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IMPACTS OF SUBSISTENCE USE OF WILDLIFE: AN ASSESSMENT OF NATIONAL REPORTS, NATIONAL BIODIVERSITY STRATEGIES AND ACTION PLANS AND SUBMISSIONS IN RESPONSE TO NOTIFICATION 2015-048

Note by the Executive Secretary

I. INTRODUCTION

1. The Conference of the Parties, at its twelfth meeting, encouraged Parties to develop, revise, or update, as appropriate, their regulatory systems to differentiate among subsistence uses, illegal hunting, and domestic and international trade of specimens of wild species and products. Parties were also encouraged to assess, minimize and mitigate the impacts of illegal hunting on the subsistence hunting and livelihoods of indigenous peoples and local communities. In addition, Parties and other Governments were invited to strengthen the capacity of indigenous peoples and local communities to exercise their rights and responsibilities in relation to sustainable wildlife management and to review, and, as appropriate, reform, incentives that might encourage unsustainable consumption of bushmeat (decision XII/18, paragraphs 9, 10, 11 & 12).

2. In the same decision (decision XII/18, paragraph 13), the Conference of the Parties requested the Executive Secretary, working with the Collaborative Partnership on Sustainable Wildlife Management (CPW), to prepare technical guidance on the role of sustainable wildlife management for the implementation of the Strategic Plan for Biodiversity 2011-2020, and an analysis of the impacts of subsistence use of wildlife on the survival and regeneration of wild species, in the context of growing human populations and pressures on wildlife resources. The Executive Secretary was requested to report on progress to the Subsidiary Body on Scientific, Technical and Technological Advice prior to the thirteenth meeting of the Conference of the Parties to the Convention on Biological Diversity.

3. The current note provides information in response to the aforementioned issues, drawing on data from fifth national reports to the CBD, national biodiversity strategies and action plans (NBSAPs) and responses to notification 2015-048.

[*] UNEP/CBD/SBSTTA/20/1/Rev.1.

II. BACKGROUND

4. A total of 131[1] fifth national reports and 71 national biodiversity strategies and action plans (NBSAP) were analyzed. This assessment reviewed those reports which were submitted to the Secretariat up until October 5 2015, with a majority of reports submitted to the Secretariat post 2010. The Reports were reviewed trying to identify a range of actions to tackle the unsustainable harvesting of bushmeat and related products. A particular focus was given to measures taken to develop, revise and /or update regulatory systems to distinguish among subsistence uses, illegal hunting, and domestic and international trade of specimens of wild species and products, as well as on the use of incentives and capacities of indigenous peoples and local communities to exercise their rights and responsibilities in relation to sustainable wildlife management. In these reports, 65 Parties explicitly referred to bushmeat or wild meat issues; 57 Parties described sustainable use of wildlife and wildlife management practices; and 55 Parties reported on illegal hunting and poaching-related challenges. Not all of reports assessed included relevant information to the topics above and were therefore not included in this report.

5. Bushmeat or wild meat issues were most commonly referred to by African and Latin American countries. 31[2] out of 41 countries from Africa mentioned the consumption of wildlife, as compared to 9[3] out of 11 Latin American countries, 1[4] out of 1 North American countries, 25[5] out of 40 countries from the Asia Pacific region, and 3[6] out of 38 countries in Europe. Reports from African countries focused more on the sustainable use of wildlife compared to countries in Asia and Latin America whose focus centered on conserving wildlife with hunting bans and providing alternative livelihoods. Many countries in Africa stated that there is a need for greater capacity to monitor wildlife and to enforce the law and a need for greater involvement of local communities. For example, South Africa stated that one of the biggest constraints in understanding subsistence uses of terrestrial resources is a lack of research and monitoring of wildlife, both to determine sustainable quotas and to ensure compliance. Few examples exist of resource monitoring to assess sustainability of terrestrial resource use (South Africa NBSAP, pg 21). Mozambique reported challenges due to weak capacity of state law enforcement, vulnerable borders, corruption, weak legal and judicial frameworks, and population growth impacting wildlife (Mozambique 5th NR, pg 63). Challenges also exist with the criteria used for setting quotas for hunting animals for tour operators as well as underreporting information (Mozambique 5th NR, pg 64).

6. Countries in Latin America and Asia often reported a need for better legislation and policies. For example, Vietnam stated that there are shortcomings in biodiversity policies and challenges due to an

[1] Afghanistan, Albania, Angola, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Belarus, Belgium, Belize, Benin, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Chad, China, Congo, Côte d'Ivoire, Croatia, Cyprus, Czech Republic, Democratic Republic of the Congo, Denmark, Dominica, Egypt, Eritrea, Estonia, Ethiopia, European Union, Fiji, Finland, Gambia, Georgia, Germany, Grenada, Guinea, Guinea-Bissau, Guyana, Hungary, India, Indonesia, Iran, Iraq, Ireland, Italy, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Latvia, Lebanon, Liberia, Liechtenstein, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Mauritania, Mauritius, Mexico, Micronesia, Mongolia, Montenegro, Mozambique, Myanmar, Namibia, Nauru, Nepal, Netherlands, New Zealand, Niger, Nigeria, Niue, Norway, Oman, Pakistan, Palau, Philippines, Poland, Republic of Korea, Republic of Moldova, Romania, Rwanda, Saint Lucia, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Slovakia, Slovenia, Solomon Islands, Somalia, South Africa, Sri Lanka, St Vincent and the Grenadines, Sudan, Suriname, Swaziland, Sweden, Switzerland, Tajikistan, Thailand, The former Yugoslav Republic of Macedonia, Togo, Tonga, Turkey, Uganda, Ukraine, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, Uzbekistan, Vanuatu, Viet Nam, Yemen, Zambia, Zimbabwe.

[2] Angola, Botswana, Burkina Faso, Burundi, Cameroon, Congo (Brazzaville), Côte d'Ivoire, Democratic Republic of the Congo, Egypt, Eritrea, Ethiopia, Gambia, Guinea, Liberia, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sierra Leone, Somalia, South Africa, Swaziland, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

[3] Antigua and Barbuda, Argentina, Belize, Brazil, Dominica, Grenada, Guyana, Mexico, Saint Lucia, St. Vincent and the Grenadines, Suriname.

[4] Canada.

