Sustainable Utilisation of the African Civet (*Civettictis civetta*) in Ethiopia.

Yilma D. Abebe

1. INTRODUCTION

1.1.The African Civet (*Civettictis civetta*) and its economic importance

The African Civet (Civettictis civetta), is a sturdily built, relatively long-legged but low-slung animal which shares the affinities of a dog, cat and a genet at the same time (Kingdon;1997,R-Zu-2-U;2000). All its feet have five claws and similar to dogs, the claws are non-retractile (Estes;1991). The hind legs of the Civet are taller and more powerful than the forelegs (Pugh;1998) and their tail is bushy, banded and half their total length. The coat differs from region to region but is generally buffy to dark to yellowish-grey (Estes, 1991). Its face is distinctive with black masks on each side of the face and the lips are white. It is one of sixty-six species belonging to the family Viverridae (Rood;2000). The African Civet , as the name implies is found only in Africa (sub-saharan Africa), and the distribution of other members of the family is restricted to the Old World (Rood;2000). It lives in tropical rainforests, dry savannahs and usually selects thickets or burrows as resting sites. One special characteristic, which it does not share with others of the family, is its inability to climb trees. Weighing around 13-15 kg and having an overall length of 146 cm., the African Civet is the largest member of the Viverrids (Kingdon;1997). Its diet consists of a wide variety of food items ranging from fruits, berries, reptiles, rodents, eggs and invertebrates. Though naturally a nocturnal animal, it is known to be active even in the daytime in captive conditions, especially when raised and cared from a puppy stage (R-Zu-2-U;2000). Kingdon (1977) describes this animal to be unspecialised in any way including dietary habits and morphology. It will eat almost anything and is able to live where cover is available. It has a habit of following regular paths in its home range and uses dung middens or civetrines as communication signals to others.

One characteristic, which has made this animal peculiar and economically important to others, is its ability to produce a secretion from its perineal glands (Kingdon;1977). These large glands are located anterior to the rectum (or below the tail) and by keeping the animals in captivity it is possible to extract the secretion regularly. The secretion from this animal is known as civet and the refined compound “civetone” was first identified in the 1920s (Anonis;1997). The chemical composition of civet was identified in 1900 by Waldbaum and in the late 1940s it was possible to synthesise civet artificially (Anonis; 1997). Civet musk is usually light yellowish in colour and has a consistency of a thick grease at collection but hardens and turns to dark-brown or black with ageing (Anonis; 1997). In the wild, the Civet cat uses the musk to advertise its territory and announce its presence both to mates and adversaries. Man, for several hundred years, has been able to keep Civets in captivity and collect the copious secretion from this animal’s glands for fixing flower-based perfumes. Eventhough synthetic musks, crystalline aroma chemicals and viscous essential oils are a source of comparatively good fixatives, high quality perfume producers still prefer the use of civetone to exalt and impart lift to delicate floral fragrances such as Lily-of-the-Valley and Chypre-type perfumes (Williams and Curtis;1994). Civet secretions are usually adulterated by substances including potatoes, brilliantine, butter, bananas, beans, mango, flour and honey (Anonis; 1997). The musk

collected from Civets is shipped to perfume producing countries, and forms an important export commodity. Ethiopia has been producing nearly 90% of the world's civet musk (Jemal; 1999) up to now and recorded history shows that other countries which used to produce the musk were Ghana and Zanzibar. Hillman (1992) also mentions Niger and Senegal as countries, which produce small quantities. A different species of Civet, *Viverricula indica*, is also used for extracting the musk from in China (De-Sheng; 1986) and India (Mohan; 1994)

1.2 Historical Background of Civet Production and Trade

Earliest recorded history of the use of civet is from the Bible, when the Queen of Sheba (1013-982 BC) presented civet musk as an offering and gift to King Solomon. This is evidence that the practice of collecting musk from Civets was well established even before this time. In Ethiopia's earlier history, Civet was an expensive item and was used as money for bartering and an expensive trade item (Pankhurst; 1961) when trade links were established with Egypt, Zanzibar and lands as far as India. The value of Civet was not less and perhaps even higher than other tradable items including ivory, gold and myrrh. Traditionally, civet is used as medicine for various ailments and is taken in tea or coffee (Jemal; 1999).

