

Committee: Environment Sub-Commission 2

Issue: Preserving Madagascar's flora and fauna

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INTRODUCTION

As it might be already known, Madagascar is the fifth largest island in our world and a state which is mainly characterized by its tropical climate and its biodiversity. This country faces many crucial problems concerning the prevention of their flora and fauna, especially after the coup in 2009, which triggered the situation even more. According to researches made by the World Wildlife Fund (WWF), in the fifties, 28% of Madagascar's surface consisted of many forests, but as time passes these numbers decrease, since nowadays only 17% of Madagascar's immense surface is consisted of forests. Also, it is very important to stress out the fact that Madagascar's fauna is threatened as well, since a lot of rare native animal species such as the lemurs and Ploughshare tortoises are considered to be endangered ones. These environmental issues have risen due to several factors such as but not limited to deforestation, the difficulties the population faces in order to cover all its needs, illegal wildlife trade and last but not least climate change. All in all, it would be important to take into account that the current situation in Madagascar will have a huge impact on the civilians' lives, thus it is crucial to find many effective and implementable solutions in order to address this issue effectively.

Figure 1: Airplane view of deforestation in Madagascar



DEFINITION OF KEY TERMS

Flora

The term Flora is defined as “the plants of a particular region, habitat, or geological period”.¹

Fauna

The term Fauna is defined as “the animals of a particular region, habitat, or geological period”.²

Deforestation

Deforestation can be defined as “the cutting down of trees in a large area, or the destruction of forests by people”³ this means that the forests are getting destroyed in order to be used as urban areas, for agriculture, pasture etc. This action can have huge impact and cause many environmental problems to countries which accept it e.g. it can be a possible threat for natural habitats and generally biodiversity.

Illegal Wildlife Trade⁴

According to the World Wildlife Fund (WWF) the illegal wildlife trade is done “whenever people sell or exchange wild animal and plant resources”⁴ At this point, we have to bear in mind the fact that, this kind of trade is a serious threat to the endangered animal species in Madagascar, since many of them are getting highly valued and sold for a great amount of money. As a consequence, traffickers become rich from illegal actions and Madagascar’s fauna tends to lose its diversity.

Slash- and- burn agriculture

In the Oxford Dictionary slash- and –burn agriculture is defined as “Relating to or denoting a method of agriculture in which existing vegetation is cut down and burned off before new seeds are sown, typically used as a method for clearing forest land for farming.”⁵ This kind of agriculture can lead to another phenomenon called erosion.

¹ OxfordDictionaries, “Flora”, N.p., n.d. Web.

² Oxford Dictionaries, “Fauna”, N.p., n.d. Web.

³ “Deforestation Meaning in the Cambridge English Dictionary.” Cambridge Dictionary. N.p., n.d. >

⁴ “Unsustainable and Illegal Wildlife Trade.” WWF. N.p., n.d.

⁵ Oxford Dictionaries, “Slash and Burn”. N.p., n.d. Web. >

Erosion

The phenomenon erosion can be defined as “the fact of soil, stone, etc. being gradually damaged and removed by the waves, rain, or wind”⁶.

Logging

Logging is “the activity or business of felling trees and cutting and preparing the timber.”⁷

BACKGROUND INFORMATION

According to the World Wildlife Fund, Madagascar is characterized by its biodiversity and its nature, which is consisted mainly by endemic plant and animal species (approximately 80%-90% of the species are endemic).⁸ This means that all these species do only exist in Madagascar and nowhere else in the world, and as a consequence it is a fact that these species are more vulnerable than others existing in a variety of countries. Taking into consideration that approximately 80% of the Malagasy people live under the poverty line and aware of the whole social and economic situation taking place there after the coup that happened in 2009⁹, it is understandable that most of the civilians depend mostly on agriculture, hunting and other relating activities for their survival and well-being and that the government is not able to protect its country’s flora and fauna. As you can understand, flora and fauna in Madagascar is very vulnerable considering the aforementioned facts.

Endangered plant and animal species in Madagascar

Bearing in mind the piece of information above, the amount of flora and fauna, which is threatened in Madagascar, is huge. Though, there are only specific categories of plants and animals, which are affected the most.

a) Palms

In 2012, a research was conducted by the International Union for Conservation of Nature (IUCN) Species Survival Commission (SSC), which showed that 83% of the Palms are endangered,¹⁰ and specifically they are under the threat of extinction. That kind of information can be also found in the IUCN Red list for threatened Species. Taking into

6 "Erosion Meaning in the Cambridge English Dictionary." Cambridge Dictionary.

