# SCOPING STATEMENT

## PROJECT/ACTIVITY DATA

<table>
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<tr>
<th>Project/Activity Name:</th>
<th>Chinko Protected Area</th>
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<tbody>
<tr>
<td>Geographic Location(s) (Country/Region):</td>
<td>Chinko Reserve, Central African Republic</td>
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<tr>
<td>Amendment (Yes/No), if Yes indicate # (1, 2...):</td>
<td>No</td>
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<tr>
<td>Implementation Start/End Date (FY or M/D/Y):</td>
<td>10/01/2016 to 9/30/2021</td>
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<td>If Amended, specify New End Date:</td>
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<tr>
<td>Solicitation/Contract/Award Number:</td>
<td>AID-605-A-16-00002</td>
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<td>Implementing Partner(s):</td>
<td>African Parks Network</td>
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<tr>
<td>Tracking ID/link of Other, Related Analyses:</td>
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## ORGANIZATIONAL/ADMINISTRATIVE DATA

| Implementing Operating Unit(s): (e.g. Mission or Bureau or Office) | Central Africa Regional |
| Other Affected Operating Unit(s): | NA |
| Lead BEO Bureau: | AFR |
| Funding Operating Unit(s): (e.g. Mission or Bureau or Office) | Central Africa Regional |
| Funding Account(s) (if available): | Development Assistance |
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| Prepared by: | The Cadmus Group under USAID’s Global Environmental Management Support (GEMS II) project. |
| Date Prepared: | June 2018 |

## ENVIRONMENTAL COMPLIANCE REVIEW DATA

| Analysis Type: | Scoping Statement |
| Environmental Determination(s): | Negative Determination, Positive Determination |
| Additional Analyses/Reporting Required: | EA |
| Climate Risks Identified (#): | Low, Moderate, High |
| Climate Risks Addressed (#): | Low, Moderate, High |
SCOPING STATEMENT APPROVAL AND SUMMARY OF FINDINGS

SCOPING STATEMENT SUMMARY

A Positive Threshold Decision was issued for some actions of the Chinko Project’s Infrastructure Improvement Activity under the DRC_CARPE_IEE (https://ecd.usaid.gov/repository/pdf/51615.pdf), this scoping statement resolves a deferral under "Construction and infrastructure development efforts in National Parks and Monuments & construction or rehabilitation greater than 1,000 m² in total area." Per ADS 204, a Scoping Statement satisfies the requirements of 22 CFR 216.a(4)(i) and includes (1) a clear statement of the purpose of and need for the proposed actions, (2) a summary of the alternatives to be considered in the EA or EIS that follows, and (3) available baseline data that is relevant to the Proposed Action. Scoping statements require documented stakeholder consultation. They also establish the scope of the follow-on EA or EIS and must be approved by the Mission Director and BEO before the development of the EA or EIS.

EXECUTIVE SUMMARY

This Scoping Statement was prepared as part of an Environmental Assessment (EA) process for the Chinko Project’s Infrastructure Improvement Activity. The intent of the Chinko Project is to enhance the ability of African Parks to effectively manage various conservation interventions within the Chinko Nature Reserve by improving the Chinko Nature Reserve’s roads, airstrips, and forward operating bases (FOBs) to enable more rapid and reliable year-round movements throughout the park to monitor wildlife and poacher movements and intervene where necessary. The Chinko Project will also construct a community center to provide a location within the park to educate stakeholders and community members and train future community members in natural resource management techniques.

The project is an activity of the Chinko Project that is managed by African Parks with funding from the USAID Mission in the Democratic Republic of the Congo (USAID/DRC). The Scoping Statement was prepared to comply with the environmental procedures laid out in Title 22 of the Code of Federal Regulations Part 216 (22 CFR 216) for the U.S. Agency for International Development (USAID).

The Scoping Statement identifies the potentially significant impacts to be evaluated further in the EA and provides justification for eliminating non-significant impacts from the scope of the EA. The Scoping Statement describes the methodology for conducting the EA, including the expertise required and the timeline.

The proposed infrastructure improvements within the Chinko Nature Reserve include:

- upgrading approximately 835 km of roads to all-season roads (including the rerouting road segments),
- constructing six temporary FOBs for park rangers to use on deployment,
- constructing airstrips at each FOB to be used by ultra-light motorized aircraft (ULMs) and helicopters,
• an enlargement of the main airstrip adjacent to the Chinko Nature Reserve’s headquarters for use by C-130 Hercules and AN-74 Cheburashka, and
• building a community training center to teach local stakeholders and park rangers.