Poncet (1709), the French traveller who came to Gondar (which was the capital of Ethiopia then) and was able to see other parts of Ethiopia in the late 1600s, reported to have witnessed that Enfranz was an important town for civets. These civets were kept in captivity and the odours (secretions) were scraped from its glands each week. Before his arrival at Gondar, Poncet came through the Kingdom of Sennar, whose main commodities were amongst other things ivory, tamarind, gold, and civet. Pankhurst (1968) describes that Gondar and other parts of northern Ethiopia, whose trade outlets included Massawa and the Sudan, exported quantities of civet all over the world. Civet was an important item of export for the lucrative trade in the 1800s in Ethiopia. Accordingly, in 1840, it was estimated that 13% of export item form Ethiopia, through the port of Massawa, consisted of civet musk (Woodford, 1990).

Napoleon Bonaparte's expedition to Egypt in the 18th century and various other chronicles, including Shakespeare make mention of the trade in civet (Pugh, 1998). In 1872, Anatolia Cheche, visited the area now known as Illubabor in Ethiopia. He wrote that the King of Jimma, Aba Jifar Abagambo, had set aside an area in his palace specifically where civets could calm and recuperate, after they had been captured from the wild in preparation for the collection of their civet musk (EWCO; 1997). Mesfin (1995) explains that according to oral history, traders introduced civet farming into the South and South-western Ethiopia from Northern Ethiopia. This industry was introduced first to a district known as Limu in Keffa Region. From there it appeared to spread to neighbouring areas including Enarya, Jimma, and Wollega (Pankhurst, 1961,1968). As a tradition, which has been around for a long time in history, civet farming is surrounded by a complex social dimension and plays a prominent role in the structure and relationships (including gender) of the people who produce it (Pankhurst; 1961,1968). An interesting factor is that Muslim communities only handle traditional civet farming in Ethiopia. Oral literature explains that a legendary and great leader who lived in Limu, Keffa by the name Nessiru Allah, who was healed of an eye ailment by the application of civet musk, ordered that all followers of Islam to farm civet for their musk (Mesfin; 1995). The highest

yield of civet nowadays come from districts in Sidamo, Shoa, Wollega, Keffa, and Illubabora (EWCO;1992).

Perhaps the most interesting fact about this trade is that it has existed through a long period of time and it has not seen any changes in the husbandry of the civets since Antonio Cheche visited Illubabora and Jimma areas a century ago (Fikadu et al; 1997).

1.3 Present Trade and Status of Civets in Ethiopia

The substantial earning from civet trade is an established fact. Ethiopia's monopoly of the trade has given it the upper hand in terms of the total revenue received annually.

Table 1. Summary of total revenue (in USD) from 1985 to 1999 (Jemal M. 1999)

Year	Qty. of Civet (kg)	Total Revenue
1985	1837	826,650
1986	1841	828,450
1987	1858	836,100
1988	1413	638,850
1989	1023	460,350
1990	1732	779,400
1991	343	154,350
1992	359	161,550
1993	536	241,200
1994	878	395,100
1995	1005	452,250
1996	776	349,200
1997	336	151,200
1998	1662	749,900
1999	1131	508,950

Production of civet from the animals appears to be related to the size of the animal. In an Ethiopian Wildlife Conservation Organisation report (Hillman; 1992), it was discovered that a big male civet can produce up to 6.4 grams of civet every 5 days. This comes to about 32 grams per animal per month. A small size animal can produce 3.4 grams every 5 days. From a count made of farms and the number of animals in them by Ethiopian Wildlife Conservation Organisation in 1997 (Fikadu et al; 1997), 174 farms contained 2,617 Civet Cats. An investigation carried out by the World Society for the Protection of Animals (Pugh; 1998) revealed that there were at least 203 farms with a total of 3,037 animals a year later. These kinds of discrepancy and other related management problems in the trade have meanwhile also put the life of captive Civets in distress (Pugh; 1998). Eventhough Civets, are said to be found widespread in suitable habitat all over the country (Hillman; 1992) the need to capture new animals to replace the dead animals in captivity is usually carried out without knowing the total population in the wild. There are also reports (Pugh; 1998) that animals are mistreated while in captivity and during the process of musk extraction.

