation of animal genetic resources at risk in consonance with existing international agreements. | | X |
| 8. Establish or strengthen <i>in situ</i> conservation programs | 1. Set and regularly review <i>in situ</i> conservation priorities and goals. | | X |
| | 2 Encourage the development and implementation of national and regional <i>in situ</i> conservation programs for breeds and populations that are at risk. | | X |
| | 3 Promote policies and means to achieve the sustainable use of a diversity of local breeds, without the need for support from public funds or extra funding, through <i>in situ</i> conservation. | | X |
| 9. Establish or strengthen <i>ex situ</i> conservation programs. | 1. Set and regularly review <i>ex situ</i> conservation priorities and Goals. | | X |
| | 2. Establish and/or strengthen national and regional facilities for <i>ex situ</i> conservation, in particular cryogenic storage. | | X |
| | 3. Establish modalities to facilitate use of genetic material stored in <i>ex situ</i> gene banks under fair and equitable arrangements for storage, access and use of animal genetic resources. | | X |
| | 4. Develop and implement measures to secure <i>ex situ</i> collections from loss of genetic | | X |

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| | diversity resulting from disease outbreaks and other threats, in particular by establishing backup samples. | | |
| | 5. Identify and fill gaps in <i>ex situ</i> collections. | | X |
| | 6. Develop procedures for replenishment of genetic material taken from gene banks, by systematically developing links with live populations, or establishing <i>in vivo</i> populations of breeds at risk at off-farm locations. | | X |
| STRATEGIC PRIORITY AREA 4: Policies, institutions and capacity building | | | |
| 12 Establish or strengthen National institutions, Including National Focal Points, for planning and implementing animal genetic Resources measures, for livestock Sector development | 1. Analyze national institutional capacity in support of holistic planning of the livestock sector. | | X |
| | 2. Establish or strengthen fully functional National Focal Points for animal genetic resources. | | X |
| | 3. Develop strong national coordination between the National Focal Point and stakeholders involved in animal genetic resources, such as the breeding industry, government agencies, civil society organizations, and networks and advisory committees. | | X |
| | 4. Develop and implement intervention tools for national planners to shape the future development of the livestock sector in accordance with national priorities, including in relation to the deployment of animal genetic resources, and the effects of animal production systems on the environment. | | X |
| | 5. Promote coordination and synergy | | X |

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| | between the different authorities dealing with various aspects of planning, within and across ministries, as well as with other stakeholders, and ensure their participation in the process. | | |
| 13. Establish or strengthen National educational and research facilities | 1. Identify the short-term, medium-term and long-term needs for research and education, and promote the formation of the relevant experts, nationally or through international training. | | X |
| | 2. Review national research and education capacities in relevant fields, and establish targets for training to build the national skill base. | | X |
| | 3. Establish or strengthen, in partnership with other countries, as appropriate, relevant research, training and extension institutions, including national and regional agricultural research systems, to support efforts to characterize, inventory and monitor trends and associated risks, sustainably use and develop, and conserve animal genetic resources. | | X |
| | 4. Review the national educational needs of livestock keepers, while respecting traditional knowledge and indigenous practices. | | X |
| 14. Strengthen national humancapacity for characterization, inventory, and monitoring of trends and associated risks, for sustainable use, | 1. Establish or strengthen training and technology transfer programs, and information systems for the inventory, characterization and monitoring of trends and associated risks; sustainable use, development and conservation. | | X |

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| development, and conservation | 2 | Establish or strengthen collaborative networks of researchers, breeders and conservation organizations, and other public, civil and private actors, within and between countries, for information and knowledge exchange for sustainable use, breeding and conservation. | | X |
| | 3 | Establish or strengthen community-based organizations, networks and initiatives for sustainable use, breeding and conservation. | | X |
| 18. Raise national awareness of the roles and values of animal genetic resources | 1. | Provide targeted, effective information through media, public events and other means to raise awareness about the important roles and values of animal genetic resources. | | X |
| 20. Review and develop national Policies and legal frameworks for animal genetic resources. | 1. | Periodically review existing national policies and regulatory frameworks, with a view to identifying any possible effects they may have on the sustainable use, development and conservation of animal genetic resources, especially with regard to the contribution and needs of local communities keeping livestock. | | X |
| | 2 | Consider measures to address any effects identified in reviews of policy and legal frameworks. | | X |
| | 3 | Ensure consistency of national law and policies concerning animal genetic resources with relevant international agreements, as appropriate. | | X |
| | 4 | Ensure that relevant research results are taken into consideration in the development of national policies and regulations on animal genetic resources. | | X |

4.2. The Draft Strategic Priorities and Actions

Strategic priority areas, estimated costs and time required for the implementation of each strategic priority area as well as possible source of budget, the updated draft strategic priorities and action plans, actions and tasks for each action, lead implementing agency and partner organization/s and the expected out puts from the implementation of each action have been presented in Table 3 below.

Table 3. Updated draft strategic priorities and actions

| |
|---|
| SPA 1. Characterization, inventory and monitoring of trends and associated risks (US\$6,000,000) |
| Strategic priority 1 Inventory and characterization of animal genetic resources (US 4,500,000) |
| Action1. Promote participatory approaches for characterization and inventory that foster collaboration among all stakeholders |
| Tasks: <ul style="list-style-type: none">• synthesizing of an approach that promotes participatory characterization and inventory with the stakeholders• identifying critical stakeholders• identify venues to conduct stakeholder workshops• presenting, discussing and agreeing on the approach that promotes participatory characterization and inventory with the stakeholders• signing the MoUs on the agreed upon document that promotes participatory characterization and inventory with the stakeholders• compilation of report on synthesized approach and the outcomes of the workshop |

| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000US\$) | Source of financing |
|--|--|------------|----------------------------|---------------------|
| IBC | Regional Bureaus of Agri. MoA, Pastoral Com. | ST | 100.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Four stakeholder workshops conducted and MoU for participatory characterization and inventory with stakeholders signed | | | |
| Action 2. Establish/strengthen/initiate national (including regions) and regional information system and network for inventory and characterization | | | | |
| Tasks: <ul style="list-style-type: none"> identifying of gaps in national and regional information system needs and networks for inventory and characterization identifying means that will fill the identified gaps in national and regional information system needs and networks for inventory and characterization putting in place of national and regional information system and networks required for participatory inventory and characterization compilation of report on the information systems put in place and networks established | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | FAO, IBC, Bureaus of Regional Agri./Agency, NARS, HLI, CS, ILI, AU-IBAR | ST | 250.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> A national information system and network for inventory and characterization established | | | |
| | <ul style="list-style-type: none"> A regional information system and network for inventory and characterization initiated and strengthened | | | |
| Action 3. Strengthen breed level characterization of animal genetic resources | | | | |
| Tasks: | | | | |

| <ul style="list-style-type: none"> reviewing of the existing data on breed level characterization reviewing and standardization of methodologies for breed level characterization on the species basis upgrading of human capacity to breed level characterization using on-job & short term trainings setting of priorities for breed level characterization on the species basis conducting of breed level characterization compilation of report on the outcomes of breed level characterization | | | | |
|--|---|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, FAO, NAIC, Bureaus of Regional Agri./Agency, NARS, HLIs, CSA | ST-MT | 2,500.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Characterization of breeds of all domestic farm animals strengthened | | | |
| Action 4. Conduct inventories of location, population status and trends of animal genetic resources | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the existing data from different sources on locations, population status and trends of all breeds of domestic animal genetic resources collecting of primary data on locations, population status and trends of all breeds of domestic animal genetic resources compiling of a complete report on locations, population status and trends of all breeds of domestic animal genetic resources producing of a distribution map on the locations of the population of all breeds of domestic animal genetic resources | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| CSA | MoA, FAO, IBC, NAIC, Bureaus of Regional Agri./Agency, NARS, HLIs | ST-MT | 1000.00 | CSA |
| Expected outputs | <ul style="list-style-type: none"> Location, population status and trends of all domestic farm animal breeds inventoried | | | |

| | | | | |
|--|---|-------------------|-----------------------------------|----------------------------|
| Action 5. Initiate and/or undertake international cooperative inventory and characterization activities among countries sharing trans-boundary breeds and similar production systems | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of existing data from different sources on the hitherto international cooperative inventory and characterization activities initiating of communication with countries which will involve in inventory and characterization of trans-boundary domestic animal genetic resources setting of inventory and characterization priorities at breeds level for trans-boundary domestic animal genetic resources signing of MoU with countries that are of priority to trans-boundary domestic animal genetic resources inventory and characterization Conducting of inventory and characterization of trans-boundary breeds as per the priority and MoU Compilation of report on the outcomes of inventory and characterization | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoFA, MoA, FAO, IGAD, ILRI and representatives of the respective countries | ST-MT | 650.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> MoU for inventory and characterization between countries signed | | | |
| | <ul style="list-style-type: none"> Six trans-boundary species inventoried and characterized | | | |
| Strategic priority 2. Monitoring of trends and risks associated with animal genetic resources (US\$ 1,200,000) | | | | |
| Action: 1 Promote participatory approaches for monitoring of trends and associated risks | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the existing g approaches for monitoring of trends and associated risks identifying of strengths, weaknesses and gaps in the existing approaches for monitoring of trends and associated risks synthesizing of effective means that promotes participatory approach for monitoring of trends and | | | | |

| associated risks <ul style="list-style-type: none"> identifying critical stakeholders identify venues to conduct stakeholder workshops presenting, discussing and agreeing on the approaches on participatory characterization and inventory with the stakeholders signing the MoUs on the agreed upon participatory monitoring of trends and associated risks with the stakeholders compilation of reports on outcomes of the workshops | | | | |
|---|---|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | Regional Bureaus of Agri., MoA, Pastoral Com. | ST | 50.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Four stakeholder workshops conducted and MoU for participatory monitoring of trends and associated risks signed | | | |
| Action 2. Establish institutional responsibilities and infrastructure for monitoring of trends and associated risks in animal genetic resources, including identification, registration and pedigree systems | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the existing institutional responsibilities and infrastructure for monitoring of trends and associated risks in animal genetic resources, including identification, registration and pedigree systems identifying strengths, weaknesses and gaps of the existing institutional responsibilities and infrastructure for monitoring of trends and associated risks in animal genetic resources, including identification, registration and pedigree systems proposing of effective set-ups for institutional responsibilities and infrastructure for monitoring of trends and associated risks in animal genetic resources, including identification, registration and pedigree systems getting the proposed institutional responsibilities and infrastructure evaluated and agreed upon by the stakeholders compiling of a report on the agreed up-on new institutional responsibilities and infrastructure for | | | | |

| monitoring of trends and associated risks in animal genetic resources, including identification, registration and pedigree systems | | | | |
|--|--|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | Regional Bureaus of Agriculture, MoA, NARS | MT | 500.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Institutional responsibilities and infrastructure for monitoring of trends and associated risks in animal genetic resources, including identification, registration and pedigree systems established | | | |
| Action 3. Establish national and regional information systems and networks for monitoring trends and associated risks in animal genetic resources | | | | |
| Tasks: <ul style="list-style-type: none"> identifying gaps on national and regional information system needs and networks for monitoring trends and associated risks in animal genetic resources devising of means that will fill the identified gaps in national and regional information systems and networks for monitoring trends and associated risks in animal genetic resources getting the proposed national and regional information system needs and networks evaluated and agreed upon by the stakeholders putting in place of national and regional information system needs and networks required for monitoring trends and associated risks in animal genetic resources Compilation of report on the information systems put in place and networks established | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | FAO, MoA, Bureaus of Regional Agri./Agency, NARS, HLIs, CSA, ILRI, AU-IBAR, | MT | 300.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> A national information system and network for monitoring of trends and associated risks | | | |

| | | | | |
|---|---|-------------------|-----------------------------------|----------------------------|
| | <p>established</p> <ul style="list-style-type: none"> • A regional information system and network for monitoring trends and associated risks established | | | |
| Action 4. Monitor trends and risks to animal genetic resources | | | | |
| Tasks: <ul style="list-style-type: none"> • reviewing of data and information on trends of and risks on animal genetic resources • identifying of causes for the observed trends of and risks on animal genetic resources • devising of effective ways to monitoring trends of and risks on animal genetic resources • compiling of guidelines that will be used for the monitoring trends of and risks on animal genetic resources • getting the guideline evaluated and agreed up-on by the stakeholders • monitoring of trends on and risks to animal genetic resources as per the guideline • compilation of report | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, ILRI, BoA, NARS, HLIs, NAIC, EMDTI, trans-boundary countries | ST-LT | 150.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> • Trends on the status and causes of risks on all domestic farm animal genetic resources identified | | | |
| | <ul style="list-style-type: none"> • Trends and risks of all domestic farm animal genetic resources monitored | | | |
| Action 5. Initiate and undertake international cooperative monitoring of trends and associated risks among countries sharing trans-boundary breeds and similar production systems | | | | |
| Tasks: <ul style="list-style-type: none"> • reviewing of existing data from different sources on the hitherto international cooperative monitoring of trends and associated risks among countries sharing trans-boundary breeds and similar production systems | | | | |

| <ul style="list-style-type: none"> • initiating of communication with trans-boundary countries to cooperative monitoring of trends and associated risks on breeds and similar production systems • setting of mechanisms to cooperative monitoring of trends and associated risks on trans-boundary breeds and similar production systems • signing of MoU with countries sharing trans-boundary breeds and similar production systems to take off cooperative monitoring of trends and associated risks • undertaking of cooperative monitoring of trends and associated risks on all trans-boundary breeds and similar production systems • compilation of periodic reports on the outcomes of cooperative monitoring of trends and associated risks on all trans-boundary breeds and similar production systems | | | | |
|---|---|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoFA, MoA, FAO, IGAD, ILRI and trans-boundary countries | ST-LT | 200.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> • International cooperative monitoring of trends and associated risks among countries for all species of trans-boundary domestic farm animals and similar production systems initiated and undertaken | | | |
| Strategic priority 3. Establish country-based early warning and response systems for animal genetic resources (US\$ 300,000) | | | | |
| Action 1. Establish early warning system for animal genetic resources such as breed endangerment through development of national, regional and global risk monitoring mechanisms | | | | |
| Tasks: <ul style="list-style-type: none"> • reviewing of existing data from all possible sources on the available early warning system for animal genetic resources such as breed endangerment through development of national, regional and global risk monitoring mechanisms • devising of effective means which will fill the identified gaps on the early warning system for animal genetic resources | | | | |

| <ul style="list-style-type: none"> • putting in place of effective early warning system required for animal genetic resources • Compiling of report detailing the devised early warning system • setting of criteria to monitor and evaluate of the early warning system established | | | | |
|--|--|-------------------|-----------------------------------|----------------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| DRMFSS | IBC, AU-IBAR, MoA, FAO, IGAD, trans-boundary countries | ST | 75.00 | DRMFSS |
| Expected outputs | <ul style="list-style-type: none"> • An early warning system for animal genetic resources through development of national, regional and global risk monitoring mechanisms established | | | |
| Action 2. Establish national response systems through adoption of regional and global risk monitoring mechanisms | | | | |
| Tasks: <ul style="list-style-type: none"> • reviewing of existing data on the hitherto national, regional and global response systems and risk monitoring mechanisms • identifying of strengths, weaknesses and gaps in national risk monitoring mechanisms • devising of means that will help to fill gaps in national risk monitoring mechanisms through adoption of best practices from regional and global experiences • compiling of a report detailing about the adopted national response systems to risk monitoring • establishing of effective national response systems to animal genetic resources at risk • setting of criteria to monitor and evaluate the performance the newly established national response systems to risk monitoring • compilation of report | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| DRMFSS | MoA, FAO, IBC, IGAD, USAID, BoA/Agency, NARS, HLI, CSA | ST | 225.00 | DRMFSS |
| Expected outputs | <ul style="list-style-type: none"> • A national response systems through adoption of regional and global risk monitoring mechanisms established | | | |