7 Oxford Dictionaries, “Logging” N.p., n.d. >

8 "UNESCO Recognizes Threats to Madagascar Rainforest." WWF. N.p., n.d.

9 Steven Kotler for Yale Environment 360, Part of the Guardian Environment Network. "How One Scientist Is Battling Deforestation in Madagascar." The Guardian. Guardian News and Media, 01 July 2010.

10 The IUCN Red List of Threatened Species, “Madagascar’s palms near extinction”, 17 October 2012

consideration that Palms are very important for the conservation of the biodiversity in Madagascar and the well-being of the animals, which find their natural habitat there, that 192 species of this plant are endemic and also that they are used in order to provide indigenous people with construction materials, it is very important to stress out the fact that these plants should be protected if we want to protect the lives both of civilians and animals. Some of the Palm Species which are under threat in Madagascar are the Ravenea deliciatula, the Tahina Palm, Dypsis brittiana, Dypsis tokoravina and last, but not least the Majestic Palm.

b) Lemurs

According to the IUCN Red List for threatened species, approximately 94% of the lemurs are threatened with extinction. In detail, of the 103 species existing in Madagascar 24 are listed as "Critically Endangered", 49 are "Endangered" and lastly 20 are considered as "Vulnerable".¹¹ The reasons which cause the extinctions of these animals are the loss of natural habitat, the agriculture, the illegal logging and the fact that indigenous people hunt them in order to use them as their food. Three of the most important endangered lemurs are the Large-bodied Indri (Indri indri), which is considered to be "critically endangered", the Madame Berthe's Mouse Lemur (Microcebus berthae), which is listed in the "Endangered" lemurs and last but not least the Silky Sifak, which is one of the rarest animals in the world, but threatened with extinction.

c) The Ploughshare tortoise

The Ploughshare tortoise is also another animal which is threatened with extinction. Something noteworthy with this animal is that it is found in a special, small area of northwestern Madagascar and also that 1000 of these species do actually exist there. They are threatened by many factors but mostly by illegal trade since they can be illegally sold in exotic markets for up to 200,000\$.¹²

Threats

As you can understand, all these animals are threatened due to a plethora of threats in Madagascar. One of these threats and a very crucial one as well, is the rapid population growth in Madagascar, which results in the growing needs of indigenous people. It is clear enough that due to their increasing needs, civilians will always need more and more products in order to cover their needs and manage to survive. From that we can understand that

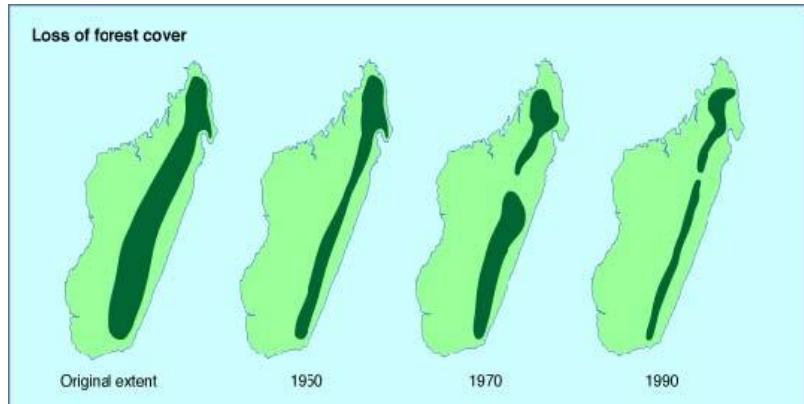
¹¹ Lemurs of Madagascar Three-year Conservation Plan Launched. N.p., n.d.