While the report made by WSPA about the welfare of the animals is true, this condition had not escaped the observation of the Government. There are several reports by the Ethiopian Government, especially by the Ethiopian Wildlife Conservation Organisation (Teshome; 1987, Hillman; 1987_a, Hillman; 1987_b, Hillman; 1992, Tesfaye;1995, Fikadu et al; 1997, Olani; 1999) which testify to the condition of Civets and outline recommendations to rectify and reform the civet industry. But the civet industry has for a long while shown a retarded productivity and this can be related to several factors, which emanate locally and internationally. Girma (1995), relates this retardation as the result of low government support for the industry and the poor quality standard of the musk that is exported outside the country. This is despite the fact that the demand for civet musk from perfume industries is high and Ethiopia can only produce a maximum of 25% of the global need (Girma; 1995). There are also external factors including the lobby by animal rights groups that has not reached the core of the problem and will worsen the plight of the animals and kill the industry at the same time. The lobby by animal rights groups is a symptomatic approach to a sickness that ignores the whole body and its functioning.

In this case, it would be useful to look at this situation in relation to the various stakeholders, socio-cultural environment that surrounds the production and export of the musk and the efforts made in sustaining the industry.

There are at present perhaps 8 important stakeholders in the production and trade of civet musk. They are subsistence farmers, middlemen, exporters, national and regional governments, animal rights groups i.e. WSPA, perfumeries and national pharmaceutical and medical laboratories.

1.3.1 Subsistence Farmers

These farmers, who have been described to be Muslims, are the ones handling the animals in their private holdings. They are concentrated mostly in Southwest and Southern parts of the country. They have received the tradition from their forefathers and would keep the farms as long as there is a market available. Civet keeping communities, for hundreds of years have maintained traditions and cultures that have been built around the husbandry of these animals. Pankhurst (1968) described that civiculture required considerable care. Accordingly, a farm with a hundred animals would need at least four human beings to take care of it. Two women were needed to grind corn and prepare their food while two men took the responsibility of the extraction and collection of musk (Pankhurst; 1968). To this date, civiculture is a family concern and employment engaging everyone in different aspects of the production. There can be a problem of accepting new ideas including the husbandry of captive animals because they have as a tradition taken care of the animals for a very long time. The keeping of Civets and the production of the musk are also enshrouded by a number of traditional beliefs and superstitions. One belief is that of “evil eye”. Strangers outside the family that takes care of the animals are not supposed to see the animals. They believe that the animals can die as a result of an evil eye from a new person. On evaluating this behaviour, Fikadu et al (1997), have said that the animals, which are caught from the wild, go through a stress period in captivity which they might not get over with in their lifetime. The benefit of keeping out as many people as possible from the cages is that the animals come in contact to a few people during the course of captive years. Stressed animals do not give as much civet as they should and can even end in death. This belief has made it difficult for government officials and other authorised people to control and monitor the actions of the farmers. As a result, true data on the numbers of farmers and the animals they keep

is not known. True to say, the kind of husbandry they employ is out of date and unacceptable by many standards. In many cases, the owner of the farm is married to several women (Hillman; 1992) and the Civets are the only income generation the family has. Generally it is understood that these group of people are people who have accumulated a wealth of information on the animals and are the ones responsible and entrusted for raising the revenues of the government of Ethiopia from civiculture. They need support and extension work which would help them produce civet of a higher standard while at the same time maintaining a healthy and happy stock of animals. It would be pessimistic and a wrong to say that they cannot learn and are hard to take change. The simple reason is that it has not been tried.

1.3.2 Middlemen

These are people who are actually dealers, purchase the musk from the farmers and sell it to exporters in Addis Ababa. They take the trouble of keeping in contact with all the farmers. The farmers, who are geographically placed distant to the capital, cannot afford to come that far to sell the musk. As a result, they find it easier to hand the produce to a middle person who will collect the musk and pass it on to an exporter. Pugh (1998) also notes that some farmers do bring the produce to the exporter themselves, thus eliminating the need of a middleman.

1.3.3 Civet Exporters

There are a total of five civet exporters in the country. These are licensed by the government, though the Ethiopian Wildlife Conservation Organisation. In addition to paying license fees, exporters are also required to pay fees for quality control and per kilo of export musk when shipping out. Licenses are renewed annually. Exporters fix a price by observing the colour and smelling the odour of the musk (Hillman; 1992) when they receive it either from a middleman or the farmer. In some instances, some exporters also taste the musk to enable grading (Pugh; 1998). Musk is usually adulterated using bananas, vaseline, butter or other similar substances (Hillman; 1992). Exporters are a very important link in the trade and it is they who usually haggle over global prices. One problem seen during WSPA's investigation was that exporters do not form an alliance when they talk to buyers overseas. Since they are few in number, they could easily form a cartel and given a fixed price (Pugh; 1998). Instead, exporters are very individualistic and each tries to undercut the price given by another.