The Scoping Team gathered information and GIS coordinates regarding the locations of the infrastructure to be developed and the methods of construction.

The Scoping Team identified the following components of the project with potential significant adverse impacts (discussed in detail in Section 5.1) to be evaluated in the EA:

• Preservation of migration corridors for fauna and potential negative impacts on threatened and endangered species or primary/undegraded forests.
• Crossing streams/fording waterways.
• Crossing wet areas or meadows.
• Gully stabilization.

Additional project activities have potential significant adverse impacts; however, these additional activities are deemed normal construction-related activities that have no extenuating circumstances due to the project occurring in a wildlife reserve and can be treated with standard conditions found in an IEE (discussed in detail in Section 5.2):

• Safety of construction workers (e.g., workers on scaffolding).
• Risk of fire to infrastructure and infrastructure acting as an artificial firebreak.
• Buried historic or archaeological resources.
• Storage of solvents, paints, fuels, lubricants, and their waste products.
• Waste management.
• Proper construction and site selection of the FOBs and community training center.
• Use of burnt bricks.
• Borrow/quarry pits.
• Sourcing of sand, gravel, or fill.
• Machinery use and maintenance.
• Erosion around infrastructure (other than for roads).
• Post-construction activities/decommissioning.

From stakeholder consultations and document reviews, the Scoping Team identified nine additional concerns (listed below) that can be eliminated from detailed study in the EA. Section 5.2 discusses these concerns and provides justification for their elimination from further analysis:

• Impacts on air quality during construction or operation.
• Noise pollution during construction or operation.
• In-migration of poachers using the newly established road network.
• Trucking of murram.
• Blasting of rock.
• Vehicle traffic.
• Improved access to natural resources leading to their destruction/exploitation.
• Spread of communicable diseases.
• Damage to bridges in flood-prone areas.

The Scoping Team included the following expertise on the Team; in some cases, one team member may possess more than one of the skills below:

• Environmental Assessment and Water Resources specialist
• Natural Resource Management / Biodiversity specialist
• Socio-Cultural Specialist
• Mapping/GIS specialist

The Scoping Statement for the Chinko Project follows, as much as possible, the format required by USAID in 22 CFR 216.6.

BEO CONDITIONS
Tables 7 and 8 of this scoping statement identify environmental impacts that need no further investigation during the environmental assessment. Assumed in this identification is the implementation of standard best practices. During the EA, evaluation of the implementation of these best practice procedures will need to be completed. This can be completed as an extension of the current tables. For those practices not implemented, further discussion will be necessary in the EA.
USAID APPROVAL OF AMENDMENT TO RCE/IEE

PROJECT/ACTIVITY NAME: GARAMBA CHINKO PROTECTED AREAS

Bureau Tracking ID: _AFR

[The routing process and associated signature blocks may be customized by Bureau or Mission. Please follow Bureau- or Mission-specific guidance. Include signature blocks in accordance with Bureau and/or Mission policy. At a minimum include the noted required signatures. Concurrency by multiple BEOs required for mixed funding streams and geographic responsibilities. Add/Delete other signatures as necessary.]

Approval: Paul Sabatine, Mission Director or Washington DC Equivalent

Clearance: Robert Lyang, CARPE Office Director

Clearance: Alastaire McNeillage, AOR

Clearance: Diane-Elizabeth Mbazndizi, Mission Environmental

Clearance: David Kinyua, Regional Environmental Advisor

Clearance: Diane-Elizabeth Mbazndizi, Climate Integration Lead

Concurrence: Brian Hirsch, Bureau Environmental Officer

Concurrence: NABureau Environmental Officer [other BEOs required for cross Bureau funding or geographic responsibilities]

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## CONTENTS

SCOPING STATEMENT APPROVAL AND SUMMARY OF FINDINGS .............................................................. 2
  SCOPING STATEMENT SUMMARY ........................................................................................................ 2
  EXECUTIVE SUMMARY ........................................................................................................................... 2

USAID APPROVAL OF AMENDMENT TO RCE/IEE ............................................................................. 5

TABLE OF TABLES ..................................................................................................................................... 7

TABLE OF FIGURES ................................................................................................................................... 7

1.0 BACKGROUND ...................................................................................................................................... 9