¹² "Madagascar." WWF. World Wildlife Fund, n.d. Web. 10 July 2017.
<<https://www.worldwildlife.org/places/madagascar#people>>.

hunting, illegal logging and other relating activities rise and have also many consequences on Madagascar's flora and fauna.

a) Deforestation

As I have previously defined, deforestation is the cutting down of trees in an area or the destruction of a forest by humans. Bearing in mind that indigenous people use this technique for firewood and charcoal production, pasture and construction of materials, we can easily understand that the islands' habitats are



jeopardized, thus Madagascar is suffering from a loss of natural habitats, which is actually a danger for all animal species living and evolving there, such as the lemurs and chameleons. Additionally, it is important to stress out the fact that the marine and coastal ecosystem is in danger as well, due to deforestation. A huge amount of laterite which is carried by streams and rivers gets into the sea and settles on the Toliara coral reef, located in the Southwest of the country. Furthermore, deforestation can have serious impacts on the climate change as well. Despite the fact that Madagascar is not an industrialized country, thus it does not have a huge amount of CO₂ emissions, it is still in danger due to deforestation. As a consequence, Madagascar will face several issues, such as more violent and dangerous droughts, cyclones and floods.

Figure 2: Deforestation in Madagascar



Figure 3: Destroyed forests due to slash and burn agriculture

b) Slash-and –burn agriculture

The slash- and – burn agriculture is a type of agriculture used frequently by Malagasy. Also known as “Tavy”, this practice is a shifting cultivation, meaning that people who practice it should firstly cut down the vegetation and generally destroy the forest, set fire and afterwards use this area to grow rice, maize, cassava and other crops. As you can understand, this kind of agriculture is very dangerous for forests since it can be a factor which increases

deforestation, threatens animals' species of the region and can be a factor that causes a phenomenon very dangerous for the environment called erosion. It is estimated that approximately 200,000 to 300,000 hectares of forests with important vegetation for Madagascar are destroyed each year.

c) Illegal logging of precious wood

In Madagascar the illegal logging of precious wood started in 2000 and aggravated in 2009, due to the political instability in the area caused by the coup. All those who threaten the forests of Madagascar through the illegal logging of wood, earn a huge amount of money since this action is extremely profitable, but still illegal. The areas threatened by this action are mainly the national parks of Marojejy and Masoala in Northeastern Madagascar. According to WWF, in 2009 there was a huge action of illegal logging during which approximately 52,000 tons of precious wood have been cut making us estimate that 20,000 hectares of vegetation have been destroyed.

d) Invasive Species

It has been recently proved that a factor, which can play a huge role in the extinction of animal and plant species and the loss of biodiversity, are the invasive species. Although many invasive species can be very helpful for the local community, such as the guava plant psidium cattleianum, which is used by indigenous people as construction material but also because it is a medical plant, it still threatens the biodiversity of Ranomafana National Park. Also, in late 1970s a carnivorous fish appeared in Madagascar and specifically in South- East Asia, with the name Ophiocephalus striatus. This fish after proliferating, it started threatening animal species such as aquatic insects, amphibians and fish.

e) Illegal Wildlife Trade (Trafficking)

The illegal wildlife trade taking place in Madagascar is a disaster and a great threat for Madagascar's flora and fauna. This kind of "work" is done by some groups of people also called "mafia organizations". They are responsible for the collection and the transport of these animals to their final location-destination. According to a research made by an organization called TRAFFIC, in the past five years over 150,000 tons of wood have been illegally exported to countries such as China, Mauritius and Malaysia.

f) Overharvesting/ Destructive fishing practices

This threat concerns both coastal and offshore fisheries and this is because Madagascar's local community depends on harvesting, since this is a way for them to collect their food and

distribute it to their families and also because of the fact that some of the species found in the Indian Ocean, such as the tuna, are an international commodity, which needs protection so as to prevent its extinction. Unfortunately, both regional and international fisheries pose a great threat to the marine fauna, since many species such as sharks, sea cucumbers, lobsters, shrimps and tunas aren't harvested sustainably enough, something that can lead to the extinction of such species