[5] Afghanistan, Azerbaijan, India, Indonesia, Iraq, Kazakhstan, Kiribati, Maldives, Micronesia, Myanmar, Nepal, New Zealand, Niue, Oman, Palau, Philippines, Republic of Korea, Samoa, Solomon Islands, Tajikistan, Thailand, Tonga, Turkey, Vietnam, Yemen.

[6] Republic of Moldova, Romania and Ukraine.

overlap in responsibilities and regulations between key agencies, compounded by a weak and fragmented approach to law enforcement (Vietnam 5th NR, pg 33). In Grenada it was stated that the main reasons for over harvesting of wildlife is a lack of or limited public education, limited enforcement and monitoring and a lack of adequate legislation (Grenada 5th NR, pg VII).

III. THE IMPORTANCE OF SUBSISTENCE HUNTING FOR HUMAN SOCIETIES: INCOME, NUTRITION, HEALTH AND CULTURE

7. Subsistence hunting plays an important role and has a long standing tradition in many countries. Indigenous peoples and local communities rely on wildlife and its customary sustainable use for their livelihoods, resilience, and cultures. Recognition of the intimate connection between indigenous peoples and local communities and their traditional territories, and recognition of customary tenure systems, is essential to encouraging and promoting customary sustainable resource use. Accordingly, a number of countries have demonstrated the importance of subsistence hunting for income, nutrition, health, and culture.

8. In their biodiversity strategies and action plan, South Africa emphasized the role and importance of subsistence hunting. Bushmeat, for example, aids poor communities to meet their nutritional requirements in South Africa and is especially important during times of hardship (South Africa NBSAP, pg 21).

9. In Tajikistan, the income generated from hunting improves food security and has been an approach to reduce poverty (Tajikistan 5th NR, pg 32). Around 80% of the population living in mountainous areas depend on the use of wildlife (Tajikistan 5th NR, pg 28). Similarly, The United Republic of Tanzania's wildlife resources contribute significantly to the well-being of the Tanzanians and the national income through consumptive and non-consumptive utilization (Tanzania 5th NR, pg 8).

10. Liberians have always been very dependent on bushmeat as a source of protein and, in recent years, commercial hunting for bushmeat has rapidly accelerated. This increase can be attributed to greater demand from urban areas and neighbouring countries and the high level of income that can be quickly achieved from hunting. In addition, civil unrest has weakened the government's ability to control these activities. For example, it is now estimated that prohibited or fully protected wildlife species account for about 35 per cent of bushmeat sales and partially protected species account for a further 40-50 per cent (Liberia 5th NR, pg 22).

11. Liberia's 5th national report noted a lack of a holistic approach to natural resource management. There is no consideration from the government or communities of the economic value of non-timber forest products (NTFP), including bushmeat, in terms of restrictions posed by protected areas and community access to NTFPs in logging concessions. The focus is on preventing hunting and the bushmeat trade rather than exploring regulated sustainable hunting to promote the sustainable use of biodiversity, enhance the livelihood of local communities and help promote the conservation of ecosystems by private and community holders. Furthermore, there has been little institutional and policy level work done on NTFPs with no estimates of the importance of NTFPs to the national economy or whether there is a potential for regional trade in NTFPs (Liberia 5th NR, pg 38)

12. In Malawi, hunting constitutes the main use of wildlife resources and is probably the oldest subsistence and livelihood use of biological resources. In areas where human population is small and game is common, nearly all animal protein consumed by the local population is derived from wildlife (Malawi NBSAP, pg. 7).

13. Suriname stated that when ecosystem services become hampered, benefits for the human population decrease and those benefits could also cease to exist. Communities depending on the revenues gained from ecosystem services may become impoverished, leading with increased levels of malnutrition and loss of food security (Suriname, 5th NR, pg 15).

14. Poor agricultural yields and high unemployment rates, has led people in St. Vincent and the Grenadines to seek an alternative source of livelihood. In rural areas where there is little employment

opportunities people have turned to charcoal production, illegal marijuana cultivation and poaching for sale and for domestic food provisions. These factors also contribute to persons farming and squatting on marginal lands, which further degrades the land, reduces its diversity and poses a threat to the persons living in these areas. In 2001 the country was identified as having the highest levels of poverty in the OECS, at 37.5%, and the worst level of income inequality in the region (Retrieved 5th NR, pg 51).

15. In Ukraine people have relied on hunting species such as bison due to the long lasting political and economic crisis and poor hunting regulation. In the early 1990's, the bison population has decreased from 685 to 227. In the Carpathian Region, in addition to political issues, climatic conditions along with minimum biotechnical measures also caused deaths of animals. All the populations in the Western Ukraine are drastically declining, and are at risk of extinction (Retrieved 5th NR, pg 22).

16. India has demonstrated in their fifth national report that long standing traditional hunting practices for wild meat for domestic consumption as well as for commercial markets still exists. These practices however, threaten populations of species in some regions such as North-east India (Retrieved from the 5th NR, pg 40).

17. In Niue, natural resources are used in traditional arts and crafts and there are many traditional practices associated with hunting, fishing and agriculture. It is a Niuean tradition to close forests or coastal areas to harvesting (tapu) or impose short-term bans in particular areas (fono). There are also many stories and legends that feature wildlife (Retrieved 5th NR, pg 9).

18. Palauan culture is deeply linked to the environment. Palauan legends are filled with references to the importance of plants and animals in providing for the needs of the Palauan people. Medicinal plants and certain prized species of animals play important roles in traditional customs; timber is used for firewood, construction and carving; and activities like taro cultivation, fishing and collection of marine invertebrates are still significant sources of food and income for many (Retrieved 5th NR, pg 11).

19. In the Solomon Islands most rural people heavily depend on biodiversity for their wellbeing and livelihoods. Thus, biodiversity loss will have profound negative consequences among the rural poor. Biodiversity constitutes a key source of income, spiritual attachment and health for rural populations (representing 85% of the total population) with a "subsistence" mode of life. Biodiversity also constitutes a powerful source of cultural identity (Retrieved 5th NR, pg i).

20. In Indonesia, the utilization of traditional knowledge, innovation and local and indigenous people practices relevant to conservation has increased promoting the role of biodiversity for development. This has promoted the importance of biodiversity for cultural use, sustainable sources of livelihood/income, local food security, medicinal treatment and effective mobilization of financial resources, incorporated into the development of the Indonesian Biodiversity Strategy and Action Plan 2015-2020 (Indonesia 5th NR, pg. xii).