| | | | | |
|--|--|-------------------|-----------------------------------|----------------------------|
| SPA 2. Sustainable Use and Development (US\$ 7,445,250) | | | | |
| Strategic priority 4 Establish and/or strengthen national sustainable use policies (US\$ 1,897,500) | | | | |
| Action 1. Review all existing national policies on sustainable use to assess their impacts on animal genetic resources management | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of all the existing national policies on sustainable use and assessing of their impacts on animal genetic resources management preparing of a report indicating the impact of each national policy on the management of animal genetic resources | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, EPA, NAIC, NARS, EWCA, House of Representatives | ST | 75.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> All existing national policies on sustainable use and their impacts on animal genetic resources management assessed and reviewed | | | |
| Action 2. Develop national policies on sustainable use of AnGR | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of all the existing national policies on sustainable use of animal genetic resources preparing of a report on the strengths, weaknesses, and gaps of the existing national policies on the sustainable use of animal genetic resources preparing of a draft policy document that will ensure sustainable use of domestic animal genetic resources submitting of the draft policy on sustainable use of domestic animal genetic resources to the concerned competent body for approval | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |

| | | | | |
|---|--|-------------------|-----------------------------------|----------------------------|
| IBC | MoA, EWCA, House of Representatives, NARS, EPA | ST | 75.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> A National policy on sustainable use of AnGR developed | | | |
| Action 3. Conduct valuation of animal genetic resources | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of data on the hitherto studies conducted on valuation of animal genetic resources reviewing of international best practices applied in valuating animal genetic resources upgrading of know-how of valuation of animal genetic resources through short and medium term trainings identifying of strengths, weaknesses and gaps on the methodologies that have been applied so far preparing of protocol for valuation specific to the potentials of breeds within species setting of priorities for valuation of breeds within species, based on such criteria as the country's short to long term conservation and development needs valuating of the country's animal genetic resources preparing of detailed report on the outcomes of valuation on the breeds basis | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | NARS,HLI, ILRI, Civil societies, MoA, BoA | ST-LT | 1,672.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Valuation of all breeds of domestic animal genetic resources conducted | | | |
| Action 4. Develop approaches to support wide access to, and the fair and equitable sharing of, benefits arising from the use of animal genetic resources and associated traditional knowledge | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of all the existing approaches that support wide access to, and the fair and equitable sharing of benefits arising from the use of animal genetic resources and associated traditional knowledge identifying of the strengths, weaknesses and gaps on the existing approaches that support wide | | | | |

| <p>access to, and the fair and equitable sharing of benefits arising from the use of animal genetic resources and associated traditional knowledge</p> <ul style="list-style-type: none"> • enriching and finalization of the approaches using the stakeholder consultations • developing of effective approaches that support wide access to, and the fair and equitable sharing of, benefits arising from the use of animal genetic resources and associated traditional knowledge | | | | |
|--|---|-------------------|-----------------------------------|----------------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | IPro, MoA, | ST | 75.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> • Approaches to support wide access to, and the fair and equitable sharing of, benefits arising from the use of animal genetic resources and associated traditional knowledge developed | | | |
| Strategic priority 5. Establish national species and breed development strategies and programs (US\$ 3,650,250) | | | | |
| Action 1. Develop long-term plan and strategic breeding programs which include efforts to improve underutilized breeds, especially within low to medium external input production systems | | | | |
| Tasks: <ul style="list-style-type: none"> • reviewing of data and information on the existing strategic breeding programs, taking into account of all breeds, input levels and production systems • identifying of the strengths, weaknesses and the gaps in the existing strategic breeding programs • setting of priorities to long-term plan and strategic breeding programs, based on the attributes of specific breeds of each species in all production systems and input levels • devising of long term plans for strategic breeding programs for the prioritized breeds in the selected input levels and production systems • enriching and finalizing of the proposed plan using the stakeholder consultations <p>developing a long-term plan and strategic breeding programs which include efforts to improve underutilized breeds, especially within low to medium external input production system</p> | | | | |
| Lead | Partner organization (s) | Time | Expected | Source of |

| implementation organization | | frame | cost ('000 US \$) | financing |
|--|---|------------|----------------------------|---------------------|
| NARS | IBC, MoA, BoA/Agencies, NAIC, HLI, ILRI | ST-LT | 189.75 | NARS |
| Expected outputs | <ul style="list-style-type: none"> A long-term plan and strategic breeding programs which include efforts to improve underutilized breeds, especially within low to medium external input production systems developed | | | |
| Action 2. Establish and develop organizational structures of breeding programs, especially breeders' organizations and breeding schemes, including recording systems | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of data and information on the existing organizational breeding programs, especially breeders' organizations and breeding schemes, including recording systems identifying of strengths, weaknesses and gaps in the existing organizational breeding programs, especially breeders' organizations and breeding schemes, including recording systems establishing of bodies with the organizational structure responsible for spearheading breeding programs, especially breeders' organizations and breeding schemes, including recording systems compilation of the report on the process of establishment | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| NARS | MoA, HLI, IBC, NAIC, ILRI, civil societies | ST-MT | 759.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> A body with organizational structure for domestic farm animal breed improvement established Four (cattle, small ruminants & poultry) breeding programs, especially breeders' organizations and breeding schemes, including recording systems established | | | |
| Action 3. Establish recording schemes to monitor changes in production and non-production traits, and | | | | |

| | | | | |
|---|--|-------------------|-----------------------------------|----------------------------|
| periodically adjust breeding goals accordingly | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of data and information on the existing recording schemes identifying of strengths, weaknesses and gaps in the existing recording schemes setting of priorities of breeds on the species basis to which recording schemes are required establishing of the recording schemes on the priority basis developing of criteria that aid monitoring and evaluation of the established required schemes to monitor changes in production and non-production traits, and adjust breeding goals periodically compilation of report on the process of the breeding schemes establishment | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| NARS | NAIC, IBC, MoA | ST-LT | 189.75 | NARS |
| Expected outputs | <ul style="list-style-type: none"> Four (cattle, sheep, goats and chicken) recording schemes to monitor changes in production and non-production traits established, and breeding goals periodically adjusted | | | |
| Action 4. Incorporate consideration of the impacts of selection on genetic diversity into breeding programs and develop approaches to maintain the desired variability | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the hitherto selection programs identifying of strengths, weaknesses and gaps of the selection programs on genetic diversity into breeding programs and develop approaches to maintain the desired variability devising of programs that would capitalize on the strength and avoid the weaknesses as well as fill gaps on the existing selection programs getting of the devised selection programs evaluated and agreed up-on by the stakeholders developing of the selection programs that will have positive impacts on genetic diversity of all breeding programs considered and the approaches to maintain desired variability compilation of the report on the newly developed selection programs and approaches that have | | | | |

| positive impacts on genetic diversity to all breeding programs considered and will maintain desired variability | | | | |
|---|--|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| NARS | HLI, IBC, NAIC, MoA | ST-LT | 75.90 | NARS |
| Expected outputs | <ul style="list-style-type: none"> Impacts of selection on genetic diversity into all breeding programs considered and the approaches to maintain desired variability developed | | | |
| Action 5. Establish backup collections of frozen semen and embryos to ensure genetic variability | | | | |
| Tasks: <ul style="list-style-type: none"> setting of priority for of back collections of frozen and embryos choosing of donor animals based on their genetic make- up and health status Conducting back collections for frozen semen and embryos processing of the collected frozen semen and embryos for storage storing of back up collections of frozen semen and embryos keeping of record on the backup collections of frozen semen and embryos | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | NAIC, BoA, NARS, Pastoral Com. | ST-LT | 1,138.50 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Backup collections of frozen semen and embryos of all domestic farm animal breeds at risk established | | | |
| Action 6. Provide training and technical support for the breeding activities of pastoralist and farming communities | | | | |
| Tasks: <ul style="list-style-type: none"> identifying of gaps on the hitherto training and technical support for the breeding activities of pastoralist and farming communities | | | | |

| <ul style="list-style-type: none"> • developing of the training manual • setting of priorities and schedule for the training • training of pastoralist and farming communities on the breeding activities • providing of the required technical support for the pastoralists and breeding communities that assist breeding activities • compiling of report the trainings and technical support provided | | | | |
|--|---|-------------------|-----------------------------------|----------------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | IBC, BOA/Agency, Pastoral Com., NARS, Ministry of Federal Affairs | ST-LT | 569.25 | MoA |
| Expected outputs | <ul style="list-style-type: none"> • 1000 trainings (two trainings in 500 districts) for 35,000 farmers and 15,000 pastoralists on the breeding activities for pastoralist and farming communities provided • Technical support on the breeding activities of pastoralist and farming communities for 50% of the trainees in 500 districts provided | | | |
| Action 7. Integrate improved husbandry practices in animal genetic resources development programs | | | | |
| Tasks: <ul style="list-style-type: none"> • reviewing of existing data and information on the existing animal husbandry practices in animal genetic resources development programs • identifying of the strengths, weaknesses and gaps o the existing husbandry practices • devising of means that will avoid the existing weakness and gaps • getting the newly proposed animal husbandry practices evaluated by the stakeholders • implementing of the newly developed animal husbandry practices in animal genetic resources development programs • compiling of report on the newly developed animal husbandry practices in animal genetic resources development programs | | | | |
| Lead | Partner organization (s) | Time | Expected | Source of |

| implementation organization | | frame | cost ('000 US \$) | financing |
|---|--|-------------------|-----------------------------------|----------------------------|
| MoA | NAIC, NARS, IBC, BoA/Livestock Agency, Pastoral Com. | ST-LT | 113.85 | MoA |
| Expected outputs | <ul style="list-style-type: none"> Improved husbandry practices in four animal genetic resources development programs integrated | | | |
| Action 8. Assess breed development programs, with the aim of meeting foreseeable economic and social needs and market demands | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the existing data and information on breed development programs identifying strengths, weakness and gaps in existing breed development programs producing of reports on breed development programs, with the aim of meeting foreseeable economic and social needs and market demands | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| NARS | MoA, IBC | ST-LT | 189.75 | NARS |
| Expected outputs | <ul style="list-style-type: none"> Two reports on breed development programs, with the aim of meeting foreseeable economic and social needs and market demands produced | | | |
| Action 9. Assess the impact of exotic animal breeds and the development of measures for producers to realize positive impacts and prevent negative impacts | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the existing data and information on impact of exotic animal breeds and the development of measures gathering of data and information on the impact of exotic breeds and development measures through field surveys preparing of reports on the impact of exotic animal breeds and the development of measures for | | | | |

| producers to realize positive and prevent negative impacts | | | | |
|--|---|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| NARS | IBC, MoA, BoA/Agency Pastoral Com., NAIC | ST-LT | 189.75 | NARS |
| Expected outputs | <ul style="list-style-type: none"> Three survey reports assessing the impact of exotic animal breeds produced, and measures for producers to realize positive impacts and prevent negative impacts developed | | | |
| Action 10. Provide information to farmers and livestock keepers to assist in facilitating access to animal genetic resources from various sources | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of information on the existing means used to facilitate access to animal genetic resources to farmers and livestock keepers preparing of training materials to farmers and livestock keepers on facilitating access to animal genetic resources setting of priorities and schedule for trainings providing of trainings to farmers and livestock keepers that will help to facilitate access to animal genetic resources from various sources compilation of reports | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | IBC, BoA/ Agency/Pastoral Com. | ST | 45.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> Information through 1000 trainings (two trainings in 500 districts) to farmers and livestock keepers that assist in facilitating access to animal genetic resources from various sources provided | | | |
| Action 11. Avail information about breeds and production systems to consumers | | | | |

| | | | | |
|--|---|-------------------|-----------------------------------|----------------------------|
| Tasks: <ul style="list-style-type: none">• reviewing of data on breeds and production systems• compiling of information in such means as reports and posters on breeds and production systems in a way that can be availed to consumers• identifying of efficient means of availing the compiled information to the consumers• availing of the information on breeds and production systems to consumers• compiling of report on information preparation and availing processes | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | Ministry of Com. Affairs, MoA, BoA, Pastoral Com. | ST-LT | 189.75 | IBC |
| Expected outputs | <ul style="list-style-type: none">• 90 hrs of air time information through the mass media (10 minutes per week) about breeds and production systems to consumers disseminated• Reports on breeds and production systems reviewed, and important qualities identified• Four posters on important qualities of breed s and production systems (about 1000 from each) prepared and distributed | | | |
| Strategic priority 6. Promote agro-ecosystems approaches to the management of animal genetic resources (US\$ 1,138,500) | | | | |
| Action 1. Assess environmental and socio-economic trends that require a medium- and long-term policy development and/or revision in animal genetic resources management | | | | |
| Tasks: <ul style="list-style-type: none">• reviewing of the existing policies that are associated with the animal genetic resources management• conducting of a review on environmental and socio-economic trends that are related with the animal genetic resources management• identifying of the trends that require a medium- and long-term policy development and/or revision in animal genetic resources management• compiling of reports on the findings of trends requiring a medium- and long-term policy development and/or revision | | | | |

| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
|--|--|------------|----------------------------|---------------------|
| IBC | MoA, BoA/Agency, Pastoral Com., EPA, EWCA | ST-MT | 398.48 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Two reports on the assessment of environmental and socio-economic trends that require a medium- and long-term policy development and/or revision in animal genetic resources management produced | | | |
| Action 2. Integrate agro-ecosystem approaches in national agricultural and environmental policies and programs of relevance to animal genetic resources, particularly those directed towards pastoralist and rural smallholder communities, and fragile environments | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of approaches of the existing national agricultural and environmental policies and programs of relevance to animal genetic resources, particularly those directed towards pastoralist and rural smallholder communities, and fragile environments identifying of strengths, weakness and gaps on whether the existing national agricultural and environmental policies and programs of relevance to animal genetic resources integrate the ecosystem approaches devising of means to effectively integrating ecosystem approaches into the national agricultural and environmental policies and programs of relevance to animal genetic resources getting the proposed ecosystem approaches to be integrated into the national agricultural and environmental policies and programs of relevance to animal genetic resources be evaluated and agreed by the stakeholders integrating of the agreed upon ecosystem approaches into the national agricultural and environmental policies and programs of relevance to animal genetic resources, particularly those directed towards pastoralist and rural smallholder communities, and fragile environments compiling of reports on the process of devising and integrating the approaches in to the relevant policies and programs of relevance to animal genetic resources, particularly those directed towards pastoralist and rural smallholder communities, and fragile environments | | | | |

| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
|--|---|------------|----------------------------|---------------------|
| MoA | IBC, House of Representatives, NARS, EPA | ST-MT | 300.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> Agro-ecosystem approaches in all national agricultural and environmental policies and programs of relevance to animal genetic resources, particularly those directed towards pastoralist and rural smallholder communities, and fragile environments integrated | | | |
| Action 3. Establish network to enhance interaction among the main stakeholders, scientific disciplines and sectors involved | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the existing networks with which main stakeholders scientific communities and actors are interacting identifying of strengths, weaknesses and gaps within the existing network designing of mechanisms for the efficient network that will enhance interaction among the main stakeholders, scientific disciplines and sectors establishing of the network that will enhance efficient interaction among the main stakeholders, scientific disciplines and sectors compilation of the report on the network establishment process | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | IBC,NARS,HLI, BoA/Agency, Pastoral Com., EPA, EWCA | ST | 113.85 | MoA |
| Expected outputs | <ul style="list-style-type: none"> A network to enhance interaction among the main stakeholders, scientific disciplines and sectors established | | | |

| | | | | |
|--|--|-------------------|-----------------------------------|----------------------------|
| Strategic priority 7. Support indigenous and local production systems and associated knowledge systems of importance to the maintenance and sustainable use of animal genetic resources (US\$ 759,000) | | | | |
| Action 1. Assess the value and importance of indigenous and local production systems to identify trends and drivers of change that may affect the genetic base, and the resilience and sustainability of the production systems | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of values and importance of indigenous and local production systems identifying of trends in indigenous and local production systems identifying of drivers of change in trends in indigenous and local production systems that may affect the genetic base, and the resilience and sustainability of the production systems compilation of reports on value and importance, trends in indigenous and local production systems, factors affecting the genetic base of the production systems as well as their resilience and sustainability | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, Pastoral Com., HLI, NARS | ST-LT | 151.80 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Two reports on assessment of value and importance of indigenous and local production systems to identify trends and drivers of change that may affect the genetic base, and the resilience and sustainability of the production systems produced | | | |
| Action 2. Support indigenous and local livestock systems of importance to animal genetic resources, including removal of factors contributing to genetic erosion | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the hitherto mechanisms on supporting indigenous and local livestock systems of importance to animal genetic resources conducting of review on factors that contribute to genetic erosion in indigenous and local livestock | | | | |