1.3.4 National and Regional Governments

Prior to 1972, musk trade used to be controlled by the Ministry of Commerce and Industry. But since then, the mandate was transferred to the Ethiopian Wildlife Conservation Organisation. EWCO has made great improvements in the trade of the musk after it took the mandate and has been able to visit sites and also register the farmers and exporters (Hillman; 1992). Prior to this time, the number of dealers in the trade were many and tax evasion was a considerable problem (Hillman; 1992). The dealers were benefiting from the trade without paying tax to the government. EWCO through its actions eliminated the dealers so that the producers could gain more and stopped the smuggling believed to be carried out by dealers (Hillman; 1992). Amongst several regulation set by EWCO, the major include exporter licenses, fixed quotas of

musk exportable based on the number of animals a farmer has, civet capture and ownership licenses, issue of musk selling certificates. EWCO being the representative of the Government on issues of civet trade, also made several trips to farms to register farmers and also study the situation of farms (Hillman; 1992, Fikadu et al; 1997). As far back as the early 70's, efforts to strengthen the trade and also to upgrade the status of the animals in captivity have been major challenges of the Ethiopian Government. Cage and trap door designs by the Tischler's, that acted as advisors to EWCO are exemplary and are used as references to this date. Due to the distances involved, the trips have been far and irregular and thus have not proved useful. In many cases EWCO uses representatives from Ministry of Agriculture in the vicinity to check farms and data received is far from reliable. Eventhough EWCO has powers to check and register, issue permits, licenses, certificates, and even withhold or withdraw authorisation, it is weak in delivery. The main reason is that it does not have the capacity and is not vested with power equal to its authority. This effectively means that it does not have enough qualified staff, equipment, finances and backing by the government that has issued it the authority. With the devolution of power to regional governments in the early 90s, the mandate of EWCO to oversee and check civet farms have been stripped from it. EWCO now is only responsible for the export part of the trade and the work of following up what goes on at the farms is largely the responsibility of Regional Governments. While this is undoubtedly a good step towards making regions take responsible action for the resources they use, it can also hamper the institutional memory input EWCO could have towards strengthening the regional aspects needed. Regional Governments also need a similar course of action that should concentrate on training and upgrading their staff, and equipping them with necessary technical and information needs. Of course, this is not to say that there is complete alienation or isolation of tasks carried out by EWCO and the Regions at the moment. There have been a few workshops and a number of field visits carried out in conjunction with each other.

Regions have also been playing an active role in the management of the civet trade in their respective areas. Besides having a significant stake in the production of civet musk in the country, Oromia Region has a programme for developing the trade in the future (Ketema Debele, pers. com). The Agricultural Development Bureau of Oromia Region, as recent as July 1999, held a workshop in Nekemte. This workshop was significant in that it showed that interest and initiative existed in developing a well-managed civiculture industry in the country, especially at the Regional level. Important contributions that were made at this workshop include suggestions and plans for an improved system which optimises the best scenario for happy and health animals from trapping to transporting to care in captivity (Olani; 1999).

The Government of Ethiopia does not have wildlife laws, which pertain to the production of Civet as such. But the stringent system of regulations that EWCO has been using to date would have sufficed even if a decree were not issued. Both these stakeholders need strengthening in all dimensions to see a fit and able trade in civet.

1.3.5 Animal Rights Groups

This group is important as much as they can mobilise a force, which can lobby against the sale of civet to perfume producing countries and the use of perfumes with natural bases to consumers. Their main interest is the well being and safety of the Civets in the process of capture, transport and general care whilst in captivity.

As early as 1973, the Society for Animal Rights (SAR) has been urging for a boycott in the use of Chanel products. Chanel presumably produced perfumes that made use of natural musk including the civetone. Their main concern was the inhumane way Civets were treated while in captivity. A mission made up of members of University of Pennsylvania, Bronx Zoo, Cornell and Chanel visited civet-producing sites in Ethiopia soon after the boycott. The only criticism from them was that the size of the cages was to small and needed improvements (Hillman; 1992, Pugh; 1998).