21. Australia's biodiversity is of deep spiritual and cultural importance to Indigenous Australians. Indigenous Australians see themselves as an integral part of the country and Indigenous traditions are intimately linked to the protection of Australia's biodiversity. They have incorporated this knowledge into traditional social structures which use plants, animals and natural phenomena to represent the special status and spiritual affiliations of individuals, families and other social groupings (Retrieved 5th NR, pg 9).

22. Madagascar reported that biodiversity is strongly linked to the population's culture. Some Malagasy tribes consider lemurs as a sacred form of ancestry and hunting them is strictly forbidden. The endangered species rate, however, has increased up to 94% due to habitat loss and hunting. These factors have been amplified as a consequence of the political crises in the country (Madagascar 5th NR, pg. 93).

23. There is a historic importance of biodiversity to the Peruvian population, particularly at a time when Peruvian gastronomy is enjoying increased prestige (5NR, p. 12, 97). Wildlife mentioned in this regard includes guinea pigs and camelids. There is also an importance of native wildlife to combat plagues and of birds for the tourism industry (5NR, p. 97)

IV. IMPACTS OF SUBSISTENCE HUNTING

24. The following examples draw from 5th national reports, national biodiversity strategies and action plans and responses to notification 2015-048 to highlight the impacts of unsustainable hunting on the survival and regeneration of wild species, as well as implication with regulatory frameworks, incentive measures and approaches to involve local communities in the sustainable management of wildlife. Most examples, demonstrate the severity of unregulated hunting to species extinction. Challenges related to habitat loss, human wildlife conflicts, weak and fragmented approaches to law enforcement, political conflicts, lack of ecological and economic value of species, limited awareness, and vulnerable borders are also noted.

Direct impact on exploited species

25. In Hungary, the game stock structure has changed significantly in recent years. Although forest health is deemed good compared to European standards, game damage is significant. This is due to the high population of big game, which exceeds the natural carrying capacity of Hungary's forests. As for small game species, the opposite trends has been observed - the population of important indicator species of agricultural areas, such as European Hare (Lepus europaeus), has stabilized at 25% of its original size, while Grey Partridge (Perdix perdix), has no viable population any more. The most significant factor is habitat loss, which Hungary is committed to curb (Retrieved 5th NR, pg. 4).

26. Wildlife is being over hunted in Romania due to the illegal harvesting of species and the overestimation of population numbers. Game species or species of economic interest are being poached due to high levels of poverty in areas where theses species are used for private consumption. Although this does not represent a significant impact on the state of conservation of a respective specie, a wish to hunt strictly protected species of high black market value is causing significant adverse effects on the conservation of the targeted species (Romania 5th NR, pg 18 & 19).

27. The Gambia underscored that due to the absence of large predators there has been an increase in the number of specific species, including hippos, warthogs, baboons, and monkeys possibly generating serious human-wildlife-conflicts. In response, the Government of the Gambia has constructed barriers in some rice growing areas including future plans for an extension of such barriers. (Retrieved 5th NR, pg. 18).

28. Terrestrial fauna is being overexploited in Mozambique for subsistence and commercial purposes. The number of rhinos and elephants being poached is of high concern for the country. Between 2009 and 2011, the carcass ratio of elephants in Mágoè district remained high (8.4 and 11%, respectively), and tripled in Niassa National Reserve (Mozambique 5th NR, pg 14).

29. The bushmeat trade in Rwanda is currently unsustainable and is of immense concern for the country. The Akagera National Park lies close to the border of Tanzania and wildlife there is being targeted by poachers coming from Tanzania (Tanzania 5th NR, pg 51). Black rhinos once roamed the park in numbers, but the species is now extinct along with lions and African wild dogs. This has caused an unbalance the predator and prey relationship (Rwanda 5th NR, pg 29). Hunting in the Mukura Forest has caused the number of mammal species to decline from 14 to 4 (Rwanda 5th NR, pg 34). Selective and intensive hunting for commercial purposes has led to the extinction of some animal species such as the elephant and the mountain buffalo in the forest of Nyungwe and the porcupine in the Akagera National Park (Rwanda NBSAP, pg 44).

30. In Liberia the commercial trade of bushmeat is threatening the survival of chimpanzees. They have a very slow reproductive rate, only reproducing on average every 5.5 years making them more vulnerable to hunting (Liberia NBSAP, pg 39, 2004). There are 14 IUCN classified threatened and endangered mammals (Liberia NBSAP, pg 85, 2004).

31. Poaching has increased significantly in Madagascar due to the 2009 political crisis. The endangered species rate has increased up to 94% (Madagascar 5th NR, pg 93), with unsustainable hunting causing, for example, declines in lemurs, large birds and members of the Tenrecinae subfamily. Hunting

has been associated with subsistence purposes and for commercial trade (Madagascar 5th NR, pg 47, 2014). Game species are also being exploited and most likely to a wider extent.

32. In Tanzania, the poaching of wildlife for meat is a widespread problem and is part of the cause of the number of threatened species almost tripling over the last decade (Tanzania 5th NR, pg iv). The country is among the 15 countries globally that have the highest number of threatened species in the world. Studies have shown that on average 2,078 tons of illegal bushmeat is confiscated ever year. There is 82,000 kg of wild meat consumed per week and a total of 43,618 wildebeests hunted per year in the Serengeti National Park alone. The key species facing pressure include the larger carnivores such as lions, leopards, cheetahs, wild dogs and herbivores including elephants, Giraffe (Giraffa camelopardalis), zebra (Equus burchelli), buffalo (Syncerus caffer), antelopes, wildebeest (Connochaetus taurinus), and the black rhinoceros. Out of these species, rhinoceros and elephants are the most highly endangered due to poaching for commercial purposes. For example, elephant populations in the Selous Game Reserve and Mikumi National Park are decreasing at an alarming rate. Statistics indicate that, elephant numbers had decreased to 43,552 in 2009 from 74,900 in 2006. Studies show that about 54% of elephant deaths in the country are due to poaching, followed by natural factors (27%) and Human-Elephant Conflicts (9%) (Tanzania 5th NR, pg 24).