Consequences on the environment

All these threats do have a plethora of consequences on Madagascar's environment. Firstly, it is important to mention that through action such as illegal wildlife trade, animal and plant species are threatened with extinction, thus indigenous people will not have the opportunity to hunt or use them for their survival. As it has already been mentioned, 150,000 tons of precious wood has been exported illegally in five years, something which makes us think that Malagasy people will not have the opportunity to use that kind of wood in order to survive and traffickers will gain a huge amount of money from illegal actions. Also, due to the most serious issue in Madagascar named deforestation, Malagasyies will suffer from floods, and erosion. One example of flood in Madagascar which happened in 2015 in Antananarivo¹³ killed 14 people and made 24,000 people to leave their homes as the flood would threaten their lives. By protecting their flora, except for the fact that they will simultaneously protect their fauna and fisheries, they will also be able to be provided with filtered water, necessary for their agriculture and hurting activity. Lastly, we have to bear in mind that deforestation can lead to the loss of medical plants, nuts and fruits, products very important for the survival of indigenous people, taking into consideration the fact that 40% of the Malagasy people do not have access into healthcare and that the political crisis of 2009 had a serious impact on the funding and the functioning of the medical system in Madagascar¹⁴, meaning that they are in need of medical plants since 92% of the Malagasy people live on less than 2 US\$ a day.

MAJOR COUNTRIES AND ORGANISATIONS INVOLVED

Madagascar

¹³ "Ongoing Flooding Brings Further Misery to Madagascar." Ongoing Flooding Brings Further Misery to Madagascar - Al Jazeera English. N.p., n.d. Web. 10 July 2017.

¹⁴ Williams. "10 Facts About Hunger In Madagascar | WFP | United Nations World Food Programme - Fighting Hunger Worldwide." UN World Food Programme. N.p., 18 May 2015. Web. 10 July 2017

Despite the fact that Madagascar has to face several political and humanitarian issues, its government tries to solve some of the country's environmental issues as well. The government tried to achieve with the assistance of many NGOs the UN Millennium Development goals and has also signed and ratified many conventions which aim help the government to take action and protect Madagascar's flora and fauna such as the World Heritage Convention and the Convention on International Trade in Endangered Species of Wild Fauna and Flora and it cooperates with NGOs such as WWF and UN- bodies such as UNESCO in order to take action, preserve flora and fauna but also provide indigenous people with better life-conditions.

Lastly the Malagasy President has taken several initiatives in order to create protected areas in Madagascar; specifically in September 2003 managed to protect the country's biodiversity by enlarging the protected area from 1,7 million hectares to 6 million hectares after the fifth World Parks Congress in Durban, South Africa. Each protected area complies with the IUCN's definition of a protected area: "*An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means*"

United States of America

USA used its agency namely, the United States Agency for International Development (USAID) in order to fund a three-year program named "Preserving Madagascar's resources program" (SCAPES), which mainly focuses on preserving Madagascar's flora and fauna by eliminating the illegal trade of woods and reptiles. The SCAPES project started in 2013 and in cooperation with major NGOs such as the World Wildlife Fund (WWF), the Wildlife Conservation Society (WCS), the Conversation International (CI) and TRAFFIC the Malagasy people and the government managed with its activities to eliminate trafficking of woods and reptiles in Madagascar's Atsinanana forests, to monitor, raise awareness and finally address the issue of wildlife trafficking in the region.

World Wildlife Fund (WWF)

The World Wildlife Fund, also known as WWF, has helped Madagascar to preserve its flora and fauna in many ways. While working in cooperation with individuals and groups such as, governments, scientists, industry and local communities, this organization tries to protect, restore and conserve Madagascar's biodiversity, always with respect to the culture and the way of living of indigenous people. This organization focuses specifically on three sectors. Firstly, on "protecting the dry and spiny forests", which means that they try to advise

indigenous people on how to manage their natural resources and also try to organize and plan some ways with which they are going to be able to protect the threatened forests, secondly on “sustaining livelihoods on local communities”, meaning that they help both the government and the local community on managing the marine and coastal resources as best as they can and finally on “adapting to climate change”. By that measure the organization is to help decision makers and the government to plan some strategies, which are going to be followed by the government in case of change, in order to secure both natives and preserve the flora and fauna.

United Nations Educational Scientific and Cultural Organization (UNESCO)

UNESCO is an organization which has played a major role in all the efforts made in order to prevent the extinction of flora and fauna in Madagascar. This organization has formed a convention with the name of “World Heritage Convention” in 1972, which aims to conserve and protect any natural or cultural heritage, to provide assistance in case this heritage is in danger, urge the local community to take part into the maintenance of the heritage, train them and government officials properly so that they are able to take action when needed, raise public awareness and promote international cooperation. Madagascar’s Rainforests of Atsinanana and the Tsingy de Bemaraha Strict Nature Reserve have been added to the “UNESCO World Heritage List” the first one in 1990 and the second one in 2007.