The World Society for the Protection of Animals (WSPA) in its "Ethiopian Investigation" report condemns the captive treatment of Civets in Ethiopia and says it should come to an end (Pugh; 1998). The treatment of animals is considered cruel by many standards and the animals deserve better treatment. They have even gone further to state that reform of the Civet industry in Ethiopia is unrealistic.

As their main goal is the well-being of animals they are not biased about natural products which require the restraint of animals such as the Civet, but also raise a suspicion about the production of synthetic musk. They believe synthetic musk is not a perfect solution, as it also requires test animals to check dosage levels of various perfumes. While it is true that Civets are stressed and several die as a result of mishandling, the report on the "Ethiopian Investigation", is rather one sided and does not see the whole picture. A report of this nature would have been constructive if the social, economic and political factors were taken into consideration. The civet industry is not only an economic dimension that relates the animal to the producer or the producer to exporters and government licensing only. It is much deeper and has socio-cultural, traditional, historical, dimension that cannot be dealt with superficially.

1.3.6 Quality Control Laboratories

The main job of quality control labs, such as the Ethiopian Standardisation Authority and Pasteur Institute in Addis is to ascertain that exported musk is graded according to its quality. Their job is very important because quality is the all-important concern when it comes to expecting a higher or lower value for the civet. Their job is one of great responsibility as well because if they get it wrong, the trust the importing countries would have on the Ethiopian Government will diminish. Adulteration of the musk can occur intentionally when foreign matter such as bananas, butter or grease is mixed with it or unintentionally through the course of collection and transport. Quality is measured using physical, microscopic and chemical tests. Quality control of civet musk is a major problem in the country because of the unavailability of both national and international standardised practices for the laboratories in Ethiopia (Tamiru; 1995).

1.3.7 Perfume Manufactures and Consumers

While only 2% of the civet is consumed nationally (usually for its medicinal properties) the rest, 98%, is exported. France buys 85% of the produce while 15% is sent to Japan, North America, Switzerland, Germany, Hong Kong and United Kingdom (Girma; 1995). Tamiru (1995) also notes that Arabian countries import some for medicinal purposes and India takes some to be used as an ingredient in tobacco industry.

The most important customer for Ethiopian civet is the French perfume industry. Natural civet has been used for a long time and 1kg of musk is sufficient to produce 3000 litres

of good quality perfume (Pugh; 1998). With the demand for civet growing from year to year and all things being equal, Ethiopia should have been able to produce at least 6000 kg of civet. Ethiopia has never reached this limit and the maximum that ever goes out is only 1000 kg or a little more. In most cases this musk is not pure by outside standards and there are growing boycotts and lobbying that demand the termination of use in natural musk. Alternatives to natural musk have been on the market since the early 70's (Girma; 1995) and these are considered to be the reason why more and more perfume manufacturers are not requiring civet musk nowadays. This is despite the fact that natural musk is by far the best fixative for delicate fragrances (Curtis and Williams; 1994) and they have no side effects on the consumer upon use. The British Fragrance Association (BSA) and International Fragrance Association (IFRA) are of the opinion that perfume industries are moving away from natural to artificial musk (Pugh; 1998). But they are not sure and would be interested in knowing the behavioural needs of the African Civet in captivity.

Consumers have a right to know what is in the perfume they use (Pugh; 1998) and they have a voice because the products end up being used by them. An ill-informed or partially informed consumer would not have a deciding card because of the secretive nature of the fragrance industry from civet producers in Ethiopia to the perfumeries in France. Consumers would need to have a whole picture (not one-sided) information from beginning to end.

2. Sustainability of Civet Trade in Ethiopia

Is trade in civet a sustainable industry in Ethiopia? This is a question that needs an approach, which looks at the whole picture of the civet industry. Most assessments are either done by biologists or socio-economists that give a higher value to parameters in their own professions. An assessment, which does not consider both biological/ecological and social/economic dimensions of a society, will not depict a value which can be depended upon (Prescott-Allen.; 1996). In other words, sustainability can only be defined in the system where both the ecosystem and the human subsystem are co-existing.

In the civet case, it would be wrong to alienate the various processes involved in the production, export and use of the musk. The model of the egg described by Prescott-Allen (1996), is a good example where the human system and the ecosystem are seen as an order, where the good or bad of one affects the other.