| <p>systems</p> <ul style="list-style-type: none"> • devising of effective mechanism that will support indigenous and local livestock systems and remove factors contributing to the genetic erosion in the systems • identifying of the effective venue of providing the support • providing of the support using the venue • compilation of the report on support system identified and its way of provision | | | | |
|--|--|-------------------|-----------------------------------|----------------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, Pastoral Com. | ST-LT | 265.65 | IBC |
| Expected outputs | <ul style="list-style-type: none"> • Indigenous and local livestock systems of importance to animal genetic resources supported • Factors contributing to genetic erosion of animal genetic resources identified and removed | | | |
| <p>Action 3. Promote and enable relevant exchange, interaction and dialogue among indigenous and rural communities, scientists, government officials and other stakeholders, in order to integrate traditional knowledge with scientific approaches</p> | | | | |
| <p>Tasks:</p> <ul style="list-style-type: none"> • reviewing of the hitherto on the hitherto approaches used in facilitating relevant exchange, interaction and dialogue among indigenous and rural communities, scientists, government officials and other stakeholders, in order to integrate traditional knowledge with scientific approaches • identifying of strengths, weaknesses and gaps in the reviewed hitherto approaches • devising of effective approaches that promote and enable relevant exchange, interaction and dialogue among indigenous and rural communities, scientists, government officials and other stakeholders, in order to integrate traditional knowledge with scientific approaches • identifying of critical stakeholders that will discuss and enrich the proposed approach • conducting of the stakeholder workshop to discuss, enrich and finalize the approach and identify effective venue to promotion of the agreed up on approach | | | | |

| <ul style="list-style-type: none"> • compilation of reports on the devised approach and the venue for promotion | | | | |
|---|---|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, Pastoral Com., Pastoral Forum Ethiopia, Life Net | ST-LT | 113.85 | IBC |
| Expected outputs | <ul style="list-style-type: none"> • Two stakeholder workshops promoting relevant exchange, interaction and dialogue among indigenous and rural communities, scientists, government officials and other stakeholders, in order to integrate traditional knowledge with scientific approaches conducted | | | |
| Action 4. Promote the development of niche markets for products derived from indigenous and local species and breeds, and strengthen processes to add value to their primary products | | | | |
| Tasks: <ul style="list-style-type: none"> • identifying of products derived from indigenous and local species and breeds that require niche markets and value addition to their primary products • setting of priorities to products derived from indigenous and local species and breeds that require niche markets and value addition • reviewing of data from national and international sources on experiences and effective ways of developing niche markets and value addition • developing of the niche markets to the prioritized products • devising of effective means to add value on the primary products as per the priority • getting the agreements of critical stakeholders on the products proposed for niche markets, the niche markets developed and the proposed methodology for value addition • choosing of the effective venues to the promotion of niche markets • promoting of the niche markets • compilation of report on the niche markets development and value addition processes | | | | |
| Lead | Partner organization (s) | Time | Expected | Source of |

| implementation organization | | frame | cost ('000 US \$) | financing |
|------------------------------------|---|--------------|--------------------------|------------------|
| MoA | BoA/Agency, Pastoral Com.,IBC | ST-LT | 227.70 | MoA |
| Expected outputs | <ul style="list-style-type: none"> Niche markets for products derived from ten indigenous and local species and breeds developed, and processes to add value to their primary products promoted and strengthened | | | |

| 3. Strategic Priority Area 3. Conservation (US\$1,164,713) | | | | |
|--|--|-------------------|-----------------------------------|----------------------------|
| Strategic priority 8. Establish national conservation policies (US \$ 75,000) | | | | |
| Action 1. Set and regularly review conservation priorities and goals | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the existing conservation priorities and goals identifying of the strengths, weaknesses and gaps in the existing conservation priorities and goals revising of the conservation priorities and goals taking into account the realities on the ground getting of the revised conservation priorities and goals evaluated by the stakeholders setting of new conservation priorities and goals compiling of the report on the process of setting the new conservation priorities and goals reviewing of the newly set conservation priorities and goals, five years after commencement of its implementation updating of, if necessary, of the conservation priorities and goals, based on the realities on the ground | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, NARS, NAIC, EWCA, EPA, Pastoral Com. | ST-LT | 15.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Within three years, conservation priorities and goals for all AnGRFA set | | | |

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|--|---|-------------------|-----------------------------------|----------------------------|
| | <ul style="list-style-type: none"> • Every five years, conservation priorities and goals for all AnGRFA reviewed | | | |
| Action 2. Strengthen and/or establish the existing institutional structures and policies, including specific measures to conserve breeds at risk of extinction, and to prevent breeds from becoming at risk | | | | |
| Tasks: <ul style="list-style-type: none"> • reviewing of the existing institutional structures and policies, including specific measures to conserve breeds at risk of extinction, and to prevent breeds from becoming at risk • identifying of the strengths, weaknesses and gaps in the existing institutional structures and policies, including specific measures in relation to their effectiveness to conserve breeds at risk of extinction, and prevent breeds from becoming at risk • developing of effective organizational structure and infrastructure to be established in each of the national regional state • establishing of a body in each national regional state, with an organizational structure for domestic farm animal breed conservation • developing of a policy on specific measures to conserve breeds at risk of extinction, and to prevent breeds from becoming at risk • compiling of reports on the organization structures for domestic animal genetic resources established and the policy measures developed | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, NAIC, Pastoral Com., House of Peoples Representatives | ST-LT | 15.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> • A body in each of the national regional state, with an organizational structure for domestic farm animal breed conservation, strengthened and/or established • A policy on specific measures to conserve breeds at risk of extinction, and to prevent breeds from becoming at risk developed | | | |

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|--|--|-------------------|-----------------------------------|----------------------------|
| Action 3. Assess factors leading to the erosion of animal genetic resources and formulate appropriate policy responses | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of existing development, conservation, investment and similar strategy and policy documents that lead to erosion of animal genetic resources identifying of strengths, weaknesses and gaps of the revised documents compiling of assessment reports on factors leading to the erosion of animal genetic resources formulating of appropriate responses to factors leading to the erosion of animal genetic resources | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, IBC, BoA/Agency, NAIC, Pastoral Com. | ST-LT | 7.50 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Two reports on assessment of factors leading to the erosion of animal genetic resources produced and appropriate policy responses formulated | | | |
| Action 4. Establish information system on animal breeding approaches, in order to enable breeders make appropriate choices in improvement programs | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of existing information systems on animal breeding approaches that enable breeders to make appropriate choices in improving programs identifying of strengths, weaknesses and gaps in the existing information systems devising of appropriate information system on animal breeding approaches that enable breeders to make appropriate choices in improving programs getting of the devised information system evaluated by the stakeholders establishing of appropriate and effective information system on animal breeding approaches that enable breeders to make appropriate choices in improving programs | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |

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|--|--|-------------------|-----------------------------------|----------------------------|
| MoA | BoA/Agency, NARS, HLI, MoST, NAIC, IBC, Pastoral Com. | ST | 7.50 | MoA |
| Expected outputs | <ul style="list-style-type: none"> An information system on animal breeding approaches, in order to enable breeders make appropriate choices in improvement programs established | | | |
| Action 5. Provide and catalyze incentives for producers to support conservation of animal genetic resources at risk in consonance with existing international agreements | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of appropriate data and information on the existence and types of incentives for producers to support conservation of animal genetic resources at risk in consonance with existing international agreements identifying of strengths, weaknesses and gaps on the existing incentive system, if any devising of effective incentives for producers to support conservation of animal genetic resources at risk in consonance with existing international agreements getting of the devised incentives evaluated by the stakeholders compiling of the report on the incentive systems devised providing and catalyzing of the incentives for producers to support conservation of animal genetic resources at risk in consonance with existing international agreements | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, Pastoral Com., Ministry of Federal Affairs | ST-LT | 30.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Incentives for producers of ten breeds at risk to support their conservation in consonance with existing international agreements provided and catalyzed | | | |
| Strategic priority 9. Establish or strengthen <i>in situ</i> Conservation programs (US\$ 890,195) | | | | |
| Action 1. Set and regularly review <i>in situ</i> conservation priorities and goals | | | | |

| Tasks: <ul style="list-style-type: none"> reviewing of the hitherto <i>in situ</i> conservation priorities and goals reviewing of best international practices in areas of setting <i>in situ</i> conservation priorities and goals setting of <i>in situ</i> conservation priorities and goals to domestic animal genetic resources agreeing with the critical stakeholders on the proposed <i>in situ</i> conservation priorities and goals compilation of the report on the process of setting of priorities to <i>in situ</i> conservation and its goals reviewing of the priorities set to <i>in situ</i> conservation and the corresponding goals at regular intervals | | | | |
|---|---|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, NARS, Pastoral Com., NAIC | ST-LT | 89.02 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Within three years, <i>in situ</i> conservation priorities and goals for all the breeds of AnGRFA set Every five years, <i>in situ</i> conservation priorities and goals for all AnGRFA reviewed | | | |
| Action 2. Encourage the development and implementation of national <i>in situ</i> conservation programs for breeds and populations that are at risk | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the hitherto national <i>in situ</i> conservation practices and programs for breeds and populations that are at risk identifying of strengths, weakness and gaps in the existing practices and programs developing of effective community based national <i>in situ</i> conservation programs setting of priorities to breeds and populations that require community based <i>in situ</i> conservation programs agreeing with critical stakeholders on the newly developed <i>in situ</i> conservation programs and proposed priorities devising of effective mechanisms for the implementation of the programs implementing of the developed community based <i>insitu</i> conservation programs as per the priority compiling of report on the process of development of effective community based <i>in situ</i> | | | | |

| conservation programs and mechanism of their implementation | | | | |
|--|--|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, Pastoral Com., NARS, HLI, NAIC, Ministry of Federal Affairs | ST-LT | 133.53 | IBC |
| Expected outputs | <ul style="list-style-type: none"> 10 community based <i>in situ</i> conservation programs for breeds and populations that are at risk developed and implemented | | | |
| Action 3. Promote policies and means to achieve the sustainable use of a diversity of local breeds, without the need for support from public funds or extra funding, through <i>in situ</i> conservation | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the existing policy on the sustainable use of a diversity of local breeds reviewing of data and information on existing public support and extra funding to achieve the sustainable use of a diversity of local breeds through <i>in situ</i> conservation identifying of strengths, weaknesses and gaps of the reviewed policies and support systems developing of a policy document and means that will bring the sustainable use of a diversity of local breeds, without the need for support from public funds or extra funding, through <i>in situ</i> conservation | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA,BoA/Agency/Pastoral Com. | ST | 89.02 | IBC |
| Expected outputs | <ul style="list-style-type: none"> A policy document and means to achieve the sustainable use of a diversity of local breeds, without the need for support from public funds or extra funding, through <i>in situ</i> conservation promoted | | | |
| Action 4. Identify and fill gaps for <i>in situ</i> conservation | | | | |
| Tasks: | | | | |

| <ul style="list-style-type: none"> • reviewing of the existing documents regarding the <i>in situ</i> conservation • identifying of strengths, weaknesses and gaps in the existing <i>in situ</i> conservation practices • compiling of reports indicating gaps in the <i>in situ</i> conservation practices • devising of means that fill the identified gaps in the <i>in situ</i> conservation • implementing of the means that fill the identified gaps • compiling of report | | | | |
|---|--|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, NARS, FAO, Pastoral Com., NAIC | MT-LT | 445.10 | IBC |
| Expected outputs | <ul style="list-style-type: none"> • Two reports that identify gaps in <i>in situ</i> conservation prepared • All identified <i>in situ</i> conservation gaps filled | | | |
| Action 5. Establish modalities to facilitate use of genetic material under <i>in situ conservation</i> under fair and equitable arrangements for access and use of animal genetic resources | | | | |
| Tasks: <ul style="list-style-type: none"> • reviewing of the existing modalities used to facilitate use of genetic material under <i>in situ</i> conservation under fair and equitable arrangements for access and use of animal genetic resources • identifying of strengths, weaknesses and gaps in existing modalities • devising of means that will better assist to facilitate use of genetic material under <i>in situ</i> conservation under fair and equitable arrangements for access and use of animal genetic resources • establish the modality that will be used to facilitate use of genetic material under <i>in situ</i> conservation under fair and equitable arrangements for access and use of animal genetic resources | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, Pastoral Com. | ST-MT | 89.02 | IBC |
| Expected | <ul style="list-style-type: none"> • A modality to facilitate use of genetic | | | |

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|--|---|-------------------|-----------------------------------|----------------------------|
| outputs | material under <i>in situ</i> conservation under fair and equitable arrangements for access and use of animal genetic resources established | | | |
| Action 6. Develop guideline for <i>in situ</i> conservation | | | | |
| Tasks: <ul style="list-style-type: none"> collecting of data and information that will help to develop guideline for <i>in situ</i> conservation developing of the draft guideline for the <i>in situ</i> conservation getting of the draft <i>in situ</i> guideline evaluated by the stakeholders developing of the guideline for the <i>in situ</i> conservation | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, NARS, NAIC, Pastoral Com. | ST | 44.51 | IBC |
| Expected outputs | <ul style="list-style-type: none"> A guideline for <i>in situ</i> conservation developed | | | |
| Strategic priority 10. Establish or strengthen <i>ex situ</i> Conservation programs (US\$ 199,518) | | | | |
| Action 1. Set and regularly review <i>ex situ</i> conservation priorities and Goals | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the hitherto <i>ex situ</i> conservation priorities and goals reviewing of best international practices in areas of setting <i>ex situ</i> conservation priorities and goals setting of <i>ex situ</i> conservation priorities and goals to domestic animal genetic resources agreeing with the critical stakeholders on the proposed <i>ex situ</i> conservation priorities and goals setting of the <i>ex situ</i> conservation priorities and goals to all breeds of domestic animals compilation of the report on the process of setting of priorities to <i>ex situ</i> conservation and its goals reviewing of the priorities set to <i>ex situ</i> conservation and the corresponding goals in regular intervals | | | | |
| Lead implementation | Partner organization (s) | Time frame | Expected cost ('000 | Source of financing |

| organization | | | US \$) | |
|--|---|------------|----------------------------|---------------------|
| IBC | MoA, BoA/Agency, NARS, NAIC, Pastoral Com. | ST-LT | 9.98 | IBC |
| Expected outputs | <ul style="list-style-type: none"> • Within two years, <i>ex situ</i> conservation priorities and goals for the ten breeds of AnGRFA set • Every five years, <i>ex situ</i> conservation priorities and goals for all AnGRFA reviewed | | | |
| Action 2. Establish national and regional facilities for <i>ex situ</i> conservation, in particular cryogenic storage | | | | |
| Tasks: <ul style="list-style-type: none"> • reviewing of information on the existing national and regional facilities for <i>ex situ</i> conservation • identifying of strengths, weaknesses and gaps in the national and regional facilities for <i>ex situ</i> conservation • establishing of national <i>ex situcryo</i>-conservation facility and one <i>ex situ in vivo</i> conservation • identifying of countries that will be interested for establishment regional <i>ex situcryo</i> storage • creating of contacts with the interested parties to regional <i>ex situcryo</i> storages • signing of the MoU with the interested countries in regional cryo storage • securing of funds for the establishment of regional <i>ex situ</i> cryostorage, in coordination with the member countries • establishing of a regional animal <i>ex situ</i> conservation facility • compilation of reports on the national and regional animal <i>ex situ</i> establishment processes | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | BoA, MoFED, MoA, FAO, IGAD, UA-IBAR | ST-LT | 69.83 | IBC |
| Expected outputs | <ul style="list-style-type: none"> • A national animal gene banks and one <i>ex situ in vivo</i> conservation established • A regional animal gene bank established | | | |
| Action 3. Develop and implement measures to secure <i>ex situ</i> collections from loss of genetic diversity resulting from disease outbreaks and other threats, in particular by establishing backup samples | | | | |
| Tasks: | | | | |

| <ul style="list-style-type: none"> reviewing of the hitherto measures used to secure <i>ex situ</i> collections from loss of genetic diversity identifying of strengths, weaknesses and gaps in the existing measures conducting of review on the international best practices used to secure <i>ex situ</i> collections from loss of genetic diversity developing of measures that leads towards constructing a back up cry conservation facility selecting of an ideal place for the construction of the back -up facility writing up of the financial proposal to the appropriate ministry to get support for the construction of the back-up facility establishing of the back-up facility to secure <i>ex situ</i> collections from loss of genetic diversity resulting from disease outbreaks and other threats, in particular by establishing backup samples compilation of the report on the process of establishment | | | | |
|---|--|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoFED, MoA, FAO | MT | 19.96 | IBC |
| Expected outputs | <ul style="list-style-type: none"> One animal gene bank that serves as backup to secure samples in <i>ex situ</i> collections established | | | |
| Action 4. Identify and fill gaps in <i>ex situ</i> collections | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of data and information on the existing <i>ex situ</i> collections identifying of gaps in the existing <i>ex situ</i> collections bridging up of the gaps in the identified <i>ex situ</i> collections compilation of report on gap identification and its filling processes | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, NARS, FAO, NAIC, Pastoral Com. | ST-LT | 69.83 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Two reports that identify gaps in <i>ex situ</i> | | | |