33. The commercial bushmeat trade is threatening wildlife in Cameroon and is carried out in violation of prohibitions, exemplified by the 2012 massacre of more than two hundred pachyderms (elephants, rhinoceroses and hippopotamuses) in Bouba Ndjida. The illegal commercial trade is causing declines of critically endangered gorillas, chimpanzees, forest elephants, and other species. The wildlife law prohibits the sale and trafficking of endangered species, however the size of the area and the number of people involved in the illegal trade make law enforcement virtually impossible (Cameroon NBSAP, pg 59, 60).

34. Iraq reported in their fifth national reports that hunting and trade in waterfowl species such as the mallards and the vulnerable marbled ducks are sold in the markets for local use and consumption. Hunting of houbara bustard, assessed as vulnerable by IUCN, is heavily hunted by locals. In addition, foreign hunters and falconers from Arabian Gulf countries usually come in large convoys protected by their own security to hunt in these areas. The birds are then exported to UAE, Qatar and Kuwait with no regulation or registration about the hunted numbers (Retrieved 5th NR, pg 67).

35. Plants and animals in Malaysia have long been used by indigenous peoples as traditional medicine (Malaysia 5th NR, pg 16). This use, along with habitat loss, is contributing to the decline of much of Malaysia's wildlife populations. The Indian grey mongoose, the Javan rhinoceros and the Banteng are classified as extinct and the Sumatran rhinoceros is currently considered to be under critical threat. The later is undergoing continual decline and is believed to have been eradicated as a result of hunting pressures for commercial purposes (Malaysia 5th NR, pg 45, 2014). The leopard and the Malayan tiger among others, have been classified as endangered and the Asian Elephant, the Malayan Sun Bear and the Gaur amongst others as vulnerable (Malaysia 5th NR, pg 46, 2014). Orangutang numbers have also been declining (Malaysia 5th NR, pg 54).

36. The hunting of wildlife has led to the decline of large mammals and birds in Afghanistan. Before 1979, firearms were generally rare. This changed during the war and wildlife suffered as heavily armed individuals depended partially on wild meat for subsistence. Waterfowl and large mammals are still hunted for sport and by the elite in some places or opportunistically by local people. However, large animals are now so rare that many hunters have given hunting them up (Afghanistan 5th NR, pg 15).

37. Thailand reported that their forest areas are in seriously decline resulting in the loss of biodiversity. The trafficking of both wild animals and plants continues to grow severely and has become a contentious issue at both national and international levels. For example, in the last four decades Thailand has lost 7 vertebrate species to extinction and another 8 species are going to be extinct from nature (Retrieved 5th NR, pg. 4).

38. In Palau, the hunting of birds and bats is common, resulting in a decline of fruit bats, Nicobar Pigeon, Micronesian Pigeon, Micronesian Megapode (through poaching of eggs) and the Palau Fruit

Dove (Palau's national bird). They are hunted to supply local demand, informal markets for banned species and to a lesser extent the local stores and restaurants. The demand for the species is partly due to customary obligations. There is also a desire to eat delicacies or 'exotic' species, especially among tourists. People are mainly motived to hunt to generate extra income but may also hunt for recreation and as a sign of social status. As demand grows and the area develops, there will be greater interest to hunt these species (Retrieved 5th NR, pg 38).

39. The Solomon Islands noted in their fifth national report that certain bird species also provide a rich source of protein and support food security. The dusky megapode (Megapodius freycinet) produces large eggs and supported village livelihood which in urban areas eggs cost US$1.5. The species commonly lays eggs in soft grounds in the volcanic ash and dead tree trunks and roots. The population is assumed to be in a decline owing to hunting pressure, degradation and destruction of suitable habitat and predation by introduced predators (Retrieved 5th NR, pg 10).

40. Nigeria's wildlife is rapidly declining due to habitat loss and increased pressure from hunters, poachers, and bush burning. About 10-12 species of primates, including the white-throated guenon and sclater's guenon, are under serious threat of extinction. Extinct species include the Giant Eland (Taurotragus derbianus), the Giraffe (Giraffa camelopardalis), Black Rhino (Diceros bicornis), Cheetah (Acinonyx jubatus) and the Pygmy hippopotamus (Choeropsis liberiensis (Retrieved 5th NR, pg. 25).

41. In Haiti, commercial exports of plants and animals have impoverished the lives of many and have diminished the ecosystem services in a number of areas. 18 known species from Haiti are currently threatened globally with some species not recorded for over 20 years, leading to the assumption that they may have been threatened with extinction (responses to notification 2015-048).

42. Parties who reported that they are experiencing unsustainable levels of hunting for subsistence purposes include Lesotho, Mexico, Guinea and Madagascar. Argentina noted that the most important actions before proposing sustainable use of wildlife, is to understand the interaction between the historical processes and political and economic decisions explaining the use and trend of ecosystem that wildlife is part of (in this case the expansion livestock, rail and economy market). Knowing only biology targeted species, is not enough to make decisions leading to sustainable use (responses to notification 2015-048).

43. Mr. John Werth, executive director of The African Association of Zoos and Aquaria, summarized in his submission[7] to notification 2015-048 that in Central and East Africa hunting for both local consumption and large commercial markets has become the most immediate threat to the future of wildlife. The bushmeat trade is driven by international markets in Asia, Europe and America. There is often inadequate capacity in terms of manpower and equipment required to monitor and regulate the utilization and the trade in wildlife species. There needs to be two conventions under the same ministry to harmonize policies on wildlife management and trade and promote sustainable wildlife management (responses to notification 2015-048).

V. MEASURES TAKEN TO DEVELOP, REVISE AND/OR UPDATE REGULATORY SYSTEMS

44. Ethiopia demonstrates in their NBSAP that existing laws attempt to control the hunting of designated game animals, but most of these regulatory measures have proved difficult to enforce due to low capacity both in human and resources. Ethiopia also indicates that neither communities nor governments should manage natural resource independently. The government must recognize the interests and rights of the local communities, while the communities must recognize that such community based management is part of a larger political and environmental framework (Ethiopia NBSAP, pg. 42, 56).

45. Under the existing wildlife law in Ethiopia, the Wildlife Conservation Areas are divided into two main categories, namely, Principal Wildlife Conservation Areas, which include National Parks (9) and Wildlife Sanctuaries (4), and Secondary Wildlife Conservation Areas comprising Wildlife Reserves (8) and Controlled Hunting Areas (18). Current thinking on Protected Area management is that, to be

[7] Musingo D., and Werth, J., (2015). Bush Meat Crisis Africa.

effective, the communities living alongside the area should participate in management and should derive some benefits from the area. None of the existing categories of protected areas make allowance for participatory management by communities. A draft Wildlife Law empowering local communities to participate in joint wildlife management with governments has been prepared and is currently under review (Ethiopia NBSAP, pg. 42).