2.0 PURPOSE AND NEED & PROPOSED ACTION ................................................................................. 10
  2.1 PURPOSE AND NEED ..................................................................................................................... 10
  2.2 PROPOSED ACTION ....................................................................................................................... 11

3.0 SCOPING METHODOLOGY ................................................................................................................ 19
  3.1 DESK REVIEW PROCESS .............................................................................................................. 19
  3.2 FIELD WORK: INTERVIEWS AND FOCUS GROUPS .................................................................... 20

4.0 AFFECTED ENVIRONMENT ............................................................................................................... 22
  4.1 LOCATIONS AFFECTED AND ENVIRONMENTAL CONTEXT (ENVIRONMENT, PHYSICAL, CLIMATE, SOCIAL) ........................................................................................................... 22
  4.2 APPLICABLE AND APPROPRIATE PARTNER COUNTRY AND OTHER INTERNATIONAL STANDARDS (E.G. WHO), ENVIRONMENTAL AND SOCIAL LAWS, POLICIES, AND REGULATIONS .............................................................................................................................. 50
  4.3 SCOPING PHASE GAPS (LIMITATIONS OF THE SCOPING STUDY) .......................................... 57

5.0 IDENTIFICATION AND ELIMINATION OF ISSUES ............................................................................ 59
  5.1 POTENTIAL EFFECTS OF THE PROJECT ON THE ENVIRONMENT (DIRECT, INDIRECT, CUMULATIVE) AND SIGNIFICANT EFFECTS TO BE ANALYZED IN THE ENVIRONMENTAL ASSESSMENT .......................................................................................................................... 59
  5.2 RATIONALE FOR ELIMINATION OF ISSUES THAT ARE NOT SIGNIFICANT ............................. 68

6.0 ALTERNATIVES ................................................................................................................................... 70
  6.1 NO ACTION ......................................................................................................................................... 70
  6.2 ALTERNATIVE ONE ............................................................................................................................ 70
  6.3 ALTERNATIVE TWO ........................................................................................................................... 71
  6.4 PROPOSED ACTION ........................................................................................................................... 71

7.0 METHODOLOGY AND SCHEDULE FOR PREPARATION OF THE ENVIRONMENTAL ASSESSMENT ................................................................................................................................. 73
  7.1 METHODOLOGY FOR CONDUCTING THE ENVIRONMENTAL ASSESSMENT AND SCHEDULE ........................................................................................................................................... 73

8.0 ENVIRONMENTAL ASSESSMENT TEAM COMPOSITION ............................................................... 74

9.0 APPENDICES ....................................................................................................................................... 75
  APPENDIX A – QUESTIONNAIRES FOR STAKEHOLDERS .................................................................... 76
APPENDIX B – ADDITIONAL MAPS.................................................................................................................................................................................................89
APPENDIX C. REFERENCES...............................................................................................................................................................................................97

TABLE OF TABLES

TABLE 1. POPULATION (MALE AND FEMALE) FOR CAR PREFECTURES FOR 1988 AND 2003 ..........24
TABLE 2. LIST OF THREATENED SPECIES IN THE CAR (IUCN, 2017).................................................................42
TABLE 3. LIST OF KEY SPECIES AND THREATS IN THE CHINKO PROJECT AREA (AFRICAN PARKS, 2017).....................................................................................................................................................................................47
TABLE 4. RELEVANT ENVIRONMENT CODES AND ORDINANCES IN THE CAR...........................................52
TABLE 5. INTERNATIONAL TREATIES OF WHICH THE CENTRAL AFRICAN REPUBLIC IS A PARTY. .................................................................................................................................................................................. ERROR! BOOKMARK NOT DEFINED.
TABLE 6. POTENTIALLY SIGNIFICANT ISSUES TO BE ADDRESSED IN THE EA..................................................62
TABLE 7. ISSUES DEEMED ROUTINE ENVIRONMENTAL ISSUES DURING SCOPING AND JUSTIFICATION FOR ELIMINATING......................................................................................................................................................65
TABLE 8. ISSUES DEEMED INSIGNIFICANT DURING SCOPING AND JUSTIFICATION FOR ELIMINATING........................................................................................................................................................................68
TABLE 9. TENTATIVE TASK TIMETABLE .................................................................................................................................73
TABLE 10. ADDITIONAL DATA DERIVED FROM THE ANALYSIS OF THE SURROUNDING HABITATS BY PROPOSED ROAD SEGMENT IN THE CHINKO NATURE RESERVE..................................................................................................................................................................................90
TABLE 11. ADDITIONAL DATA DERIVED FROM THE ANALYSIS OF THE SURROUNDING HABITATS BY PROPOSED FOB AND HQ CONSTRUCTION SITE IN THE CHINKO NATURE RESERVE.................................................................92
TABLE 12. ADDITIONAL INFORMATION PERTAINING TO THE LOCATION AND DRAINAGE AREA OF ROAD NETWORK RIVER CROSSINGS IN THE CHINKO NATURE RESERVE.............................................................93
TABLE 13. ADDITIONAL INFORMATION PERTAINING TO THE LOCATION AND DRAINAGE AREA OF ROAD SEGMENTS IN THE CHINKO NATURE RESERVE ...............................................................................................................................94