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|---|--|-------------------|-----------------------------------|----------------------------|
| | collections prepared | | | |
| | <ul style="list-style-type: none"> 75% of the identified gaps in <i>ex situ</i> collections filled | | | |
| Action 5. Establish modalities to facilitate use of genetic materials stored in <i>ex situ</i> gene banks under fair and equitable arrangements for storage, access and use of animal genetic resources | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the existing modalities used to facilitate use of genetic materials stored in <i>ex situ</i> gene banks under fair and equitable arrangements for storage, access and use of animal genetic resources identifying of strengths, weaknesses and gaps in the existing modalities establishing of effective modalities that will facilitate the use of genetic materials stored in <i>ex situ</i> gene banks under fair and equitable arrangements for storage, access and use of animal genetic resources compiling of report on the established modality | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, Pastoral Com. | ST-LT | 9.98 | IBC |
| Expected outputs | <ul style="list-style-type: none"> A modality to facilitate use of genetic material stored in <i>ex situ</i> gene banks under fair and equitable arrangements for storage, access and use of animal genetic resources established | | | |
| Action 6. Develop procedures for replenishment of genetic material taken from gene banks, by systematically developing links with live populations, or establishing <i>in vivo</i> populations of breeds at risk at off-farm locations | | | | |
| Tasks: <ul style="list-style-type: none"> conducting of reviews on the international best practices used for replenishing genetic materials taken from gene banks developing of procedures for replenishment of genetic materials taken from gene banks | | | | |

| <ul style="list-style-type: none"> developing of systematic links between <i>ex situ</i> collections and live populations, or establishing <i>in vivo</i> populations of breeds at risk at off-farm locations that serve for replenishment for genetic material taken from gene banks establishing of <i>in vivo</i> population of breeds at risk at off-farm locations that serve for replenishment for genetic material taken from gene banks compilation of reports on the procedures developed for the replenishment of genetic materials taken from the gene banks | | | | |
|--|---|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | NAIC, NARS, MoA, BoA/Agency, Pastoral Com. | ST-MT | 9.98 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Four procedures for replenishment of genetic material taken from gene banks, by systematically developing links with live populations developed An <i>in vivo</i> population of breeds at risk at off-farm locations established | | | |
| Action 7. Develop guideline for <i>ex situ</i> conservation | | | | |
| Tasks: <ul style="list-style-type: none"> collecting of data and information that will serve for the preparation of guideline for <i>ex situ</i> conservation developing draft guideline for <i>ex situ</i> conservation getting the draft guide line commented and enriched by the critical stakeholders developing of the guideline for <i>ex situ</i> conservation compilation of the report on the guideline preparation process | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, BoA/Agency, NARS, NAIC, Pastoral Com. | ST | 9.98 | IBC |

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|-------------------------|---|--|--|--|
| Expected outputs | <ul style="list-style-type: none"> • A guideline for <i>ex situ</i> conservation developed | | | |
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|---|---|-------------------|-----------------------------------|----------------------------|
| SPA 4. Policies, institutions and capacity building (US \$ 1,902,000) | | | | |
| Strategic priority 11. Strengthen national institutions, Including National Focal Point, for planning and implementing animal genetic resources measures, for livestock sector development (US \$ 100,000) | | | | |
| Action 1. Analyze national institutional capacity in support of holistic planning of the livestock sector | | | | |
| Tasks: <ul style="list-style-type: none"> • reviewing of data and information on the existing national institutional capacity associated with holistic planning of the livestock sector • identifying of strengths, weakness and gaps of the existing national institutional capacity in relation to holistic planning of the livestock sector • developing of a review report on the existing national institutional capacity <i>vis-a-vis</i> its support of holistic planning of the livestock sector produced | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | IBC, BoA/Agency, Pastoral Com., NARS | ST | 20.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> • A review report on national institutional capacity in support of holistic planning of the livestock sector produced | | | |
| Action 2. Strengthen the National Focal Point for animal genetic resources to make it fully functional | | | | |
| Tasks: <ul style="list-style-type: none"> • identifying of the strengths, weaknesses and gaps in National Focal Point for animal genetic resources in relation to its full functionality • preparing of a proposal that will bring the full functionality of the National Focal Point for animal genetic resources • submitting of the proposal to the concerned ministry | | | | |

| <ul style="list-style-type: none"> implementation of the proposed action to strengthen the National Focal Point | | | | |
|---|---|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | MoFED, FAO, IBC and all lead implementation organizations | ST-LT | 10.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> 75% of strategic priority areas of Ethiopian National Strategy and Plan of Action for AnGRFA achieved | | | |
| Action3. Promote coordination and synergy between the different authorities dealing with various aspects of planning, within and across ministries, as well as with other stakeholders, and ensure their participation in the process | | | | |
| Tasks: <ul style="list-style-type: none"> conducting of review on the existing level and nature of coordination and synergy between the different authorities dealing with various aspects of planning, within and across ministries, as well as with other stakeholders identifying of strengths, weakness and gaps in the coordination and synergy between the different authorities dealing with various aspects of planning, within and across ministries, as well as with other stakeholders in relation to their effectiveness in ensuring their participation in the process developing of mechanism that will bring effectiveness in coordination and synergy between the different authorities dealing with various aspects of planning, within and across ministries, as well as with other stakeholders, and ensure their participation in the process promoting of the newly developed mechanism to enhance coordination and synergy between the concerned stakeholders and ensure their participation in the process ensuring of the participation of most of the critical stakeholders in planning and implementation of various aspects of AnGRFA compilation of the report | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |

| | | | | |
|---|--|-------------------|-----------------------------------|----------------------------|
| MoA | IBC, NAIC, Bureaus of Regional Agri./Agency, NARS, HLI, FAO | ST-LT | 50.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> Participation of at least 75% of the stakeholders in planning and implementation of various aspects of AnGRFA achieved | | | |
| Action 4. Develop strong national coordination between the National Focal Point and stakeholders involved in animal genetic resources, such as the research system, the breeding industry, government agencies, civil society organizations, NGOs and networks and advisory committees | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing data and information on the existing level and nature of national coordination between the National Focal Point and stakeholders involved in animal genetic resources, such as the research system identifying of strengths, weakness and gaps in the existing coordination between National Focal Point and stakeholders involved in animal genetic resources devising of a effective system that will ensure strong coordination between the National Focal Point and stakeholders involved in animal genetic resources, such as the research system, the breeding industry, government agencies, civil society organizations, NGOs and networks and advisory committees compiling of report on the process of devising the system | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | All stakeholders | ST-LT | 75.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> A system for national coordination between the National Focal Point and stakeholders involved in animal genetic resources developed Advisory committee that oversees sustainable use, development and | | | |

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|---|--|-------------------|-----------------------------------|----------------------------|
| | conservation of animal genetic resources established | | | |
| Action 5. Develop and implement intervention tools for national planners to shape the future development of the livestock sector in accordance with national priorities, including deployment of animal genetic resources, and the effects of animal production systems on the environment | | | | |
| Tasks: <ul style="list-style-type: none"> conducting of review on the existing intervention tools used by the national planners to shape the future development of the livestock sector in accordance with national priorities identifying of the strengths, weaknesses and gaps in the reviewed intervention tools devising of the effective implementation tools that will be used by the national planners to shape the future development of the livestock sector in accordance with national priorities, including deployment of animal genetic resources, and the effects of animal production systems on the environment compiling of reports on the effective implementation tools devised | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | NARS, NAIC, EPA, Ministry of Federal Affairs, BoA/Agency, Pastoral Com. | ST-LT | 40.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> Two reports on intervention tools for national planners to shape the future development of the livestock sector in accordance with national priorities and the effects of animal production systems on the environment developed | | | |
| Strategic priority 12. Establish or strengthen educational and research facilities (US \$ 550,000) | | | | |
| Action1. Review national research and education capacities in relevant fields, and set targets for training to build the national skill base | | | | |
| Tasks: <ul style="list-style-type: none"> conducting of review on the existing national research and education capacities in areas of | | | | |

| <p>conservation sustainable use, development access and equitable sharing of benefits</p> <ul style="list-style-type: none"> identifying of strengths, weaknesses and gaps in the reviewed national capacity areas setting of targets for trainings aimed at building national skill base preparing of reports on the national research and education capacities needs in the relevant fields compiling of a report on the target setting process to national skill base building | | | | |
|--|---|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | MoE, HLI, NARS, MoST, IBC | ST-LT | 55.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> Two review reports on national research and education capacities in relevant fields produced, targets for training to build the national skill base set | | | |
| <p>Action2. Review the national educational needs of livestock keepers, while respecting traditional knowledge and indigenous practices, and set targets for their training</p> | | | | |
| <p>Tasks:</p> <ul style="list-style-type: none"> conducting of review on the national educational base of livestock keepers identifying of strengths, weaknesses and gaps in the educational needs of the livestock keepers preparing of reports on the national educational needs of livestock keepers, while respecting traditional knowledge and indigenous practices setting of training targets that will satisfy the training needs of the livestock keepers, while respecting their traditional knowledge and indigenous practices compiling of a report on the training target setting process | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | MoE, HLI, NARS, MoST, Ministry Federal Affairs, BoA/Agency, Pastoral Com., IBC | ST-LT | 55.00 | MoA |
| Expected | <ul style="list-style-type: none"> Two review reports on national | | | |

| | | | | |
|--|--|------------|----------------------------|---------------------|
| outputs | educational needs of livestock keepers produced and targets for their training set | | | |
| Action3. Identify the short, medium and long-term needs for research and education, and promote the formation of the relevant experts, nationally or through international training | | | | |
| Tasks: <ul style="list-style-type: none">conducting of review on the existing national research and education in the relevant fields, and the available expert groupsidentifying of strengths, weaknesses and gaps in the reviewed research and education capacities in relation to the short, medium and long term need as well as of the relevant expert groupsproducing of reports on the short, medium and long-term needs for research and educationformation of relevant expert groups for short, medium and long-term needs for research and education, nationally or through international trainingcompiling of a report on the formation process of the relevant expert groups | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | MoA, MoE, HLI, NARS, Ministry of Federal Affairs, IBC, BoA/Agency, Pastoral Com. | ST-LT | 220.00 | MoA |
| Expected outputs | <ul style="list-style-type: none">Two assessment reports on short, medium and long-term needs for research and education producedTwo expert groups for short, medium and long-term needs for research and education, nationally or through international training, formed | | | |
| Action 4. Strengthen, in partnership with other countries, as appropriate, relevant research, training and extension institutions, including national and regional agricultural research systems, to support efforts to characterize, inventory and monitor trends and associated risks, sustainably use and develop, and conserve animal genetic resources | | | | |
| Tasks: <ul style="list-style-type: none">conducting of review on the hitherto efforts conducted in partnership with relevant research, training and extension institutions of other countries in areas of characterization, inventory and monitoring trends and associated risks, sustainable use and development, and conservation of animal genetic | | | | |

resources.

- identifying of strengths, weakness and gaps in the reviewed efforts
- identifying of relevant research, training and extension institutions in countries with best practice of characterization, inventory and monitoring trends and associated risks, sustainable use and development, and conservation of animal genetic resources
- creating contact with those institutions and requesting for the partnership
- signing of the MoU with the identified institutions to work in partnership in areas of research and training on characterization, inventory and monitoring trends and associated risk, sustainable use development and conservation of animal genetic resources
- compiling of the report on the process of forging partnerships

| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
|----------------------------------|---|------------|----------------------------|---------------------|
| MoA | IBC, NAIC, MoE, HLI, NARS, MoST, BoA/Agency, Pastoral Com. | ST-LT | 220.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> • MoU with five regional and international relevant research and training institutions that will work in partnership in areas of characterization, inventory and monitoring trends and associated risk, sustainable use development and conservation of animal genetic resources signed | | | |

Strategic priority 13 Strengthen national human capacity for characterization, inventory, and monitoring of trends and associated risks, for sustainable use, development, and conservation (US \$ 1,150,000)

Action 1. Establish and/or strengthen training and technology transfer programs, and information systems for the inventory, characterization and monitoring of trends and associated risks; sustainable use, development and conservation

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|--|--|-------------------|-----------------------------------|----------------------------|
| Tasks: <ul style="list-style-type: none"> conducting of review on the existing training and technology transfer and information systems for the inventory, characterization and monitoring of trends and associated risks; sustainable use, development and conservation identifying of strengths, weaknesses and gaps in the existing training and technology transfer and information systems devising of mechanisms that will strengthen training and technology transfer and information system needs for the inventory, characterization and monitoring of trends and associated risks; sustainable use, development and conservation strengthening of the required training and technology transfer programs and information system needs to cattle, goats, poultry, sheep, camel & equines compiling of report on the training and technology transfer programs and information system needs devised and strengthened | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, HLI, BoA/Agency/Pastoral Com., NARS, NAIC,EMDTI | ST-LT | 150.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Six (cattle, goats, poultry, sheep, camel & equines) training, technology transfer programs and information systems on the inventory, characterization and monitoring of trends and associated risks; sustainable use, development and conservation strengthened | | | |
| Action 2. Establish and/or strengthen collaborative networks of researchers, breeders and conservation organizations, community-based organizations and other public, civil and private actors, within and between countries, for information and knowledge exchange for sustainable use, breeding and conservation | | | | |
| Tasks: | | | | |

| <ul style="list-style-type: none"> conducting of review on the existing collaborative networks of researchers, breeders and conservation organizations, community-based organizations and other public, civil and private actors, within and between countries, for information and knowledge exchange for sustainable use, breeding and conservation identifying of strengths, weaknesses and gaps in the existing collaborative networks devising of mechanisms that will strengthen the desired collaborative networks strengthening of the required collaborative networks of researchers, breeders and conservation organizations, community-based organizations and other public, civil and private actors, within and between countries, for information and knowledge exchange for sustainable use, breeding and conservation compiling of report on the devised and strengthened collaborative networks | | | | |
|---|--|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | IBC, NAIC, NARS, HLI, Ministry of Federal Affairs, Pastoral Com., FAO | ST-LT | 1000.00 | MoA |
| Expected outputs | <ul style="list-style-type: none"> A collaborative network of researchers, breeders and conservation organizations, community-based organizations and other public, civil and private actors, within and between countries, for information and knowledge exchange for sustainable use, breeding and conservation established | | | |
| Strategic priority 14. Raise national awareness of the roles and values of animal genetic resources (US \$ 52,000) | | | | |
| Action 1. Provide targeted, effective information through media, public events and other means to raise awareness about the important roles and values of animal genetic resources | | | | |
| Tasks: | | | | |