46. Estonia reported that its wildlife monitoring system does not provide sufficient data for making science-based decisions and fulfilling its international obligations. Data gaps on species and habitat types need to be mapped, identifying possible overlaps between different monitoring programmes. The primary objective is to create a well-functioning coherent and optimal monitoring system, improving monitoring methodologies, including using remote sensing. Estonia plans on accomplishing this by developing coherence between wildlife monitoring and other sub-programmes of national monitoring, between different sub-areas of wildlife monitoring, and between national monitoring and conservation management monitoring and inventories. Plans also focus on improving the structure of monitoring stations and sites and of monitored parameters, which is often not representative enough to provide information about changes at the national level (Estonia NBSAP, pg. 31).

47. Vietnam reported that the quantity and quality of human resources for biodiversity conservation remains limited. Punishments for violations are not strong enough, which is partly the reason for the increase in the number of violations in the field of wildlife trade and trafficking. There are shortcomings in biodiversity policies and challenges due to an overlap in responsibilities and regulations between key agencies, compounded by a weak and fragmented approach to law enforcement (Vietnam 5th NR, pg. 33).

48. In February 2015, the Working Group on CITES and livelihoods met in Cispatá, Colombia, to present successful case studies on the evaluation and mitigation of the impacts on livelihoods generated by the inclusion of species in CITES lists. A guide to be used by national governments to access those impacts in their contexts was developed. During the meeting, a “Bushmeat working group” was formed to discuss the use of the guide in the context of bushmeat species. The Working Group on CITES and livelihoods furthermore suggested three types of uses of bushmeat relevant for CITES:

1. Specimens of bushmeat species that are hunted and traded across borders between neighbouring countries;

2. Specimens of bushmeat species that are traded internationally, long-distance, (e.g. inter-continental trade); and

3. Specimens that are hunted for the international trade of their skins and local consumption of their meat (e.g. initiatives by communities to produce burgers with crocs meat and other food products).

49. Philippines reported on the Wildlife Resource Protection and Conservation Act, which aims to conserve and protect wildlife species and their habitats, regulate the collection trade of wildlife, pursue the Philippine commitments to related international conventions, and initiate or support scientific studies on the conservation of biological diversity. The law allows collection of wildlife, except threatened species, by indigenous peoples for traditional use and not primarily for trade. It also provides for the establishment of an "economically important wildlife species” which is defined as a non-threatened wildlife species which have potential value in trade or utilization for commercial purpose (responses to notification 2015-048).

50. In the Bolivian village of Isoseño-Guarani a wildlife management programme was created that uses hunting wildlife data generated by local hunters and technicians. There was data supplied by over 700 hunters and 33 cattle stations. That detailed the species hunted and the population structure. The result of the monitoring was that communities and authorities developed a regulation that included seasonal closures, internal zoning and plans for the commercial use of wildlife (responses to notification 2015-048).

51. Through the EPBC Act, the Australian Government requires kangaroo management plans to be developed, which must demonstrate that the harvest of kangaroos is ecologically sustainable and does not have a detrimental impact either on the harvested species or their ecosystems. The plans also include parameters to determine the annual quota of animals that may be taken for commercial purposes. Quotas are based on population data collected using best-practice scientific survey methodology and are adjusted annually, to reflect changes in the kangaroo population in the preceding year. Reporting is carried out at the State scale, but States involved in sustainable harvest are divided into zones for monitoring and quota-setting, to ensure that sub-populations of species are not detrimentally impacted. Currently, New South Wales, Queensland, South Australia and Western Australia commercially harvest kangaroos for export and operate under approved wildlife trade management plans (responses to notification 2015-048).

A. Addressing subsistence uses and illegal hunting

52. Afghanistan reported a complete ban on hunting in any form for a period of 5 years. However, although significant steps have been taken on enforcement, most ordinary citizens are unaware of the Decree, while powerful and influential persons simply ignore it. A Fauna Conservation and Hunting Regulation was reported as being under development to regulate hunting (Retrieved 5th NR, pg. 15). The Afghanistan Wildlife Executive Committee (AWEC), an independent scientific authority in the National Environmental Protection Agency (NEPA), was formed to assess risk of species at the national scale using IUCN regional criteria. The AWEC also recommends to the NEPA whether species should be legally listed as harvestable or protected according to Article 47 of the Environment Law. To date, AWEC has produced several Protected Species Lists (Afghanistan 5th NR, pg. 12).

53. Mali reported its strong hunting traditions, and the important role that wildlife plays in the socio-economic and cultural life of its citizens. As a sector, hunting covers areas such as security, trade and crafts. The lack of effective controls on hunting, consumption and sales of its products, has led to a large decline in almost all-large animals (Mali 5th NR, pg 21).

54. Tonga demonstrated that although legislation is the main instrument used to protect the wildlife, some existing legislation is outdated and inapplicable to the current physical and socio-economic environment of the country. Enforcement is also a major problem due to lack of staffing and finances for operations (Tonga NBSAP, pg. 9). Tonga suggested that the hunting of birds and fruit disperser in the wild, with shotguns, should be banned and strictly enforced (Tonga 5th NR, pg. 33).

55. In Egypt, the utilization of wildlife is unregulated and excessive hunting is endangering a number of wild animals. Accordingly, Egypt highlighted the progress of a National Hunting Management Programme that focused on the development of a comprehensive system of wildlife management with sustainable management and financial systems. Security concerns and concerns over the ability of Egyptian authorities to control the hunting activities properly were the main obstacles in implementation and institutionalization (Egypt 5th NR, pg. ii).

56. Estonia indicted that the populations of wolves, beavers and lynxes are in a favorable state, and therefore, those animals can be hunted, as stated in accordance with its hunting development plan. The number of bears can be regulated only in special circumstances and the European Commission has to be informed about such activity. The number of European hare and mountain hare is small and still decreasing, and the population of the greylag goose has been diminishing. In 2012, Estonia adopted a plan for the protection and management of large game (wolves, bears and lynxes). It has a Hunting Act which entered into force in 2013 (Estonia 5th NR, pg. 18).