Flora and Fauna International (FFI)

The organization Flora and Fauna International assists the Madagasikara Voakajy, which is a local organization based in Madagascar dealing with environmental issues such as the conservation of Madagascar’s flora and fauna. The FFI helps Malagasy people and regional and external markets in sustainably conserving and using the vertebrates and other endemic creatures and protecting their habitats and raises awareness on the issue of endemic species. The FFI helps the organization and the local community to safeguard threatened natural habitats, works on the sustainable use of natural resources in the region, organizes awareness programs and campaigns in order to raise awareness and improve the educational system in Madagascar, and lastly it supports Malagasy students willing to become conservation scientists by giving them incentives such as career opportunities for their futures.

Madagascar Flora and Fauna Group (MFG)

The Madagascar Flora and Fauna Group (MFG) is an organization which cooperates with the Malagasy government so as to find ways to protect and conserve Madagascar’s flora and fauna through researching programs. This group mainly focuses on four actions namely,

conservation action, research, education and capacity building. Concerning the conservation action, the MFG tries to protect, conserve and improve threatened habitats. The MFG also conducts some projects for the restoration of natural habitats at the Parc Ivoloina and Betampona's Zones of protection and conducts some projects for the protection of lemurs and other endangered animals. The MFG also organizes some educational activities in which all environmental issues of the country are analyzed and explained to children and adults. Lastly, the MFG supports indigenous students through its capacity building program to attend several workshops and training programs on the issue of conserving their country's flora and fauna through sustainable use of animals and generally natural resources.

International Union for Conservation of Nature (IUCN)

The IUCN is another organization which has played a major role in combating this issue. First of all, it has formed the IUCN Red List of Threatened Species in which threatened species are recorded and which provides governments and NGOs with information concerning the threatened species from all around the world, including Madagascar. Also, IUCN organizes projects for the protection of Madagascar's biodiversity. This organization was also the one that formed a Species Survival Commission consisted of more than 10,000 volunteers to preserve the biodiversity of countries which are in major threat, such as Madagascar with the assistance of researchers and generally experts in issues concerning the environment.

Wildlife Conservation Society (WCS)

The Wildlife Conservation Society uses several strategies in order to coordinate actions and protect forests and coral reefs from threats caused by several threats such as the growing population and the climate change. It focuses mainly on the local community and tries to integrate indigenous people in its actions such as the sustainable fishing for the protection of marine species, by establishing small- scale fisheries and developing of marine protected areas, the protection of the area's climate and lastly it works for the conservation of threatened animal species, always by cooperating with the governments

TIMELINE OF EVENTS

Date	Description of Event
3 rd March 1973	Convention on International Trade in endangered Species of wild Fauna and Flora (CITES)

19 July 1983	The government of Madagascar ratified the World Heritage Convention
2008	United Nations- Reducing Emissions from Deforestation and forest Degradation Program
2009	Political Crisis in Madagascar
2013	<ul style="list-style-type: none"> • General Assembly resolution 68/206 • Preserving Madagascar's Natural resources program (SCAPES) • event organized by Gabon and Germany on poaching and illicit wildlife trafficking to promote action by the international community (68th session of the General assembly)
2014	<ul style="list-style-type: none"> • 26th September 2014 (69th session of the General Assembly) event organized by Gabon and Germany • African Strategy on Combating Illegal Exploitation and Illegal Trade in Wild Flora and Fauna
2015	General Assembly resolution 69/314
2016	<ul style="list-style-type: none"> • General Assembly Resolution 70/301 • Madagascar enters The International Tropical Timber Organization's (ITTO)

UN INVOLVEMENT: RELEVANT RESOLUTIONS, TREATIES AND EVENTS

UN Millennium Development Goals

The Millennium Development Goals were a list of aims established by the UN that were to be achieved by 2015. Goal Nr. 7a) asked the Malagasy government with the assistance of the UN and other NGOs to ensure the environmental sustainability and protection of natural resources of their country through the implementation of a plan named Madagascar Action Plan (MAP). The program continues nowadays as well.

General Assembly resolution 69/314,

This GA resolution was adopted on 30th July 2015, in order to find effective solutions on the issue of preventing the wildlife trafficking, something which is considered as a threat for Madagascar's flora and fauna.