| <ul style="list-style-type: none"> conducting of review on the hitherto methods used to raise awareness about the important roles and values of animal genetic resources identifying of strengths, weaknesses and gaps in the hitherto methods used to raise awareness about the important roles and values of animal genetic resources devising of mechanisms that will help to provide targeted and effective information through media or other means to raise awareness about the important roles and values of animal genetic resources providing of targeted and effective information used to raise awareness about the important roles and values of animal genetic resources compiling of report on the devised means and means of disseminating targeted and effective informant to the awareness raising | | | | |
|--|---|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | Ministry of Communication, MoA, NARS,HLI | ST-LT | 50.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> 90 hrs of information through the mass media (10 minutes per week) about roles and values of animal genetic resources disseminated Five of public events and other means to raise awareness about the important roles and values of animal genetic resources | | | |
| Strategic priority 15. Review and develop national policies and legal frameworks for animal genetic resources (US \$ 50,000) | | | | |
| Action1. Periodically review existing national policies and regulatory frameworks, with a view to identifying any possible effects they may have on the sustainable use, development and conservation of animal genetic resources, especially with regard to the contribution and needs of local communities keeping livestock | | | | |
| Tasks: <ul style="list-style-type: none"> conducting of review on the existing national policies and regulatory frameworks related to national | | | | |

| <p>policies and regulatory frameworks</p> <ul style="list-style-type: none"> identifying of strengths, weaknesses and gaps in the reviewed national policies and regulatory frameworks producing of a review report that identifies possible effects of the existing national policies and regulatory frameworks on the sustainable use, development and conservation of animal genetic resources, especially with regard to the contribution and needs of local communities keeping livestock | | | | |
|--|---|------------|----------------------------|---------------------|
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, EWCA, EPA | ST-LT | 20.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> A review report on the existing national policies and regulatory frameworks, with a view to identifying any possible effects they may have on the sustainable use, development and conservation of animal genetic resources, especially with regard to the contribution and needs of local communities keeping livestock produced | | | |
| Action2. Consider measures to address any effects identified in reviews of policy and legal frameworks | | | | |
| Tasks: <ul style="list-style-type: none"> reviewing of the existing policy and legal frameworks that are associated with domestic animal genetic resources identifying of strengths, weaknesses and gaps in the reviewed policy and legal frameworks suggesting of amendments and/or any other measures, as necessary compiling of a report on the revision process and the measures suggested | | | | |
| Lead implementation | Partner organization (s) | Time frame | Expected cost ('000 | Source of financing |

| | | | | |
|--|---|-------------------|-----------------------------------|----------------------------|
| organization | | | US \$) | |
| IBC | MoA, MoJ | ST-LT | 7.50 | IBC |
| Expected outputs | <ul style="list-style-type: none"> All the existing policies and legal frameworks reviewed, and when necessary, amendments suggested | | | |
| Action3. Ensure that relevant research results are taken into consideration in the development of national policies and regulations on animal genetic resources | | | | |
| Tasks: <ul style="list-style-type: none"> conducting of review on the hitherto experiences on whether relevant research results are taken into consideration during development of national policies and regulations on animal genetic resources identifying of strengths, weaknesses and gaps in relation to using of relevant research results during development of national policies and regulations on animal genetic resources raising of awareness of policy makers on the need of taking into consideration of the relevant research results during development of national policies and regulations on animal genetic resources following-up and ensuring that the relevant research results have been taken into consideration during the development of national policies and regulations on animal genetic resources compilation of reports of the process | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| MoA | IBC, BoA/Agency, Pastoral Com., NARS | ST-LT | 12.50 | MoA |
| Expected outputs | <ul style="list-style-type: none"> In the development of national policies and regulations on animal genetic resources, all relevant research results taken into consideration | | | |
| Action4. Ensure consistency of national law and policies concerning animal genetic resources with relevant international agreements, as appropriate | | | | |
| Tasks: <ul style="list-style-type: none"> conducting of reviews on whether the national law and policies concerning animal genetic resources are consistent with relevant international agreements | | | | |

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| <ul style="list-style-type: none"> identifying of gaps in consistency of national law and policies concerning animal genetic resources with relevant international agreements devising of means that national law and policies concerning animal genetic resources will, as appropriate, be consistent with relevant international agreements producing of reports indicating the identified gaps in and proposed solutions to ensuring, as appropriate, the consistency of the national laws and policies with relevant international agreements | | | | |
| Lead implementation organization | Partner organization (s) | Time frame | Expected cost ('000 US \$) | Source of financing |
| IBC | MoA, MoJ, IPRO, EPA | ST-MT | 10.00 | IBC |
| Expected outputs | <ul style="list-style-type: none"> Two review reports on the consistency of national law and policies concerning animal genetic resources with relevant international agreements, as appropriate ensured produced | | | |

5. PROGRESS EVALUATION SYSTEM AND REPORTING PROCEDURES

Monitoring and reporting requires periodic assessment of progress made in the implementation of the National Strategy and Plan of Action. Actions taken should be assessed routinely to determine whether the desired results are being achieved and review and adjust timely solutions. National monitoring on progress of implementation is also important to promote further international support for efforts to achieve sustainable use, development and conservation of animal genetic resources. As indicated in the GPA, national reporting on the progress in the implementation and status and will help to find means that will fill gaps, rectify imbalances or lack of coordination and to consider new initiatives or activities. Therefore, a system for monitoring, evaluating and reporting on the implementation of the Ethiopian Strategy and Plan of Action for animal genetic resources has been prepared as per the FAO guideline (Table 5).

The FAO guideline on reporting progress in the implementation and status recommends that each lead agency to report to the National Advisory Committee and that the National Advisory Committee provide to the minister responsible for animal genetic resources an annual synthesis report with recommendations for any adjustments that may be required. It also recommends that the implementation progress be monitored on a yearly basis in order to plan responses to possible obstacles to implementation as well as to prepare effective work plan and budget for the subsequent year of implementation. Evaluation criteria will be filled by both the task force and the lead implementing agency. Outputs achieved, and Opportunities and challenges to implementation of each fiscal year will be reported by the respective lead agency at the end of the fiscal year. Similarly, the agency will report its future actions to implementation, based on its past experiences (Table 5).

Table 4.Framework for Evaluating National Strategy and Plan of Action

| 1 | Lead agency | IBC |
|---|--|--|
| | National strategic priority | Sp1. Inventory and characterization of animal genetic resources |
| | Action | 1. Promote participatory approaches for characterization and inventory that foster collaboration among all stakeholders |
| | Tasks | <ul style="list-style-type: none"> • synthesizing of an approach that promotes participatory characterization and inventory with the stakeholders • identifying critical stakeholders • identify venues to conduct stakeholder workshops • presenting, discussing and agreeing on the approach that promotes participatory characterization and inventory with the stakeholders • signing the MoUs on the agreed upon document that promotes participatory characterization and inventory with the stakeholders • compilation of report on synthesized approach and the outcomes of the workshop |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

| 2 | Lead agency | IBC |
|---|--|---|
| | National Sp | Sp 1. |
| | Action | 3. Strengthen breed level characterization of animal genetic resources. |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing data on breed level characterization • reviewing and standardization of methodologies for breed level characterization on the species basis • upgrading of human capacity to breed level characterization using on-job & short term trainings • setting of priorities for breed level characterization on the species basis • conducting of breed level characterization • compilation of report on the outcomes of breed level characterization |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

| | | |
|---|--|---|
| 3 | Lead agency | IBC |
| | National Sp | Sp 1. |
| | Action | 5. Initiate and/or undertake international cooperative inventory and characterization activities among countries sharing trans-boundary breeds and similar production systems |
| | Tasks | <ul style="list-style-type: none"> • reviewing of existing data from different sources on the hitherto international cooperative inventory and characterization activities • initiating of communication with countries which will involve in inventory and characterization of trans-boundary domestic animal genetic resources • setting of inventory and characterization priorities at breeds level for trans-boundary domestic animal genetic resources • signing of MoU with countries that are of priority to transboundary domestic animal genetic resources inventory and characterization • conducting of inventory and characterization of trans-boundary breeds as per the priority and MoU • Compilation of report on the outcomes of inventory and characterization |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

| | | |
|---|---------------------------------|--|
| 4 | Lead agency | IBC |
| | National Sp | Sp 2. Monitoring of trends and risks associated with animal genetic resources |
| | Action | 1. Promote participatory approaches for monitoring of trends and associated risks |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing approaches for monitoring of trends and associated risks • identifying of strengths, weaknesses and gaps in the existing approaches for monitoring of trends and associated risks • synthesizing of effective means that promotes participatory approach for monitoring of trends and associated risks • identifying critical stakeholders • identify venues to conduct stakeholder workshops • presenting, discussing and agreeing on the approaches on participatory characterization and inventory with the stakeholders • signing the MoUs on the agreed upon participatory monitoring of trends and associated risks with the stakeholders • compilation of reports on outcomes of the workshops |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to | |

| | | |
|--|----------------|--|
| | implementation | |
| | Future action | |

| | | |
|---|--|--|
| 5 | Lead agency | IBC |
| | National Sp | Sp 2. |
| | Action | 2. Establish institutional responsibilities and infrastructure for monitoring of trends and associated risks in animal genetic resources, including identification, registration and pedigree systems |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing institutional responsibilities and infrastructure for monitoring of trends and associated risks in animal genetic resources, including identification, registration and pedigree systems • identifying strengths, weaknesses and gaps of the existing institutional responsibilities and infrastructure for monitoring of trends and associated risks in animal genetic resources, including identification, registration and pedigree systems • proposing of effective set-ups for institutional responsibilities and infrastructure for monitoring of trends and associated risks in animal genetic resources, including identification, registration and pedigree systems • getting the proposed institutional responsibilities and infrastructure evaluated and agreed upon by the stakeholders • compiling of a report on the agreed up-on new institutional responsibilities and infrastructure for monitoring of trends and associated risks in animal genetic resources, including identification, registration and pedigree systems |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

| | | |
|---|---------------------|--|
| 6 | Lead agency | IBC |
| | National Sp | Sp 2. |
| | Action | 3. Establish national and regional information systems and networks for monitoring trends and associated risks in animal genetic resources |
| | Tasks | <ul style="list-style-type: none"> • identifying gaps on national and regional information system needs and networks for monitoring trends and associated risks in animal genetic resources • devising of means that will fill the identified gaps in national and regional information systems and networks for monitoring trends and associated risks in animal genetic resources • getting the proposed national and regional information system needs and networks evaluated and agreed upon by the stakeholders • putting in place of national and regional information system needs and networks required for monitoring trends and associated risks in animal genetic resources |
| | Evaluation criteria | |

| | | |
|--|--|--|
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

| | | |
|---|--|---|
| 7 | Lead agency | IBC |
| | National Sp | Sp 2. |
| | Action | 4. Monitor trends and risks to animal genetic resources |
| | Tasks | <ul style="list-style-type: none"> • reviewing of data and information on trends of and risks on animal genetic resources • identifying of causes for the observed trends of and risks on animal genetic resources • devising of effective ways to monitoring trends of and risks on animal genetic resources • compiling of guidelines that will be used for the monitoring trends of and risks on animal genetic resources • getting the guideline evaluated and agreed up-on by the stakeholders • monitoring of trends on and risks to animal genetic resources as per the guideline • compilation of report |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

| | | |
|---|---------------------|---|
| 8 | Lead agency | IBC |
| | National Sp | Sp 2. |
| | Action | 5. Initiate and undertake international cooperative monitoring of trends and associated risks among countries sharing trans-boundary breeds and similar production systems |
| | Tasks | <ul style="list-style-type: none"> • reviewing of existing data from different sources on the hitherto international cooperative monitoring of trends and associated risks among countries sharing trans-boundary breeds and similar production systems • initiating of communication with trans-boundary countries to cooperative monitoring of trends and associated risks on breeds and similar production systems • setting of mechanisms to cooperative monitoring of trends and associated risks on trans-boundary breeds s and similar production systems • signing of MoU with countries sharing trans-boundary breeds and similar production systems to take off cooperative monitoring of trends and associated risks • undertaking of cooperative monitoring of trends and associated risks on all trans-boundary breeds and similar production systems • compilation of periodic reports on the outcomes of cooperative monitoring of trends and associated risks on all trans-boundary breeds and similar production systems |
| | Evaluation criteria | |

| | | |
|--|--|--|
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

| | | |
|---|--|---|
| 9 | Lead agency | IBC |
| | National Sp | Sp 4. Establish and/or strengthen national sustainable use policies) |
| | Action | 1. Review all existing national policies on sustainable use to assess their impacts on animal genetic resources management |
| | Tasks | <ul style="list-style-type: none"> reviewing of all the existing national policies on sustainable use and assessing of their impacts on animal genetic resources management preparing of a report indicating the impact of each national policy on the management of animal genetic resources |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

| | | |
|----|--|--|
| 10 | Lead agency | IBC |
| | National Sp | Sp 4. |
| | Action | 2. Develop national policies on sustainable use of AnGR |
| | Tasks | <ul style="list-style-type: none"> reviewing of all the existing national policies on sustainable use of animal genetic resources preparing of a report on the strengths, weaknesses, and gaps of the existing national policies on the sustainable use of animal genetic resources preparing of a draft policy document that will ensure sustainable use of domestic animal genetic resources submitting of the draft policy on sustainable use of domestic animal genetic resources to the concerned competent body for approval |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

| | | |
|----|--|---|
| 11 | Lead agency | IBC |
| | National Sp | Sp 4. |
| | Action | 3. Conduct valuation of animal genetic resources |
| | Tasks | <ul style="list-style-type: none"> • reviewing of data on the hitherto studies conducted on valuation of animal genetic resources • reviewing of international best practices applied in valuating animal genetic resources • upgrading of know-how of valuation of animal genetic resources through short and medium term trainings • identifying of strengths, weaknesses and gaps on the methodologies that have been applied so far • preparing of protocol for valuation specific to the potentials of breeds within species • setting of priorities for valuation of breeds within species, based on such criteria as the country's short to long term conservation and development needs • valuating of the country's animal genetic resources • preparing of detailed report on the outcomes of valuation on the breeds basis |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

| | | |
|----|--|---|
| 12 | Lead agency | IBC |
| | National Sp | Sp 4. |
| | Action | 4. Develop approaches to support wide access to, and the fair and equitable sharing of, benefits arising from the use of animal genetic resources and associated traditional knowledge |
| | Tasks | <ul style="list-style-type: none"> • reviewing of all the existing approaches that support wide access to, and the fair and equitable sharing of benefits arising from the use of animal genetic resources and associated traditional knowledge • identifying of the strengths, weaknesses and gaps on the existing approaches that support wide access to, and the fair and equitable sharing of benefits arising from the use of animal genetic resources and associated traditional knowledge • enriching and finalization of the approaches using the stakeholder consultations • developing of effective approaches that support wide access to, and the fair and equitable sharing of, benefits arising from the use of animal genetic resources and associated traditional knowledge |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |

| | | |
|--|---------------|--|
| | Future action | |
|--|---------------|--|

| | | |
|----|--|---|
| 13 | Lead agency | IBC |
| | National Sp | Sp 5. |
| | Action | 5. Establish backup collections of frozen semen and embryos to ensure genetic variability |
| | Tasks | <ul style="list-style-type: none"> • setting of priority for of back collections of frozen and embryos • choosing of donor animals based on their genetic makeup and health status • Conducting back collections for frozen semen and embryos • processing of the collected frozen semen and embryos for storage • storing of back up collections of frozen semen and embryos • keeping of record on the backup collections of frozen semen and embryos |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 14 | Lead agency | IBC |
| | National Sp | Sp 5. |
| | Action | 11. Avail information about breeds and production systems to consumers |
| | Tasks | <ul style="list-style-type: none"> • reviewing of data on breeds and production systems • compiling of information in such means as reports and posters on breeds and production systems in a way that can be availed to consumers • identifying of efficient means of availing the compiled information to the consumers • availing of the information on breeds and production systems to consumers • compiling of report on information preparation and availing processes |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 15 | Lead agency | IBC |
| | National Sp | Sp6. Promote agro-ecosystems approaches to the management of animal genetic resources) |
| | Action | 1. Assess environmental and socio-economic trends that require a medium- and long-term policy development and/or revision in animal genetic resources management |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing policies that are associated with the animal genetic resources management |