According to their report, the Prescott-Allens (1996) describe that assessments need a systematic approach of which a goal, sense of direction, systematic assessment, and correcting actions are recommended. These steps in a systematic approach to assessing the sustainability of the use of wild species are conditions that have been adopted by the IUCN SSC Specialist Group on Sustainable Use of Wild Species.

A goal is usually a statement that specifies where we want to go. In many cases, the improvement of the wellbeing of people and the ecosystem is a logical goal. A goal for civet industry would be "to sustain the civet industry in Ethiopia without depleting or negatively affecting the animals concerned and at the same time improving the livelihoods of the people involved in the production and export of the musk''.

In defining the sense of direction, we have to look at the ways the system and use are affecting the human and ecosystem wellbeing. We have to assess whether the use is positively or negatively improving the wellbeing of the human beings and the ecosystem (including animals) in question. This can be done by looking at the ecosystem and the human dimension using different parameters and assessing the impact of the use on each issue (Prescott-Allen; 1996).

The different parameters for assessing both ecosystem and human systems are the following:

Impact of the use on ecosystems can be assessed on whether it is maintaining or depleting the naturalness, quality, diversity and resource base of an area.

- Naturalness – ecosystem naturalness or conversion (whether the ecosystem is natural, modified, cultivated or built).

- Quality – ecosystem quality or degradation (whether degradation or pollution is a problem).

- Diversity – diversity of ecological communities and wild species (whether this is being maintained or declining).

- Resources – resource conservation or depletion (whether the resources supplied by the ecosystem are being maintained or depleted).

Impact of use on the human system can be assessed using the following parameters.

- Health – longevity, good health, and access to healthful living conditions (clean water, sanitation)

- Wealth – per capita income and supply of culturally important resources

- Knowledge – knowledge system (education, monitoring and assessment capacities)

- Institutions – participation and empowerment (the distribution and effectiveness of decision making and the extent to which people have control over their lives)

The impacts for each system are scored separately and later combined to give an overall assessment. Impact can be either positive, neutral/negligible, negative or unknown.

On combining the impacts of the two systems, the interpretation is as follows.

- Positive + Positive or Neutral = probably sustainable
- Negative + Positive, Neutral or Negative = probably unsustainable
- Neutral /Negligible + Neutral/Negligible = makes little or no difference
- Unknown + Positive, Neutral or Unknown = inadequate information

Table 2. Assessment of the Impact of Use on the Ecosystem

Use	Ecosystem condition and trend	Impact of use on Ecosystem	Summation of Impact
Civet Farming Ethiopia: Oromia and Southern Peoples, Nations and Nationalities Regions	***Naturalness***: Deforestation and bush clearing on the increase; reduction of natural area for cultivation and settlement.	***Naturalness:*** Civiculture actually encourages the destruction of forests and woodlands because traditionally, Civet houses have fireplaces to produce smoke around the clock. Fires need a constant supply of wood that comes from surrounding natural woodlands. But the effect of this removal is not known.	**UNKNOWN**
	Quality: slow degradation of modified areas.	***Quality:*** Probably significant as the result of the above	
	Diversity: As an effect of the above, expected to show a reduction.	***Diversity:*** Unknown Removal of species without regard to the rest of the ecosystem can have detrimental consequences but effects not studied.	
	Resources: Populations of Civets in these areas could be decreasing in favour of a higher female to male ratio. But several facts about the wild population remain unknown.	***Resources:*** Selectively removes male civets for musk extraction by various trapping methods. Does not make use of a quota system for each farmer nor does it base itself on agreed terms and regulations including knowledge of total wild populations.	