General Assembly resolution 68/206,

This GA resolution was adopted on 20th December 2013, in order to proclaim the 3rd of March as the World Wildlife Day,

United Nations- Reducing Emissions from Deforestation and Forest Degradation Program

The UN-REDD program was adopted in 2008 and it focuses specifically on reducing deforestation emissions and helping LEDCs develop sustainably, in order to avoid especially environmental problems.

General Assembly Resolution 70/301

This GA resolution was adopted on 9th September 2016 and encompasses a lot of measures in order to prevent illegal wildlife trade.

26th September 2013(68th session of the General assembly)

In this session of the General Assembly an event was organized by Gabon and Germany on poaching and illicit wildlife trafficking to promote action by the international community (A/69/430).

26th September 2014 (69th session of the General Assembly)

One year after the first event, in the 69th session of the GA an event was organized by Gabon and Germany on poaching and illicit wildlife trafficking this time focusing on the crime and the problems and challenges the community has to face because of it (A/68/553).

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

Fortunately, we can see that there have been many previous attempts to solve this issue. First of all, the Convention on International Trade in endangered Species of wild Fauna and Flora (CITES), which was signed in Washington D.C. on 3rd of March ¹⁵ 1973 and focuses on conserving the biodiversity through sustainable, legal and traceable trade of wildlife species. A second task is to regulate trade in over 35,000 animal species in order to protect regional and global environment always by assisting and cooperating with local communities.

Moreover, the African Strategy on Combating Illegal Exploitation and Illegal Trade in Wild Flora and Fauna, which was adopted in June 2014¹⁶ is a framework which urges the cooperation between all African countries on environmental issues and works for the prevention of illegal wildlife trade and conservation of Madagascar's flora and fauna.

¹⁵ "Malagasy President and CITES Secretary-General Discuss Actions to Stem Illegal Timber Trade in the Margins of 69th UN General Assembly", N.p, n.d

¹⁶ "African Strategy on Combating Illegal Exploitation and Illegal Trade in Wild Flora and Fauna." (n.d.)

Another attempt to solve the issue was adopted by the Southern African Development Community and it is a strategy called, Law Enforcement and Anti-Poaching Strategy aiming to protect flora and fauna from illegal wildlife trade and poaching, make trade more sustainable and educate indigenous people on how to manage their resources effectively. This strategy is mainly implemented by the SADC Wildlife Crime Prevention and Coordination Unit which assists states facing environmental issues on how to handle several situations and solve their problems effectively.

Lastly, a three-year project in 2013 with the name Preserving Madagascar's Natural resources program (SCAPES), funded by UNAID¹⁷, promotes cooperation between the Malagasy government and NGOs such as WWF and in order to give an end to the issue of illegal wood and reptiles trade and generally to the wildlife trafficking.

POSSIBLE SOLUTIONS

To start with raising awareness is a key factor if we want the issue to be solved immediately, since it is very important to inform and sensitize people about the situation in Madagascar and call for more volunteers and donations to NGOs such as WWF, TRAFFIC, Flora and Fauna International etc.

Moreover, it is crucial for the Malagasy government to adopt a new legislation with stricter punishments for those who violate the current laws concerning the illegal wildlife trade and illegal logging, so as to eliminate the number of traffickers, who pose a great threat to Madagascar's flora and fauna.

Another solution would be to organize educational/capacity programs for indigenous people in order to teach them how to use their resources effectively and sustainably and inform them about the consequences they will face if they don't respect the environment.

Another step which needs to be made is to urge the Malagasy government to enforce and implement the aforementioned already existing agreements and conventions by assisting the government in order to achieve the implementation of the Agreements and Conventions.

Additionally, another measure which needs to be taken is the promotion of ecotourism in the area so as to give job opportunities to indigenous people, thus promote

¹⁷ "Images Slideshow Carousel (half Page)." Conservation International. N.p., n.d. Web.

sustainable development in the country, decrease the percentages of poverty but also to give civilians incentives in order to protect their environment and country.

Lastly, it would be crucial for the prevention of the trafficking if there were more efficient and strict border security controls in Madagascar's borders so as to check the imports and exports and to ensure that no illicit wildlife trade is operated.

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