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| | | <ul style="list-style-type: none"> conducting of a review on environmental and socio-economic trends that are related with the animal genetic resources management identifying of the trends that require a medium- and long-term policy development and/or revision in animal genetic resources management compiling of reports on the findings of trends requiring a medium- and long-term policy development and/or revision |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 16 | Lead agency | IBC |
| | National Sp | Sp 7. Support indigenous and local production systems and associated knowledge systems of importance to the maintenance and sustainable use of animal genetic resources |
| | Action | 1. Assess the value and importance of indigenous and local production systems to identify trends and drivers of change that may affect the genetic base, and the resilience and sustainability of the production systems |
| | Tasks | <ul style="list-style-type: none"> reviewing of values and importance of indigenous and local production systems identifying of trends in indigenous and local production systems identifying of drivers of change in trends in indigenous and local production systems that may affect the genetic base, and the resilience and sustainability of the production systems compilation of reports on value and importance, trends in indigenous and local production systems, factors affecting the genetic base of the production systems as well as their resilience and sustainability |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 17 | Lead agency | IBC |
| | National Sp | Sp 7. |
| | Action | 2. Support indigenous and local livestock systems of importance to animal genetic resources, including removal of factors contributing to genetic erosion |
| | Tasks | <ul style="list-style-type: none"> reviewing of the hitherto mechanisms on supporting indigenous and local livestock systems of importance to animal genetic resources conducting of review on factors that contribute to genetic erosion in indigenous and local livestock systems |

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| | | <ul style="list-style-type: none"> • devising of effective mechanism that will support indigenous and local livestock systems and remove factors contributing to the genetic erosion in the systems • identifying of the effective venue of providing the support • providing of the support using the venue • compilation of the report on support system identified and its way of provision |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 18 | Lead agency | IBC |
| | National Sp | Sp 7. |
| | Action | 3. Promote and enable relevant exchange, interaction and dialogue among indigenous and rural communities, scientists, government officials and other stakeholders, in order to integrate traditional knowledge with scientific approaches |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the hitherto on the hitherto approaches used in facilitating relevant exchange, interaction and dialogue among indigenous and rural communities, scientists, government officials and other stakeholders, in order to integrate traditional knowledge with scientific approaches • identifying of strengths, weaknesses and gaps in the reviewed hitherto approaches • devising of effective approaches that promote and enable relevant exchange, interaction and dialogue among indigenous and rural communities, scientists, government officials and other stakeholders, in order to integrate traditional knowledge with scientific approaches • identifying of critical stakeholders that will discuss and enrich the proposed approach • conducting of the stakeholder workshop to discuss, enrich and finalize the approach and identify effective venue to promotion of the agreed up on approach • compilation of reports on the devised approach and the venue for promotion |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 19 | Lead agency | IBC |
| | National Sp | Sp 8. Establish national conservation policies |
| | Action | 1. Set and regularly review conservation priorities and goals |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing conservation priorities and goals • identifying of the strengths, weaknesses and gaps in the existing conservation |

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| | | <p>priorities and goals</p> <ul style="list-style-type: none"> revising of the conservation priorities and goals taking into account the realities on the ground getting of the revised conservation priorities and goals evaluated by the stakeholders setting of new conservation priorities and goals compiling of the report on the process of setting the new conservation priorities and goals reviewing of the newly set conservation priorities and goals, five years after commencement of its implementation updating of, if necessary, of the conservation priorities and goals, based on the realities on the ground |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 20 | Lead agency | IBC |
| | National Sp | Sp 8. |
| | Action | 2.Strengthen and/or establish the existing institutional structures and policies, including specific measures to conserve breeds at risk of extinction, and to prevent breeds from becoming at risk |
| | Tasks | <ul style="list-style-type: none"> reviewing of the existing institutional structures and policies, including specific measures to conserve breeds at risk of extinction, and to prevent breeds from becoming at risk identifying of the strengths, weaknesses and gaps in the existing institutional structures and policies, including specific measures in relation to their effectiveness to conserve breeds at risk of extinction, and prevent breeds from becoming at risk developing of effective organizational structure and infrastructure to be established in each of the national regional state establishing of a body in each national regional state, with an organizational structure for domestic farm animal breed conservation developing of a policy on specific measures to conserve breeds at risk of extinction, and to prevent breeds from becoming at risk compiling of reports on the organization structures for domestic animal genetic resources established and the policy measures developed |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 21 | Lead agency | IBC |
| | National Sp | Sp 8. |
| | Action | 3. Assess factors leading to the erosion of animal genetic resources and formulate appropriate policy responses |
| | Tasks | <ul style="list-style-type: none"> • reviewing of existing development, conservation, investment and similar strategy and policy documents that lead to erosion of animal genetic resources • identifying of strengths, weaknesses and gaps of the revised documents • compiling of assessment reports on factors leading to the erosion of animal genetic resources • formulating of appropriate responses to factors leading to the erosion of animal genetic resources |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 22 | Lead agency | IBC |
| | National Sp | Sp 8. |
| | Action | 5. Provide and catalyze incentives for producers to support conservation of animal genetic resources at risk in consonance with existing international agreements |
| | Tasks | <ul style="list-style-type: none"> • reviewing of appropriate data and information on the existence and types of incentives for producers to support conservation of animal genetic resources at risk in consonance with existing international agreements • identifying of strengths, weaknesses and gaps on the existing incentive system, if any • devising of effective incentives for producers to support conservation of animal genetic resources at risk in consonance with existing international agreements • getting of the devised incentives evaluated by the stakeholders • compiling of the report on the incentive systems devised • providing and catalyzing of the incentives for producers to support conservation of animal genetic resources at risk in consonance with existing international agreements |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 23 | Lead agency | IBC |
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| | National Sp | Sp 9. Establish or strengthen <i>in situ</i> Conservation programs |
| | Action | 1. Set and regularly review <i>in situ</i> conservation priorities and goals |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the hitherto <i>in situ</i> conservation priorities and goals • reviewing of best international practices in areas of setting <i>in situ</i> conservation priorities and goals • setting of <i>in situ</i> conservation priorities and goals to domestic animal genetic resources • agreeing with the critical stakeholders on the proposed <i>in situ</i> conservation priorities and goals • compilation of the report on the process of setting of priorities to <i>in situ</i> conservation and its goals • reviewing of the priorities set to <i>in situ</i> conservation and the corresponding goals at regular intervals |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 24 | Lead agency | IBC |
| | National Sp | Sp 9. |
| | Action | 2. Encourage the development and implementation of national <i>in situ</i> conservation programs for breeds and populations that are at risk |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the hitherto national <i>in situ</i> conservation practices and programs for breeds and populations that are at risk • identifying of strengths, weakness and gaps in the existing practices and programs • developing of effective community based national <i>in situ</i> conservation programs • setting of priorities to breeds and populations that require community based <i>in situ</i> conservation programs • agreeing with critical stakeholders on the newly developed <i>in situ</i> conservation programs and proposed priorities • devising of effective mechanisms for the implementation of the programs • implementing of the developed community based <i>insitu</i> conservation programs as per the priority • compiling of report on the process of development of effective community based <i>in situ</i> conservation programs and mechanism of their implementation |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 25 | Lead agency | IBC |
| | National Sp | Sp 9. |
| | Action | 3. Promote policies and means to achieve the sustainable use of a diversity of local breeds, without the need for support from public funds or extra funding, through <i>in situ</i> conservation |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing policy on the sustainable use of a diversity of local breeds • reviewing of data and information on existing public support and extra funding to achieve the sustainable use of a diversity of local breeds through <i>in situ</i> conservation • identifying of strengths, weaknesses and gaps of the reviewed policies and support systems • developing of a policy document and means that will bring the sustainable use of a diversity of local breeds, without the need for support from public funds or extra funding, through <i>in situ</i> conservation |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 26 | Lead agency | IBC |
| | National Sp | Sp 9. |
| | Action | 4. Identify and fill gaps for <i>in situ</i> conservation |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing documents regarding the <i>in situ</i> conservation • identifying of strengths, weaknesses and gaps in the existing <i>in situ</i> conservation practices • compiling of reports indicating gaps in the <i>in situ</i> conservation practices • devising of means that fill the identified gaps in the <i>in situ</i> conservation |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 27 | Lead agency | IBC |
| | National Sp | Sp 9. |
| | Action | 5. Establish modalities to facilitate use of genetic material under <i>in situ conservation</i> under fair and equitable arrangements for access and use of animal genetic resources |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing modalities used to facilitate use of genetic material under |

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| | | <i>insitu</i> conservation under fair and equitable arrangements for access and use of animal genetic resources <ul style="list-style-type: none"> identifying of strengths, weaknesses and gaps in existing modalities devising of means that will better assist to facilitate use of genetic material under in <i>situ</i> conservation under fair and equitable arrangements for access and use of animal genetic resources establish the modality that will be used to facilitate use of genetic material under in <i>situ</i> conservation under fair and equitable arrangements for access and use of animal genetic resources |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 28 | Lead agency | IBC |
| | National Sp | Sp 9. |
| | Action | 6. Develop guideline for <i>in situ</i> conservation |
| | Tasks | <ul style="list-style-type: none"> collecting of data and information that will help to develop guideline for <i>in situ</i> conservation developing of the draft guideline for the <i>in situ</i> conservation getting of the draft <i>in situ</i> guideline evaluated by the stakeholders developing of the guideline for the <i>in situ</i> conservation |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 29 | Lead agency | IBC |
| | National Sp | Sp 10.Establish or strengthen <i>ex situ</i> Conservation programs |
| | Action | 1. Set and regularly review <i>ex situ</i> conservation priorities and Goals |
| | Tasks | <ul style="list-style-type: none"> reviewing of the hitherto <i>ex situ</i> conservation priorities and goals reviewing of best international practices in areas of setting <i>ex situ</i> conservation priorities and goals setting of <i>ex situ</i> conservation priorities and goals to domestic animal genetic resources agreeing with the critical stakeholders on the proposed <i>ex situ</i> conservation priorities and goals setting of the <i>ex situ</i> conservation priorities and goals to all breeds of domestic animals |

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| | | <ul style="list-style-type: none"> • compilation of the report on the process of setting of priorities to <i>ex situ</i> conservation and its goals • reviewing of the priorities set to <i>ex situ</i> conservation and the corresponding goals in regular intervals |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 30 | Lead agency | IBC |
| | National Sp | Sp 10. |
| | Action | 2.Establish national and regional facilities for <i>ex situ</i> conservation, in particular cryogenic storage |
| | Tasks | <ul style="list-style-type: none"> • reviewing of information on the existing national and regional facilities for <i>ex situ</i> conservation • identifying of strengths, weaknesses and gaps in the national and regional facilities for <i>ex situ</i> conservation • establishing of national <i>ex situcryo</i>-conservation facility and one <i>forex situ in vivo</i> conservation • identifying of countries that will be interested for establishment regional <i>ex situcryo</i> storage • creating of contacts with the interested parties to regional <i>ex situcryo</i> storages • signing of the MoU with the interested countries in regional cryo storage • securing of funds for the establishment of regional <i>ex situ cryostorage</i>, in coordination with the member countries • establishing of a regional animal <i>ex situ</i> conservation facility • compilation of reports on the national and regional animal <i>ex situ</i> establishment processes |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 31 | Lead agency | IBC |
| | National Sp | Sp 10. |
| | Action | 3. Develop and implement measures to secure <i>ex situ</i> collections from loss of genetic diversity resulting from disease outbreaks and other threats, in particular by establishing backup samples |

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| | Tasks | <ul style="list-style-type: none"> • reviewing of the hitherto measures used to secure <i>ex situ</i> collections from loss of genetic diversity • identifying of strengths, weaknesses and gaps in the existing measures • conducting of review on the international best practices used to secure <i>ex situ</i> collections from loss of genetic diversity • developing of measures that leads towards constructing a back up cry conservation facility • selecting of an ideal place for the construction of the back-up facility • writing up of the financial proposal to the appropriate ministry to get support for the construction of the back-up facility • establishing of the back-up facility to secure <i>ex situ</i> collections from loss of genetic diversity resulting from disease outbreaks and other threats, in particular by establishing backup samples • compilation of the report on the process of establishment |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 32 | Lead agency | IBC |
| | National Sp | Sp 10. |
| | Action | 4. Identify and fill gaps in <i>ex situ</i> collections |
| | Tasks | <ul style="list-style-type: none"> • reviewing of data and information on the existing <i>ex situ</i> collections • identifying of gaps in the existing <i>ex situ</i> collections • bridging up of the gaps in the identified <i>ex situ</i> collections • compilation of report on gap identification and its filling processes • implementing of the means that fill the identified gaps • compilation of report |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 33 | Lead agency | IBC |
| | National Sp | Sp 10. |
| | Action | 5. Establish modalities to facilitate use of genetic materials stored in <i>ex situ</i> gene banks under fair and equitable arrangements for storage, access and use of animal genetic resources |

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| | Tasks | <ul style="list-style-type: none"> reviewing of the existing modalities used to facilitate use of genetic materials stored in <i>ex situ</i> gene banks under fair and equitable arrangements for storage, access and use of animal genetic resources identifying of strengths, weaknesses and gaps in the existing modalities establishing of effective modalities that will facilitate the use of genetic materials stored in <i>ex situ</i> gene banks under fair and equitable arrangements for storage, access and use of animal genetic resources compiling of report on the established modality |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 34 | Lead agency | IBC |
| | National Sp | Sp 10. |
| | Action | 6. Develop procedures for replenishment of genetic material taken from gene banks, by systematically developing links with live populations, or establishing <i>in vivo</i> populations of breeds at risk at off-farm locations |
| | Tasks | <ul style="list-style-type: none"> conducting of reviews on the international best practices used for replenishing genetic materials taken from gene banks developing of procedures for replenishment of genetic materials taken from gene banks developing of systematic links between <i>ex situ</i> collections and live populations, or establishing <i>in vivo</i> populations of breeds at risk at off-farm locations that serve for replenishment for genetic material taken from gene banks establishing of <i>in vivo</i> population of breeds at risk at off-farm locations that serve for replenishment for genetic material taken from gene banks compilation of reports on the procedures developed for the replenishment of genetic materials taken from the gene banks |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 35 | Lead agency | IBC |
| | National Sp | Sp 10. |
| | Action | 7. Develop guideline for <i>ex situ</i> conservation |
| | Tasks | <ul style="list-style-type: none"> collecting of data and information that will serve for the preparation of guideline for <i>ex</i> |

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| | | <i>situ</i> conservation <ul style="list-style-type: none"> developing draft guideline for <i>ex situ</i> conservation getting the draft guide line commented and enriched by the critical stakeholders developing of the guideline for <i>ex situ</i> conservation compilation of the report on the guideline preparation process |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 36 | Lead agency | IBC |
| | National Sp | Sp 13. Strengthen national human capacity for characterization, inventory, and monitoring of trends and associated risks, for sustainable use, development, and conservation |
| | Action | 1. Establish and/or strengthen training and technology transfer programs, and information systems for the inventory, characterization and monitoring of trends and associated risks; sustainable use, development and conservation |
| | Tasks | <ul style="list-style-type: none"> conducting of review on the existing training and technology transfer and information systems for the inventory, characterization and monitoring of trends and associated risks; sustainable use, development and conservation identifying of strengths, weaknesses and gaps in the existing training and technology transfer and information systems devising of mechanisms that will strengthen training and technology transfer and information system needs for the inventory, characterization and monitoring of trends and associated risks; sustainable use, development and conservation strengthening of the required training and technology transfer programs and information system needs to cattle, goats, poultry, sheep, camel & equines compiling of report on the training and technology transfer programs and information system needs devised and strengthened |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 37 | Lead agency | IBC |
| | National Sp | Sp 14. Raise national awareness of the roles and values of animal genetic resources |
| | Action | 1. Provide targeted, effective information through media, public events and other means to raise awareness about the important roles and values of animal genetic resources |
| | Tasks | <ul style="list-style-type: none"> conducting of review on the hitherto methods used to raise awareness about the |