Table 3. Assessment of the Impact of Use on the Human System

Use	Human system condition and trend	Impact of use on Human system	Summation of Impact
Civet Farming Ethiopia: Oromia and Southern Peoples, Nations and Nationalities Regions	***Health:* (national data)** **Birth rate**: 44.69 births/1000 **Death rate:** 21.25 deaths/1000 **Infant mortality rate:** 125.65/deaths/1000 live births **Total fertility rate:** 6.88 children born/woman **Life expectancy at birth:** - total population: 40.85 - male: 39.76 - female:41.97 (1998 est.)	***Health:*** Probably negligible	**NEGATIVE**
	Wealth: GDP per capita $120 (refers to national data)	***Wealth:*** It is undeniable that it supports a large economy but this is not well understood	
	Knowledge: Literacy (definition: age 15 and above can read and write) - **total population:** 35.5% - **male:** 45.5% - **female:** 25.3% (1995 est.)	***Knowledge:*** Hundreds of years of accumulated and undocumented indigenous knowledge about keeping Civets in captivity. But some of this knowledge (traditions and beliefs) needs sifting and weeding, as some of the practices are not amenable to modern forms of civiculture. Needs research. Income from civet trade can have local impact as this may provide education to children but full impact unknown	
	Institutions: Ownership and management, and export of resource is private, but national and regional governments have not been able to oversee and fully control trade.	***Institutions:*** Privately owned farms and export companies. Farmers do not have enough capital to run farms. Government acts as regulator. Good set- up but involvement of Government loose and superficial. Weak control structure has allowed the plight of animals and the slow crumble of the trade. Annual income from trade has gone down through the years. Government needs to strengthen research, support to local farmers, control and regulate trade more efficiently.	

Source: US State Dept (1998)

The impact of civet trade on the ecosystem is unknown while it has a negative impact on the human system. Combining the two impacts will give us an overall conclusion on the sustainability of the use.

Table 4. Combined impact of Civet Farming on Ecosystem and Human Systems

Impact on the human system	**Impact on the Ecosystem**			
	Positive	Neutral/Negligible	Negative	Unknown
Positive	Good	Good	Bad	Bad
Neutral/Negligible	Good	Neutral	Bad	Unknown
Negative	Bad	Bad	Bad	**BAD**
Unknown	Unknown	Unknown	Bad	Unknown

3. Future Prospects and recommendations

From the analysis, we see that the impact of use on both ecosystem and humans is not good and as a result it is probably unsustainable. In conclusion to this, a bad use should either be stopped or reformed.

Let us first look at the option of stopping the trade altogether. The Prescott-Allens (1996) believe that bad uses have some good in use them and stopping them altogether may not be an answer. Reform can be an easier option because a use that has been around for such a long time can easily open routes to illicit trade in the product. As long as there is supply and a demand to meet it, attempting to ban the civet trade will bring about opposition and the suffering of animals will continue. Stopping is not an answer also because the structure of the Government is not strong to completely control the use. In several cases, it has been reported that farmers prohibit the entry of strangers in to their farms, including Government officials who have visit the condition of the farms on site.

Reform on the other hand is something that has been on the agenda for a long time. The present condition of farms and techniques used are a century old without exaggeration. One of the reasons for encouraging reform is because civiculture is one of the oldest world cultures and would be a loss to culture if neglected and deemed to be lost. Civet farming is an ancient way of wild resource use by locals and is perhaps one of few examples of the use of wild animals in captivity in the region. It is a classic model which can demonstrate the value of wild resources to man. It also forms an excellent source of income to the farmer and thus fulfils an important aspect of sustainability and justifiable reason to support its viability in the future. Ethiopia is the major country, which exports this substance as well. Some inhabitants in these civet producing areas testify to the fact that civiculture has sustained generations of people with some going back to 800 years. It has a strong traditional and religious basis within the Islam Oromos in these regions.

The structures supporting, regulating the trade appears to be in place but are generally weak. But reform is also a better option because the trade appears to have fulfilled two of the three most important elements in sustainability.

These are:

1. **Ownership:** The trade is privately owned and the farmer has a control on the numbers of animals or the kind of treatment they will eventually receive. This largely depends on the resources of the farmer. But this doesn't mean the farmer is free from exigencies in the market or social conditions prevailing locally. Markets both inside and outside the country affect the activities.

2. **Management and Regulation:** The Ethiopian Wildlife Conservation Organisation is the Government body, which manages and regulates the trade on civet. But Regional Governments have a share in this. It is generally accepted for EWCO to provide technical backup and regulation while Regional Governments provide the monitoring of farms. Management at least is thus shared between the owner (farmer) and Government.

The third element that it needs to fulfil for sustainability is the removal of major competing activities. Civet production appears to be on its way out unless there is a major intervention to decrease the need for the use of synthetic fixatives. This major competing activity from synthetics exceeds the natural one 3:1. The overtaking of the perfume industry by synthetic fixatives has upset market trends, demand and supply and the local economy of the producer in Ethiopia. Locally, the requirement of replacing the captive stock from the wild each time an animal dies is certainly not sustainable. This competing activity, plus ancient husbandry systems employed are factors that are working against the growth of the system.