57. Hunting is a popular activity in Grenada for recreation and as a source of food and income. Members of the hunter's association were consulted during the forest policy development process, and indicated that game species were declining and suggested several measures for ensuring the survival of these animals, including their willingness to assist in the implementation of these measures (Grenada NBSAP, pg. 17).

58. Colombia has generated strong legislation that tends to regulate consumptive uses of wildlife. The only way to take advantage of the native wildlife in the country is through hunting activities, defined as

any act aimed at the capture of wildlife either by killing, maiming or live trapping, and gathering of their products. Subsistence hunting of wildlife does not require a permit but all other hunting requires a license from the respective regional autonomous corporation with jurisdiction over the place where the activity aims are performed. All other hunting includes; (i) which is done by individuals: its purpose is classified hunting or legal for financial gain, (ii) scientific whaling sport hunting, (iii) control hunting and (iv) promoting hunting (which is done for the sole purpose of acquiring specimens for establishing animal breeding or hunting). Consequently, any activity that has not been captured in the above and does not meet the requirement of law is considered poaching (responses to notification 2015-048).

B. Revised Legal Frameworks

59. In 2013, Malta established a dedicated governance structure within the Parliamentary Secretariat for Agriculture, Fisheries and Animal Rights, which falls under the domain of the Ministry for Sustainable Development, the Environment and Climate Change (MSDEC), to oversee and drive the implementation of government policy in relation to sustainable hunting governance. Additionally, in September 2013 Malta submitted a detailed report on the implementation of EU management plans for species which could be hunted (Malta 5th NR, pg. 75, 113 &114).

60. Guyana has developed the Wildlife Management and Conservation Regulations (2013), which focuses on the management and conservation of wildlife. It addresses issues including the capturing, gathering, collecting, hunting, killing and taking of wildlife. The Regulations cover the use of wildlife for purposes, including as bushmeat, research, and for medicinal purposes. It also makes provisions for the classification of wildlife, and particular areas within Guyana. These regulations are already being enforced. In addition, the Wildlife Import and Export Bill is being prepared to complement the Wildlife Management and Conservation Regulations. This Bill will provide a national framework and mechanism to govern the international trade of all species of wildlife in Guyana and to enable Guyana to fulfill its obligation under the Convention of International Trade in Endangered Species. This legislation will also allow the Wildlife Division to be classified as an Authority (Guyana 5th NR, pg. 51).

61. Saint Lucia has reported of a moratorium on hunting of wildlife, which has had low to moderate effectiveness but is improving. A stock taking of the population of threatened species, as well as their alien invasive competitors, is constantly being surveyed and monitored. Early detection and rapid response measures have aided the elimination of some invasive alien species (Saint Lucia 5th NR, pg. 82).

62. Samoa reported on the Trade in Endangered Species Bill, which specifically looks at the protection and conservation of CITES listed Appendices species which are threatened from uncontrolled trade. The Bill ensures that species (and any derivative parts) listed as endangered, threatened or exploited are regulated through a permitting system. In 2014 the Bill also established a scientific committee that assesses and determines that any proposed export of a species for commercial purposes will not be detrimental to the survival of the species in the wild. (Samoa 5th NR, pg. 37).

63. The Department of Environment and Natural Resources of the Philippines adopted the Wildlife Law Enforcement Manual of Operations in October 2010, as guide for the Wildlife Enforcement Officers (WEO), Wildlife Traffic Monitoring Units (WTMU), and other stakeholders in the enforcement of relevant wildlife laws, rules and regulations. This Manual provides a set of standards and protocols in investigation and surveillance, search, arrest and detention of suspects, apprehension, seizure and handling of evidence and filing and prosecution of cases. It takes into consideration the existing procedures of various agencies. It also presents a set of protocols to address implementation gaps in wildlife law enforcement scenarios in airports and seaports as well as the protocols to be observed relating to the custody of seized and confiscated wildlife specimens, by-products and derivatives (Philippines 5th NR, pg. 46).

64. In Eritrea, the Forestry and Wildlife Conservation and Development Proclamation, in association with the regulations for the issuance of forestry and wildlife permits, provides the framework for the conservation and development of forests and wildlife resources. The Proclamation also aims at wildlife protection and conservation to ensure sustainability of wildlife habitats, establishment and maintenance of

Protected Areas and development of a Protected Areas networks to enhance the biological diversity of the country (Eritrea 5th NR, pg. 57).

VI. THE POSITIVE ROLE OF INCENTIVES IN SUSTAINABLE WILDLIFE MANAGEMENT

65. Providing economic incentives or livelihood alternatives to people facing poverty has proven to reduce pressures on wildlife by reducing harvesting rates. Namibia reported in its fifth national report that community conservation has generated over N$58.3 million for local communities in 2012, while facilitating the creation of 6,477 jobs and 99 enterprises based on natural resources. This has been achieved mainly through trophy hunting, accommodation establishments, and the harvesting and sale of natural resource products and crafts (Retrieved 5th NR, pg 3).

66. The creation of incentives for local communities in South Africa has resulted in an annual growth rate of approximately 6% for the southern white rhino population. A century ago the species was at critically low numbers but revenue earned from the sale of the animals has meant the species was protected. Hunting on game farms also contributes to the economic viability of these enterprises and provides an economic incentive for the conservation of this species and its habitat. However, in the face of recent escalating poaching, and costs of protecting rhinos, an increasing number of rhino owners perceive their rhinos as an expensive liability and are seeking to sell them, with the result that live white rhino prices have started to decline and there are fewer options in which to protect the rhino population (South Africa 5th NR, pg 13).

67. Contributing factors to the success of the increase in saiga populations in Kazakhstan are the positive incentives that are given to hunters for biodiversity conservation. Resource users are assigned to lands for a long term period of 10 to 30 years. Hunters invest their own funds to the development of hunting practices, including costs of payments to rangers conducting biological activities. In total, the country has 675 hunting farms within an area of 120 million hectares (44.2 % of the country); in 2013 hunting users contributed 1801.6 million tenge (about $12,000,000) into the development of hunting farms (Retrieved 5th NR, pg 8).