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| | | <p>important roles and values of animal genetic resources</p> <ul style="list-style-type: none"> identifying of strengths, weaknesses and gaps in the hitherto methods used to raise awareness about the important roles and values of animal genetic resources devising of mechanisms that will help to provide targeted and effective information through media or other means to raise awareness about the important roles and values of animal genetic resources providing of targeted and effective information used to raise awareness about the important roles and values of animal genetic resources compiling of report on the devised means and means of disseminating targeted and effective informant to the awareness raising |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 38 | Lead agency | IBC |
| | National Sp | Sp 15. Review and develop national policies and legal frameworks for animal genetic resources |
| | Action | 1. Periodically review existing national policies and regulatory frameworks, with a view to identifying any possible effects they may have on the sustainable use, development and conservation of animal genetic resources, especially with regard to the contribution and needs of local communities keeping livestock |
| | Tasks | <ul style="list-style-type: none"> conducting of review on the existing national policies and regulatory frameworks related to national policies and regulatory frameworks identifying of strengths, weaknesses and gaps in the reviewed national policies and regulatory frameworks producing of a review report that identifies possible effects of the existing national policies and regulatory frameworks on the sustainable use, development and conservation of animal genetic resources, especially with regard to the contribution and needs of local communities keeping livestock |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
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| 39 | Lead agency | IBC |
| | National Sp | Sp 15. |
| | Action | 2. Consider measures to address any effects identified in reviews of policy and legal |

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| | | frameworks |
| | Tasks | <ul style="list-style-type: none"> reviewing of the existing policy and legal frameworks that are associated with domestic animal genetic resources identifying of strengths, weaknesses and gaps in the reviewed policy and legal frameworks suggesting of amendments and/or any other measures, as necessary compiling of a report on the revision process and the measures suggested |
| | Evaluation criteria | |
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| | Opportunities and challenges to implementation | |
| | Future action | |

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| 40 | Lead agency | IBC |
| | National Sp | Sp 15 |
| | Action | 4. Ensure consistency of national law and policies concerning animal genetic resources with relevant international agreements, as appropriate |
| | Tasks | <ul style="list-style-type: none"> conducting of reviews on whether the national law and policies concerning animal genetic resources are consistent with relevant international agreements identifying of gaps in consistency of national law and policies concerning animal genetic resources with relevant international agreements devising of means that national law and policies concerning animal genetic resources will, as appropriate, be consistent with relevant international agreements producing of reports indicating the identified gaps in and proposed solutions to ensuring, as appropriate, the consistency of the national laws and policies with relevant international agreements |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 1 | Lead agency | MoA |
| | National Sp | Sp1. Inventory and characterization of animal genetic resources |
| | Action | 2. Establish/strengthen/initiate national (including regions) and regional information system and network for inventory and characterization |
| | Tasks | <ul style="list-style-type: none"> identifying of gaps in national and regional information system needs and networks for inventory and characterization identifying means that will fill the identified gaps in national and regional information system needs and networks for inventory and characterization |

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| | | <ul style="list-style-type: none"> • putting in place of national and regional information system and networks required for participatory inventory and characterization • compilation of report on the information systems put in place and networks established |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 2 | Lead agency | MoA |
| | National Sp | Sp 5. Establish national species and breed development strategies and programs |
| | Action | 6. Provide training and technical support for the breeding activities of pastoralist and farming communities |
| | Tasks | <ul style="list-style-type: none"> • identifying of gaps on the hitherto training and technical support for the breeding activities of pastoralist and farming communities • developing of the training manual • setting of priorities and schedule for the training • training of pastoralist and farming communities on the breeding activities • providing of the required technical support for the pastoralists and breeding communities that assist breeding activities • compiling of report the trainings and technical support provided |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 3 | Lead agency | MoA |
| | National Sp | Sp 5. |
| | Action | 7. Integrate improved husbandry practices in animal genetic resources development programs |
| | Tasks | <ul style="list-style-type: none"> • reviewing of existing data and information on the existing animal husbandry practices in animal genetic resources development programs • identifying of the strengths, weaknesses and gaps o the existing husbandry practices • devising of means that will avoid the existing weakness and gaps • getting the newly proposed animal husbandry practices evaluated by the stakeholders • implementing of the newly developed animal husbandry practices in animal genetic resources development programs • compiling of report on the newly developed animal husbandry practices in animal |

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| | | genetic resources development programs |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 4 | Lead agency | MoA |
| | National Sp | Sp 5. |
| | Action | 10. Provide information to farmers and livestock keepers to assist in facilitating access to animal genetic resources from various sources |
| | Tasks | <ul style="list-style-type: none"> • reviewing of information on the existing means used to facilitate access to animal genetic resources to farmers and livestock keepers • preparing of training materials to farmers and livestock keepers on facilitating access to animal genetic resources • setting of priorities and schedule for trainings • providing of trainings to farmers and livestock keepers that will help to facilitate access to animal genetic resources from various sources • compilation of reports |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 5 | Lead agency | MoA |
| | National Sp | Sp6. Promote agro-ecosystems approaches to the management of animal genetic resources |
| | Action | 2. Integrate agro-ecosystem approaches in national agricultural and environmental policies and programs of relevance to animal genetic resources, particularly those directed towards pastoralist and rural smallholder communities, and fragile environments |
| | Tasks | <ul style="list-style-type: none"> • reviewing of approaches of the existing national agricultural and environmental policies and programs of relevance to animal genetic resources, particularly those directed towards pastoralist and rural smallholder communities, and fragile environments • identifying of strengths, weakness and gaps on whether the existing national agricultural and environmental policies and programs of relevance to animal genetic resources integrate the ecosystem approaches • devising of means to effectively integrating ecosystem approaches into the national agricultural and environmental policies and programs of relevance to animal genetic |

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| | | <p>resources</p> <ul style="list-style-type: none"> • getting the proposed ecosystem approaches to be integrated into the national agricultural and environmental policies and programs of relevance to animal genetic resources be evaluated and agreed by the stakeholders • integrating of the agreed upon ecosystem approaches into the national agricultural and environmental policies and programs of relevance to animal genetic resources, particularly those directed towards pastoralist and rural smallholder communities, and fragile environments • compiling of reports on the process of devising and integrating the approaches in to the relevant policies and programs of relevance to animal genetic resources, particularly those directed towards pastoralist and rural smallholder communities, and fragile environments |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 6 | Lead agency | MoA |
| | National Sp | Sp 6. |
| | Action | 3. Establish network to enhance interaction among the main stakeholders, scientific disciplines and sectors involved. |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing networks with which mains stakeholders scientific communities and actors are interacting • identifying of strengths, weaknesses and gaps within the existing network • designing of mechanisms for the efficient network that will enhance interaction among the main stakeholders, scientific disciplines and sectors • establishing of the network that will enhance efficient interaction among the main stakeholders, scientific disciplines and sectors • compilation of the report on the network establishment process |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 7 | Lead agency | MoA |
| | National Sp | Sp 7. Support indigenous and local production systems and associated knowledge systems of importance to the maintenance and sustainable use of animal genetic resources |
| | Action | 4. Promote the development of niche markets for products derived from indigenous and |

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| | | local species and breeds, and strengthen processes to add value to their primary products- |
| | Tasks | <ul style="list-style-type: none"> identifying of products derived from indigenous and local species and breeds that require niche markets and value addition to their primary products setting of priorities to products derived from indigenous and local species and breeds that require niche markets and value addition reviewing of data from national and international sources on experiences and effective ways of developing niche markets and value addition developing of the niche markets to the prioritized products devising of effective means to add value on the primary products as per the priority getting the agreements of critical stakeholders on the products proposed for niche markets, the niche markets developed and the proposed methodology for value addition choosing of the effective venues to the promotion of niche markets promoting of the niche markets compilation of report on the niche markets development and value addition processes |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 8 | Lead agency | MoA |
| | National Sp | Sp8. Establish national conservation policies |
| | Action | 4. Establish information system on animal breeding approaches, in order to enable breeders make appropriate choices in improvement programs |
| | Tasks | <ul style="list-style-type: none"> reviewing of existing information systems on animal breeding approaches that enable breeders to make appropriate choices in improving programs identifying of strengths, weaknesses and gaps in the existing information systems devising of appropriate information system on animal breeding approaches that enable breeders to make appropriate choices in improving programs getting of the devised information system evaluated by the stakeholders establishing of appropriate and effective information system on animal breeding approaches that enable breeders to make appropriate choices in improving programs |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 9 | Lead agency | MoA |
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| | National Sp | Sp 11. Strengthen national institutions, Including National Focal Point, for planning and implementing animal genetic resources measures, for livestock sector development |
| | Action | 1. Analyze national institutional capacity in support of holistic planning of the livestock sector |
| | Tasks | <ul style="list-style-type: none"> reviewing of data and information on the existing national institutional capacity associated with holistic planning of the livestock sector identifying of strengths, weakness and gaps of the existing national institutional capacity in relation to holistic planning of the livestock sector developing of a review report on the existing national institutional capacity <i>vis-a-vis</i> its support of holistic planning of the livestock sector produced |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 10 | Lead agency | MoA |
| | National Sp | Sp 11. |
| | Action | 2. Strengthen the National Focal Point for animal genetic resources to make it fully functional |
| | Tasks | <ul style="list-style-type: none"> identifying of the strengths, weaknesses and gaps in National Focal Point for animal genetic resources in relation to its full functionality preparing of a proposal that will bring the full functionality of the National Focal Point for animal genetic resources submitting of the proposal to the concerned ministry implementation of the proposed action to strengthen the National Focal Point |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 11 | Lead agency | MoA |
| | National Sp | Sp 11. |
| | Action | 3. Promote coordination and synergy between the different authorities dealing with various aspects of planning, within and across ministries, as well as with other stakeholders, and ensure their participation in the process |
| | Tasks | <ul style="list-style-type: none"> conducting of review on the existing level and nature of coordination and synergy between the different authorities dealing with various aspects of planning, within and across ministries, as well as with other stakeholders |

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| | | <ul style="list-style-type: none"> identifying of strengths, weakness and gaps in the coordination and synergy between the different authorities dealing with various aspects of planning, within and across ministries, as well as with other stakeholders in relation to their effectiveness in ensuring their participation in the process developing of mechanism that will bring effectiveness in coordination and synergy between the different authorities dealing with various aspects of planning, within and across ministries, as well as with other stakeholders, and ensure their participation in the process promoting of the newly developed mechanism to enhance coordination and synergy between the concerned stakeholders and ensure their participation in the process ensuring of the participation of most of the critical stakeholders in planning and implementation of various aspects of AnGRFA compilation of the report |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

| 12 | Lead agency | MoA |
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| | National Sp | Sp 11. |
| | Action | 4. Develop strong national coordination between the National Focal Point and stakeholders involved in animal genetic resources, such as the research system, the breeding industry, government agencies, civil society organizations, NGOs and networks and advisory committees |
| | Tasks | <ul style="list-style-type: none"> reviewing data and information on the existing level and nature of national coordination between the National Focal Point and stakeholders involved in animal genetic resources, such as the research system identifying of strengths, weakness and gaps in the existing coordination between National Focal Point and stakeholders involved in animal genetic resources devising of a effective system that will ensure strong coordination between the National Focal Point and stakeholders involved in animal genetic resources, such as the research system, the breeding industry, government agencies, civil society organizations, NGOs and networks and advisory committees compiling of report on the process of devising the system |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 13 | Lead agency | MoA |
| | National Sp | Sp 11. |
| | Action | 5. Develop and implement intervention tools for national planners to shape the future development of the livestock sector in accordance with national priorities, including deployment of animal genetic resources, and the effects of animal production systems on the environment |
| | Tasks | <ul style="list-style-type: none"> conducting of review on the existing intervention tools used by the national planners to shape the future development of the livestock sector in accordance with national priorities identifying of the strengths, weaknesses and gaps in the reviewed intervention tools devising of the effective implementation tools that will be used by the national planners to shape the future development of the livestock sector in accordance with national priorities, including deployment of animal genetic resources, and the effects of animal production systems on the environment compiling of reports on the effective implementation tools devised |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 14 | Lead agency | MoA |
| | National Sp | Sp 12. Establish or strengthen educational and research facilities |
| | Action | 1. Review national research and education capacities in relevant fields, and set targets for training to build the national skill base |
| | Tasks | <ul style="list-style-type: none"> conducting of review on the existing national research and education capacities in areas of conservation sustainable use, development access and equitable sharing of benefits identifying of strengths, weaknesses and gaps in the reviewed national capacity areas setting of targets for trainings aimed at building national skill base preparing of reports on the national research and education capacities needs in the relevant fields compiling of a report on the target setting process to national skill base building |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 15 | Lead agency | MoA |
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| | National Sp | Sp 12. |
| | Action | 2. Review the national educational needs of livestock keepers, while respecting traditional knowledge and indigenous practices, and set targets for their training |
| | Tasks | <ul style="list-style-type: none"> • conducting of review on the national educational base of livestock keepers • identifying of strengths, weaknesses and gaps in the educational needs of the livestock keepers • preparing of reports on the national educational needs of livestock keepers, while respecting traditional knowledge and indigenous practices • setting of training targets that will satisfy the training needs of the livestock keepers, while respecting their traditional knowledge and indigenous practices • compiling of a report on the training target setting process |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 16 | Lead agency | MoA |
| | National Sp | Sp 12. |
| | Action | 3. Identify the short, medium and long-term needs for research and education, and promote the formation of the relevant experts, nationally or through international training |
| | Tasks | <ul style="list-style-type: none"> • conducting of review on the existing national research and education in the relevant fields, and the available expert groups • identifying of strengths, weaknesses and gaps in the reviewed research and education capacities in relation to the short, medium and long term need as well as of the relevant expert groups • producing of reports on the short, medium and long-term needs for research and education • formation of relevant expert groups for short, medium and long-term needs for research and education, nationally or through international training • compiling of a report on the formation process of the relevant expert groups |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
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| 17 | Lead agency | MoA |
| | National Sp | Sp 12. |
| | Action | 4. Strengthen, in partnership with other countries, as appropriate, relevant research, |

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| | | training and extension institutions, including national and regional agricultural research systems, to support efforts to characterize, inventory and monitor trends and associated risks, sustainably use and develop, and conserve animal genetic resources |
| | Tasks | <ul style="list-style-type: none"> conducting of review on the hitherto efforts conducted in partnership with relevant research, training and extension institutions of other countries in areas of characterization, inventory and monitoring trends and associated risks, sustainable use and development, and conservation of animal genetic resources. identifying of strengths, weakness and gaps in the reviewed efforts identifying of relevant research, training and extension institutions in countries with best practice of characterization, inventory and monitoring trends and associated risks, sustainable use and development, and conservation of animal genetic resources creating contact with those institutions and requesting for the partnership signing of the MoU with the identified institutions to work in partnership in areas of research and training on characterization, inventory and monitoring trends and associated risk, sustainable use development and conservation of animal genetic resources compiling of the report on the process of forging partnerships |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
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| 18 | Lead agency | MoA |
| | National Sp | Sp 13. Strengthen national human capacity for characterization, inventory, and monitoring of trends and associated risks, for sustainable use, development, and conservation |
| | Action | 2. Establish and/or strengthen collaborative networks of researchers, breeders and conservation organizations, community-based organizations and other public, civil and private actors, within and between countries, for information and knowledge exchange for sustainable use, breeding and conservation |
| | Tasks | <ul style="list-style-type: none"> conducting of review on the existing collaborative networks of researchers, breeders and conservation organizations, community-based organizations and other public, civil and private actors, within and between countries, for information and knowledge exchange for sustainable use, breeding and conservation identifying of strengths, weaknesses and gaps in the existing collaborative networks devising of mechanisms that will strengthen the desired collaborative networks strengthening of the required collaborative networks of researchers, breeders and conservation organizations, community-based organizations and other public, civil and private actors, within and between countries, for information and knowledge exchange for sustainable use, breeding and conservation compiling of report on the devised and strengthened collaborative networks |
| | Evaluation criteria | |
| | Outputs achieved | |