Some of the major recommendations, which have been suggested at different times, are the following:

1. The establishment of a of a model Civet project is perhaps one of the strongest recommendations arising from various government and non-government sectors. The essence of this recommendation is to study the Civet scientifically in captivity. It will also assist research in validating the various traditional methods used and provide answers to the best way of keeping Civets for the purpose of extracting musk. Another important task of the Civet project is to breed these animals in captivity. It has been possible to breed Civets while in captivity in Jersey (Mallinson; 1969, Mallinson; 1972). Chinese scientists have also successfully bred a different type of Civet, Viverricula indica in captivity (Hongfa and Helin; 1994) from which musk is also extracted. Asian countries have a long history of keeping Civets and their methods of keeping Civets can be incorporated in to techniques for better husbandry of Civets in Ethiopia. As an example, Mohan (1994) reports that cages where Civets are kept are provided with an aluminium rod of 2-4 cm diameter against which the Civet can rub its anal gland, thereby removing the musk. The owner removes the musk each time the animal deposits it on the rod. This is to be encouraged and an essential issue to consider and study in a model farm to alleviate undue harassment to captive animals during the process of extraction.

This project will attempt to produce similar results. This is a great step in the trade because once animals can breed in captivity, the need of relying on wild populations will decrease significantly. Ethiopian Civet keepers have attempted breeding in the past but with no success (Girma; pers. com). Civets that have been reared as cubs are very friendly and allow their owners to remove musk from the glands under their tail (R-Zu-2-U; 2000). Model Civet Farms can also be located strategically so that the traditional farmer would be able to visit them and learn modern ways of keeping the animals. Veterinary services can be provided at the model farms so that Civets in traditional keeping conditions get treatment as needed. The main element, which will change the traditional Civet keeping ways, is education. The harmful beliefs that these farmers have will eventually be lost once they see that the animals on model farms can be kept in comfortable situations and the trade is benefiting. As a centre for education, the project can encourage the farmers to change their present trapping methods, cage dimensions, feeding, extraction methods and general care for the animals.

Hand in hand with this, it is important to carry out field studies of wild populations of Civet. Research should provide information on their distribution, status, and numbers, breeding and essential behavioural patterns.

2. Civet farmers usually complain that markets for civet are decreasing yearly and are incapacitated by financial problems. In many cases farmers may need to form collectives and form cartels. This guarantees that individual farmers are assisted and raising money for needs can become easier if there is a co-operative catering for the farmer.

3. Government needs to build its capacity by providing training for its staff and producers. Government has also the responsibility of creating an enabling environment where all stakeholders are effectively producing, regulating and exporting the produce. This includes amongst other things developing a policy for civet farming, training locals on the care of Civets, providing veterinary service manuals for civiculture and subsidies for food and other essential husbandry equipment.

4. Government can also encourage private investment in to civiculture. This area can be an area for private entrepreneurs who would like to venture in to new areas of business.

5. Quality controlling agents should be provided with the latest information on the standards required before export of civet.

6. Civet keeping, including the extraction of musk should have mechanisms and techniques for eliminating suffering that can be avoided. This is one major area that is causing concern in the world and an issue that has been taken up by animal rights groups.

7. Assessments are usually hampered by the amount of information available to them (Prescott-Allen; 1996). As an example, the conclusion of “Unknown” on the impacts of use on the ecosystem has been taken from available documented information. This has not taken into consideration a first-hand investigation. Research in this case is very important and will give us the fact not based on secondary information.

An integrated system of conservation should also be encouraged so that people have alternatives and the ecosystem provides its products sustainably for generations to come.

4. CONCLUSION

In conclusion, a preliminary assessment shows that Civet farming is not sustainable in Ethiopia. But as a value that should not be allowed to go extinct, radical reform is necessary. Basically there needs to be a change and change is a relative thing. This means it depends on several factors including understanding systems beyond local circumstances, changing attitudes and behaviours, good will to work together for a common goal, policies and legislation in place and working.

In the end it is recommended that the various interest groups and stakeholders including the users, managers and entrepreneurs come together in understanding to discuss and develop management systems and framework to upgrade this ancient culture in the future.

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