68. Australia noted in their submission the implementation of their CITES obligations through provisions in the EPBC Act. The Australian crocodile industry operates in the Northern Territory and Queensland under management plans that are approved by the Australian Government and subject to periodic review. The crocodile industry in both jurisdictions relies primarily on the wild harvest of eggs from the Northern Territory. Monitoring by the Northern Territory Government shows that egg harvesting in its eight rivers is sustainable; abundance, biomass and crocodile size are either stable or increasing. Although uncontrolled trade in Saltwater Crocodile between 1945 and 1971 depleted the wild population to the point of extinction, the ‘incentive-driven conservation strategy’ introduced in the 1980s by the Northern Territory Government has seen the population increase to approximately 80,000 – 100,000 individuals in 2012 (responses to notification 2015-048).

69. Finland made note of the Finnish model for wildlife management and administration which creates a good frame for promoting sustainable and legal harvest, largely through local-level ownership and the benefits that management of populations of certain species can provide in diminishing damages to agriculture and forestry. The local-level involvement, management and ownership are a good incentive for sustainable harvest, voluntary-based habitat enhancement and other actions. Finland also noted that the importance of hunting and fishing and berry picking as sources of income and subsistence have diminished in the past decades (responses to notification 2015-048).

VII. APPROACHES THAT INVOLVE LOCAL COMMUNITIES AND ADDRESS THEIR RIGHTS AND RESPONSIBILITIES IN RELATION TO SUSTAINABLE WILDLIFE MANAGEMENT

70. It remains critical that indigenous peoples and local communities be involved and effectively participate at all levels of management, and national governments must be responsive to the input of local communities. It is important to ensure that some of the benefits from use of wildlife flow to local natural resource management authorities to sustain their management programs.

71. Gambia reported that the participation of local communities has been improved with the establishment of site management committees in all the protected areas, as well as the formation of community forest committees (CFCs) and community owned protected areas. These processes have enabled the incorporation of other ecosystems into existing networks of Protected Areas and as a result have encouraged the diversification of governance styles that in a broad perspective has contributed to achieving the Aichi Biodiversity Targets. Guidelines for private sector involvement have been developed, supporting the establishment of private game reserves and joint private government led management of Nature Reserves. The establishment of by-laws with the adjacent communities for the rational exploitation of the resources has yielded benefits in the form of revenue generated for the local communities (thatch grass, fuel wood, ecotourism programmes) (Gambia 5th NR, pg. 37, 45).

72. In Zimbabwe, rich wildlife resources have allowed for private investment in wildlife conservation with revenue accruing from hunting and other non-consumptive activities. Safari operators estimate that the revenue accrued during the period 2009, 2010 and 2011 was US$ 8 million, US$ 10 million and US$12 million per year respectively (Retrieved 5th NR, pg. 35). Community participation in wildlife management through CAMPFIRE has supported various eco-tourism projects benefitting several communities throughout Zimbabwe. The CAMPFIRE programme area constitutes 47.1% of the total protected area network and covers 55,208 km2 (USAID, 2010). The trends indicate that hunting forms a major source of revenue for CAMPFIRE districts and has been increasing since 2010 (Zimbabwe 5th NR, pg. 37). In addition, Wildlife Based Land Reform and Forest Based Land Reform programmes have provided the foundation for indigenous communities to engage in wildlife and forestry enterprises resulting in community game ranches, and commercial communal conservancies.

73. After high rates of illegal hunting in the 1980s, wildlife populations recovered in Namibia due to conservation policies that acknowledge user rights and other factors such as low human population density (Namibia 5th NR, pg 3). For example, the wild dog population has increased by over 150% since the last large carnivore atlas, with lion populations almost doubling. This increase is due to the slight expansion of the lion’s range and the impression that the lion population has changed from low to medium occurrence in established areas (Namibia 5th NR, pg 14). Namibia is concerned that poaching may increase once again and that land will be converted if a moratorium is placed on trophy hunting. A trophy hunting ban would reduce the number of financially profitable conservancies from 77 per cent (30 of 39) under the status quo, to 18 per cent (7 of 39) (Namibia 5th NR, pg 37).

74. In Kazakhstan hunting is only permitted for species that are attributed to the category of hunting species. Hunting farms are obliged to conduct census of the species on the basis of which, after a biological justification, the government sets up limits of their extraction for the country as a whole and further, establishes quotas for users at the level of regions (Kazakhstan 5th NR, pg 97). A ban has been in place for 15 years on the hunting of Kazakh saiga population which has contributed to the protection of the species and enabled the population to more than double within four years. The population went from approximately one million in the early 1990s to about 30 thousand in 2002 due to illegal hunting for horns to be exported to China. Since 2003 the government has taken increasing efforts to save the species and cooperate with hunters, researchers and public organizations. The GEF/UNDP project "Conservation and sustainable management of steppe ecosystems," contributed to the conservation of these species, primarily through participation in the expansion of the network of protected areas (the new reserve "Altyn Dala”) (Retrieved 5th NR, pg 12).

75. The role of civil society is also important in encourage local community involvement and to raise awareness of conservation and sustainable use of wildlife. In Myanmar, a local NGO[8] drew bird poachers and the local government to a number of meetings to encourage a shift from bird poaching to alternative livelihoods. Local communities and bird poachers agreed to cease hunting sandpipers and use alternative sources of protein from fishing, farming and raising poultry. As a result hunting has decreased and the sandpiper population is increasing (Myanmar 5th NR, pg 38)

76. Mexico highlighted its Monitoring Program for Morelet´s Crocodile (Crocodylus moreletii) within the framework of the Trinational Belize-Guatemala-Mexico Strategy for Conservation and Sustainable Management of the species[9]. Coordinated work among relevant stakeholders is planned until 2017 to strengthen the traceability information systems and identify conditions and potential sites for ranching activities, including sustainable use schemes. In line with the 2020 Targets of the Strategic Plan, the programme will include an evaluation of wild populations for approximately 10 years, and the monitoring and assessment of ranching sites, in order to enhance the knowledge of the reproduction and survival of the species. The programme also seeks to support Aichi Biodiversity Targets 5, 12, 14, and 18.

77. Colombia reported on actions taken to improve available biological information of wildlife consumed as wild meat (5NR, Part II, p. 64). Also noted were community level activities, involving agreements for community ecotourism. (5NR, Part I, p. 50).

78. Chile's National Report also noted a number of joint initiatives undertaken with neighboring countries for wildlife conservation (5NR, p.10). These include the Ruddy-headed goose and the South Andean deer (Hippocamelus bisulcus), the latter listed as an endangered species (5NR, p. 55).