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| | Opportunities and challenges to implementation | |
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| 19 | Lead agency | MoA |
| | National Sp | Sp 15. Review and develop national policies and legal frameworks for animal genetic resources |
| | Action | 3. Ensure that relevant research results are taken into consideration in the development of national policies and regulations on animal genetic resources. |
| | Tasks | <ul style="list-style-type: none"> conducting of review on the hitherto experiences on whether relevant research results are taken into consideration during development of national policies and regulations on animal genetic resources identifying of strengths, weaknesses and gaps in relation to using of relevant research results during development of national policies and regulations on animal genetic resources raising of awareness of policy makers on the need of taking into consideration of the relevant research results during development of national policies and regulations on animal genetic resources following-up and ensuring that the relevant research results have been taken into consideration during the development of national policies and regulations on animal genetic resources compilation of reports of the process |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 1 | Lead agency | NARS |
| | National Sp | Sp 5. Establish national species and breed development strategies and programs |
| | Action | 1. Develop long-term plan and strategic breeding programs which include efforts to improve underutilized breeds, especially within low to medium external input production systems |
| | Tasks | <ul style="list-style-type: none"> reviewing of data and information on the existing strategic breeding programs, taking into account of all breeds, input levels and production systems identifying of the strengths, weaknesses and the gaps in the existing strategic breeding programs setting of priorities to long-term plan and strategic breeding programs, based on the attributes of specific breeds of each species in all production systems and input levels devising of long term plans for strategic breeding programs for the prioritized breeds in the selected input levels and production systems enriching and finalizing of the proposed plan using the stakeholder consultations |

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| | | <ul style="list-style-type: none"> developing a long-term plan and strategic breeding programs which include efforts to improve underutilized breeds, especially within low to medium external input production system |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 2 | Lead agency | NARS |
| | National Sp | Sp 5. |
| | Action | 2. Establish and develop organizational structures of breeding programs, especially breeders' organizations and breeding schemes, including recording systems |
| | Tasks | <ul style="list-style-type: none"> reviewing of data and information on the existing organizational breeding programs, especially breeders' organizations and breeding schemes, including recording systems identifying of strengths, weaknesses and gaps in the existing organizational breeding programs, especially breeders' organizations and breeding schemes, including recording systems establishing of bodies with the organizational structure responsible for spearheading breeding programs, especially breeders' organizations and breeding schemes, including recording systems compilation of the report on the process of establishment |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 3 | Lead agency | NARS |
| | National Sp | Sp 5. |
| | Action | 3. Establish recording schemes to monitor changes in production and non-production traits, and periodically adjust breeding goals accordingly |
| | Tasks | <ul style="list-style-type: none"> reviewing of data and information on the existing recording schemes identifying of strengths, weaknesses and gaps in the existing recording schemes setting of priorities of breeds on the species basis to which recording schemes are required establishing of the recording schemes on the priority basis developing of criteria that aid monitoring and evaluation of the established required schemes to monitor changes in production and non-production traits, and adjust breeding goals periodically |

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| | | <ul style="list-style-type: none"> • compilation of report on the process of the breeding schemes establishment |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 4 | Lead agency | NARS |
| | National Sp | Sp 5. |
| | Action | 4. Incorporate consideration of the impacts of selection on genetic diversity into breeding programs and develop approaches to maintain the desired variability |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the hitherto selection programs • identifying of strengths, weaknesses and gaps of the selection programs on genetic diversity into breeding programs and develop approaches to maintain the desired variability • devising of programs that would capitalize on the strength and avoid the weaknesses as well as fill gaps on the existing selection programs • getting of the devised selection programs evaluated and agreed up-on by the stakeholders • developing of the selection programs that will have positive impacts on genetic diversity of all breeding programs considered and the approaches to maintain desired variability • compilation of the report on the newly developed selection programs and approaches that have positive impacts on genetic diversity to all breeding programs considered and will maintain desired variability |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 5 | Lead agency | NARS |
| | National Sp | Sp 5 |
| | Action | 8. Assess breed development programs, with the aim of meeting foreseeable economic and social needs and market demands |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing data and information on breed development programs • identifying strengths, weakness and gaps in existing breed development programs • producing of reports on breed development programs, with the aim of meeting foreseeable economic and social needs and market demands |
| | Evaluation | |

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| | criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 6 | Lead agency | NARS |
| | National Sp | Sp 5. |
| | Action | 9. Assess the impact of exotic animal breeds and the development of measures for producers to realize positive impacts and prevent negative impacts |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing data and information on impact of exotic animal breeds and the development of measures • gathering of data and information on the impact of exotic breeds and development measures through field surveys • preparing of reports on the impact of exotic animal breeds and the development of measures for producers to realize positive and prevent negative impacts |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 1 | Lead agency | DRMFSS |
| | National Sp | Sp 3. Establish country-based early warning and response systems for animal genetic resources |
| | Action | 1. Establish early warning system for animal genetic resources such as breed endangerment through development of national, regional and global risk monitoring mechanisms |
| | Tasks | <ul style="list-style-type: none"> • reviewing of existing data from all possible sources on the available early warning system for animal genetic resources such as breed endangerment through development of national, regional and global risk monitoring mechanisms • devising of effective means which will fill the identified gaps on the early warning system for animal genetic resources • putting in place of effective early warning system required for animal genetic resources • Compiling of report detailing the devised early warning system • setting of criteria to monitor and evaluate of the early warning system established |
| | Evaluation criteria | |
| | Outputs achieved | |

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| | Opportunities and challenges to implementation | |
| | Future action | |

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| 2 | Lead agency | DRMFSS |
| | National Sp | Sp 3. |
| | Action | 2. Establish national response systems through adoption of regional and global risk monitoring mechanisms |
| | Tasks | <ul style="list-style-type: none"> • reviewing of existing data on the hitherto national, regional and global response systems and risk monitoring mechanisms • identifying of strengths, weaknesses and gaps in national risk monitoring mechanisms • devising of means that will help to fill gaps in national risk monitoring mechanisms through adoption of best practices from regional and global experiences • compiling of a report detailing about the adopted national response systems to risk monitoring • establishing of effective national response systems to animal genetic resources at risk • establishing of effective national response systems to risk monitoring • setting of criteria to monitor and evaluate the performance the newly established national response systems to risk monitoring • compiling of report |
| | Evaluation criteria | |
| | Outputs achieved | |
| | Opportunities and challenges to implementation | |
| | Future action | |

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| 1 | Lead agency | CSA |
| | National Sp | Sp1. Inventory and characterization of animal genetic resources |
| | Action | 4. Conduct inventories of location, population status and trends of animal genetic resources |
| | Tasks | <ul style="list-style-type: none"> • reviewing of the existing data from different sources on locations, population status and trends of all breeds of domestic animal genetic resources • collecting of primary data on locations, population status and trends of all breeds of domestic animal genetic resources • compiling of a complete report on locations, population status and trends of all breeds of domestic animal genetic resources • producing of a distribution map on the locations of the population of all breeds of domestic animal genetic resources |
| | Evaluation criteria | |
| | Outputs | |

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| | Opportunities and challenges to implementation | |
| | Future action | |

6. IMPLEMENTATION AND FINANCING OF THE ENSPA

Implementation of ENSPA-ANGRFA will require substantial financial resources and long term support for national and regional animal genetic resources programs and priority activities. There is a need to develop a Funding Strategy for implementation. The extent to which the country will effectively implement its commitment under the Global Plan of Action for Animal Genetic Resources will depend on the effective provision of funding. The process of securing fund should involve and support the participation of the government and all relevant stakeholders. Regional and international collaboration will be crucial.

The main responsibility for implementing ENSPA-ANGRFA rests with the Federal and national regional governments. The government should take the necessary and appropriate measures to ensure due priority and attention to the effective allocation of predictable and agreed resources for the implementation of activities within the Strategic Priority Areas of the National Plan of Action for Animal Genetic Resources.

The government should attach due attention, including funding, to the implementation of activities through bilateral, regional and multilateral cooperation. The Government should accord due priority in its own plans and programs to building capacity in animal genetic resources. Voluntary contributions should also be encouraged, in particular from private sector and non-governmental organizations.

Mobilizing financial resources from within the country will be aggressively pursued. However, the financial demand of implementation of ENSPA-ANGRFA is huge and can't be met from internal sources alone. Thus, there is strong need for support from international sources.

Multilateral and bilateral funding and development institutions should be invited to examine ways and means of supporting ENSPA-ANGRFA.

Funding for animal genetic resources for food and agriculture can be potentially provided from the following sources.

- Government –Federal and Regional, Projects such as AGP,
- Non Governmental Organizations,
- International Organizations such as UNFCCC, FAO, ILRI, ICARDA, Bioversity International, UNDP, UNEP, GEF and UNESCO,
- Bilateral and multilateral sources such as USAID, GIZ, JICA,
- Private sector, and
- Civil Societies.

The essential role of the FAO in supporting implementation of ENSPA-ANGRFA, especially in facilitating regional collaboration and networks and mobilizing donor resources for animal genetic resources, developing communications products is of the utmost importance. Technical guidance and assistance in implementing ENSPA-ANGRFA is expected to be provided by FAO. In addition to that, Ethiopia should work with FAO so that it should pursue within relevant international mechanisms, funds and bodies, means by which they might contribute to the implementation of ENSPA-ANGRFA.

Capacity development in such areas as human resources and technological needs by, *inter alia*, technology transfer are expected to be supported and largely financed through bilateral and multilateral initiatives and from other international sources.

The National Focal Point for animal genetic resources is required to initiate formation of national networks to mobilize and engage stakeholders in the implementation of ENSPA-ANGRFA. The country has determined its own priorities in light of those agreed in the Global Plan

of Action for Animal Genetic Resources, as appropriate, and in line within the framework of the country's food and agricultural development needs.

7. REFERENCES

Ahmed M.M., BezabihEmana, Jabbar M.A, Tanga F. and Ehui S. 2003. Economic and nutritional impacts of market-oriented dairy production in the Ethiopian highlands. Socio-Economics and Policy Research Working Paper 51. ILRI, Nairobi.

Ahmed, M.M., Ehui, S. and Assefa, Yemesrach. 2003. Dairy development in Ethiopia. Socioeconomics and Policy Research Working paper no 58. International Livestock Research Institute, Nairobi, Kenya. 47pp.

Animal agriculture and global food supply. 1999. Task force report. Council for Agricultural Science and Technology No. 135. The United States of America.

Brannang, E. and Person, S. (1990). Ethiopian Animal Husbandry. South Eastern Agricultural Zone. Assella, Ethiopia.

CSA (Central Statistical Authority). 2010. Agricultural Sample Survey 2009/2010. Addis Ababa, Ethiopia

Dairy: Pro-Poor Livestock Policy Initiative Dairy Development for the Resource Poor Part 2: Kenya and Ethiopia Dairy Development Case Studies PPLPI Working Paper No. 44-2. 2008. Steven J. Staal, Alejandro Nin Pratt, and Mohammad Jabbar

ESAP (Ethiopian Society of Animal Production) 2004. Farm Animal Biodiversity in Ethiopia: Status and Prospects. AsfawYimegnuhal and TamratDegefa (Eds). Proceedings of the 11th Annual conference of the Ethiopian Society of Animal Production (ESAP) held in Addis Ababa, Ethiopia, August 28-30, 2003. ESAP, Addis Ababa. 441pp.

ESAP (Ethiopian Society of Animal Production) 2002. Livestock in Food Security – Roles and Contributions. Proceedings of 9th annual conference of the Ethiopian Society of Animal Production (ESAP) held in Addis Ababa, Ethiopia, August 30-31, 2001. ESAP (Ethiopian Society of Animal Production) 433pp.

Felleke, G. and G. Geda. 2001. The Ethiopian Dairy Development Policy: A Draft Policy Document. Ministry of Agriculture/ AFRDRD/AFRDT Food and Agriculture Organization/SSFF. Addis Ababa, Ethiopia.

FAO. 2009. Preparation of national strategies and action plans for animal genetic resources.FAO Animal Production and Health Guidelines. No. 2. Rome.

FAO. 2003. Livestock Sector Brief, Rome, Italy.

FAO. 2006. FAOSTAT faostat.fao.org. Food and Agriculture Organization of the United Nations,Rome, Italy.

FAO.2001. FAOSTAT. FAO statistical databases on agriculture, fisheries, forestry and nutrition, Food and Agriculture Organization, Rome, Italy.

Genet Mengistu .2004. Population and development in Ethiopia. A Paper presented at Women's Forum ACP-EU Joint Parliamentary Assembly, Feb. 14, 2004, UN CON. Center, Addis Abeba, Ethiopia.

Government of Ethiopia, Ministry of Agriculture & Rural Development Livestock Development Master Plan Study Phase I Report – Data Collection and Analysis, Volume I – Dairy, November 2007

Halderman, M. 2004. The political economy of pro-poor livestock policy making in Ethiopia. PPLPI working paper No 19. FAO, Rome, Italy.59pp.

IGAD.2011.The Contribution of Livestock to the Ethiopian Economy – Part IIIGAD LPI Working Paper No. 02 – 11

Institute of Biodiversity Conservation. 2004. The State of Ethiopia's Farm Animal Genetic Resources: Country Report. A Contribution to the First Report on the State of the World's Animal Genetic Resources. IBC. May 2004, Addis Ababa, Ethiopia.

Institute of Biodiversity Conservation. 2005. National Biodiversity and Strategic Action Plan, IBC, Addis Ababa, Ethiopia.

Irenne H. and Scherf B.2010. Implementing the Global Plan of Action in Animal Genetic Resources. In: FAO 2010/47. Animal Genetic Resources Pp.1-10.

Kefena E, A.Beja-Pereira, H.Jianlin, A.Haile,Y.K.Mohammed, T.Dessie.2011. Eco-geographical structuring and morphological diversities in Ethiopian donkey population, Livestock Science, doi:1016/j.livsci2011.06.011

LDMSP 2007. Livestock and Products Marketing, Volume O, and Meat Production, Volume B, Livestock Development Master Plan Study, Phase I, MOARD, Addis Ababa.

MOARD. 2007. Livestock Development Master Plan Study.Phase I, Addis Ababa, Ethiopia.

MoFED (Ministry of Finance and Economic Development) 2009. Ethiopia population and development indicators, Addis Ababa, Ethiopia.

MOA. 2007. Livestock Development Master Plan Study. Ministry of Agriculture, 0020 Phase I Report Volume I – Dairy, Addis Ababa, Ethiopia

MOA. 2005 Milk and milk Products Development and Marketing plan (Amharic)

MOA. 2004. Memorandum on the foreign trade regime: Ethiopia, main draft document (text), Addis Abeba, Ethiopia.

MoFED. 2010. Ministry of Finance and Economic Development, Federal Democratic Republic of Ethiopia, Growth and Transformation Plan, 2010/11-2014/15, Volume I, Main text, Addis Ababa, Ethiopia.

Muriuki, H.G., and Thorpe, W. 2003. Smallholder dairy production and marketing in Eastern and southern Africa: Regional synthesis. Accessed, December 2003
file://E:/Programme/html/Ch18.htm

Steinfeld, H., Hann, c.de and Blackburn, H. (1998). Livestock-environment interaction: issues and options. Report of a study. WRENmedia, Fressingfield, United Kingdom.

Solomon Gizaw. 2008, Sheep Resources of Ethiopia: Genetic diversity and breeding strategy. PhD thesis, Wageningen University, The Netherlands

Tadelle D. 2003 Phenotypic and genetic characterization of chicken ecotypes in Ethiopia. Ph.D Thesis. Humboldt University, Germany.

Tesfaye Alemu Tucho. 2004. Genetic characterization of indigenous Goat populations of Ethiopia using microsatellite DNA markers. PhD thesis, NDRI, India.

Wilson R.T. 1984. The camel in Ethiopia and Eritrea, Longman, London.

8. APPENDIX

Members of the ENSPA-ANGRFA Drafting Committee

| Name | Institution | Role |
|------------------------|--|-------------|
| DrMisikireTessema | Institute of Biodiversity Conservation | Coordinator |
| Dr Solomon Abegaz | Institute of Biodiversity Conservation | Member |
| Dr Million Tadesse | Ethiopian Institute of Agricultural Research | Member |
| Mr. MotiCheru | Ministry of Agriculture | Member |
| Mr. HailegebrielMinale | National Artificial InseminationCenter | Member |
| Mr. AsfawTolossa | Private (Member of CR-AnGR NDC, 2004)* | Member |
| DrKassahunAwgichew | Private (Coordinator of CR-AnGR NDC,2004)* | Member |
| Mr. FasilGetachew | Institute of Biodiversity Conservation | Member |

*- NDC = National Country Report Drafting Committee