79. In Canada, the Peary caribou play a very important role in the culture and economy of Inuit and Inuvialuit in the Northwest Territories and Nunavut. Peary caribou are an actively managed resource through the land claim co-management system in the Nunavut and Northwest Territories, where management authorities work to set harvest levels that are sustainable. Harvesting is under strict quotas as the sub-species is sensitive to overharvesting (Retrieved 5th NR, pg. 26). Additionally, the fundamental principles underlying the new Wildlife Act are the conservation of wildlife and incorporation of traditional values and knowledge as the majority of harvesters in the Northwest Territories are Aboriginal. An example of this type of approach can also be found in the new Nunavut Wildlife Act, which is based on Inuit principles of wildlife management (Canada 5th NR, pg. 59).

80. Canada also noted, in their submission to notification 2015-048, the positive impacts of sustainable use of wildlife on the survival and regeneration of wild species. As a result of their system of governance and compliance, in addition to the support of livelihoods in harvest management, there is little impact of illegal hunting and harvests are in large part legal. Harvest and trade, is linked with Aboriginal and Inuit subsistence and culture and with the livelihoods of people (responses to notification 2015-048).

81. The Development Programme for the Conservation and Sustainable Use of Wildlife in Mexico aims to promote the conservation and sustainable use of native wildlife and its habitats through projects that incorporate sustainability criteria conducive to social and economic development. The programme focuses on rural communities which are located in areas of poverty or vulnerability to climate change and that are engaged in conservation and sustainable use of native wildlife and their habitats. Money is granted based on published guidelines (responses to notification 2015-048).

82. Uganda's submission highlighted the practice of collaborative management with the private sector, local government and local communities for wildlife outside protected areas. This entails signing of management memorandum of understandings with the parties mentioned for equitable costs and benefit sharing, good governance, transparency and accountability. Programs such as tourism

[8] Biodiversity and Nature Conservation Association (BANCA).

[9] Mexico NR (2014), pg 178.

development, lodges, gift shops, sport hunting, wildlife trade among others are encouraged to ensure sustainable funding and mitigation of human-wildlife conflicts (responses to notification 2015-048)

VIII. OTHER RELEVANT EXPERIENCES

Increased demand on the resource due to population growth, infrastructure, new hunting methods, increased deforestation and other pressures

83. Around the world, an increase in the extraction of resources and development are moving into areas previously undisturbed by industrial development. These activities and associated infrastructure can significantly impact wildlife populations and their habitat. Rapid growing human populations are also one of the main causes for unsustainable consumption. Liberia, Swaziland, Zambia, Tajikistan, the Republic of Korea and Nigeria all state in their 5th National Reports that a greater demand from urban areas for wildlife and increasing human populations are main factors contributing to the decline of wildlife populations.

84. In Zambia unplanned human settlement in game management areas and encroachment in nature reserves are main threats to wildlife. Mining and farming expansion have also impacted wildlife species and their habitats (Zambia 5th NR, pg 6). Most human settlements are located close to protected areas and because of the high unemployment there is high demand for bushmeat. Large mammals of size larger than common waterbuck (Kobus ellipsiprymnus) are most targeted due to the large amounts of meat they provide for commercial purposes. Of various methods used in poaching, snaring of wild animals still remains common in buffer zones around national parks (Zambia 5th NR, pg 24)

85. The Mongolian government increased the ecological-economical value of animals by increasing the animal resource use fee and hunting permit fees. The mining sector has impacted any benefits this may have provided by degrading the habitat of wildlife and causing the hunting stock to decrease (Mongolia 5th NR, pg 62).

86. The Micronesian Imperial-Pigeon is threatened by poaching and loss of habitat throughout its range in Micronesia. It is a keystone species that disperses fruit, seeds and other propagules of forest trees. A reduction in Imperial-Pigeons has been known to cause forest tree diversity to gradually decrease in other Pacific localities (Retrieved 5th NR, pg 24). Traditional methods that would limit harvest rate are no longer considered. In addition, people are increasingly collecting or harvesting resources for monetary income rather than solely for local subsistence uses (Palau 5th NR, pg 12).

87. Ethiopia explains, in their fifth national report, that the encroachment and expansion of small scale and commercial agriculture for crops such as sugar cane, cotton, sesame, rice production and bio-fuel plantations are aggressively undertaken in the Combretum-Terminalia Woodland Ecosystem. Furthermore, overgrazing and shifting cultivation are deteriorating the ecosystem. Consequently, many wild animals (including Lion, Cheetah, Giraffe and Buffalo) and unique plants are under threat (Ethiopia 5th NR, pg. 12).

88. The few alternative livelihood programs in Liberia cannot compete with incomes generated from illegal logging, the bushmeat trade or diamond and gold mining in the parks and forest reserves. Liberia stated that alternative livelihood programs were unsuccessful because they are offered based on an assessment of what communities want to do rather than any kind of value chain analysis of several subsectors to identify products and services that show the greatest potential for increasing household income, and what elements along the value chain from access to technical information and capital to market access act as barriers to alternative livelihood development (Liberia 5th NR, pg 38).

89. In Cameroon poaching activities are increasing with logging development. The demand for bushmeat is increasing with growing human populations in cities and in forest logging concessions and mining camps. Bushmeat can also be sold for a higher price as new urban markets are established, stimulating increased trade. There is a lack of awareness on the scale of the trade and the consequences of such unsustainable wildlife exploitation (Cameroon NBSAP, pg 59, 60).

90. In Iraq, hunting has been the main source of income for most people in the rural and even some urban areas. This has caused wide spread eradication of many wild species including several globally endangered species that once existed in the region, driving them into extinction or into continuous decline. Hunting and capturing techniques that are practiced in the country include guns, poisons, nets, iron traps and other hunting equipments (Iraq 5th NR, pg 67)

91. In Saudi Arabia, hunting is a major threat especially when it is not controlled. With the use of powerful all terrain vehicles, guns and advanced technology, wildlife is easily tracked and killed. Overhunting is usually most devastating when added to the effects of overgrazing. In those situations wildlife populations become most vulnerable to hunting, particularly under drought, when they concentrate near water sources. The rate of loss of large mammals in Saudi Arabia remains high and serves as an indicator of the status of all fauna (Saudi Arabia NBSAP, pg. 21).

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