TABLE OF FIGURES

FIGURE 1 LOCATION OF CHINKO NATURE RESERVE WITHIN THE CAR.................................................................14
FIGURE 2 PROPOSED CROSS SECTION OF THE IMPROVED ROAD..............................................................................16
FIGURE 3 CHINKO NATURE RESERVE SHOWING CURRENT AND PROPOSED ROAD NETWORKS, FOBs, AND AIRSTRIP LOCATIONS..................................................................................................................................................................16
FIGURE 4 CHINKO NATURE RESERVE (ZOOMED IN CLOSEUP VIEW) SHOWING CURRENT AND PROPOSED ROAD NETWORKS, FOBs, AND AIRSTRIP LOCATIONS..................................................................................................................................................................17
FIGURE 5 EXAMPLES OF BUILDINGS CONSTRUCTED IN THE CHINKO NATURE RESERVE – PICTURES CREDITED TO DAVID SIMPSON .................................................................................................................................................................................18
FIGURE 6 POPULATION DENSITY IN THE CENTRAL AFRICAN REPUBLIC: ...............................................................23
FIGURE 7 MAPS SHOWING PRESENCE OF CATTLE HERDER AND POACHERS IN CHINKO-2016 (LEFT) AND -2017 (RIGHT) .......................................................................................................................................................................................30
FIGURE 8 MAP SHOWING TRANSHUMANT ACTIVITY IN CHINKO NATURE RESERVE ........................................30
1.0 BACKGROUND

Per 22 CFR 216.3(a)(4) and ADS 204, this Scoping Statement (SS) has been prepared to identify the potential significant impacts relating to the Chinko Project’s Infrastructure Improvement Activity and to determine the scope of the issues to be addressed in the Environmental Assessment (EA) or Environmental Impact Statement (EIS). This Scoping Statement includes the following:

(a) A determination of the scope and significance of issues to be analyzed in the Environmental Assessment or Impact Statement, including direct and indirect effects of the project on the environment.

(b) Identification and elimination from detailed study of the issues that are not significant or have been covered by earlier environmental review, or approved design considerations, narrowing the discussion of these issues to a brief presentation of why they will not have a significant effect on the environment.

(c) A description of:

(1) stakeholder consultations,

(2) the timing of the preparation of environmental analyses, including phasing if appropriate,

(3) variations required in the format of the Environmental Assessment, and

(4) the tentative planning and decision-making schedule.

(d) A description of how the analysis will be conducted and the disciplines that will participate in the analysis.
2.0 PURPOSE AND NEED & PROPOSED ACTION

2.1 PURPOSE AND NEED

USAID approved the Regional Development Cooperation Strategy (RDCS) to support the third phase of CARPE (CARPE III) in 2011 (USAID/CARPE, 2011). The RDCS’ objective has been to accelerate Central Africa’s transition to climate-resilient, low emissions development through achieving its single Development Objective (DO): “The ecological integrity of the humid forest ecosystem of the Congo Basin maintained.” CARPE seeks to achieve the DO through four Intermediate Results (IR): (1) Targeted forest landscapes sustainably managed; (2) Biodiversity threats in targeted forest landscapes mitigated; (3) Policy and regulatory environments supporting sustainable forest and biodiversity conservation established; and (4) Capacity to monitor forest cover change, greenhouse gas emissions and biodiversity strengthened. The achievement of the RDCS DO requires two distinct but interdependent projects, each with a range of implementing mechanisms. The two projects include the Central Africa Forest Ecosystems Conservation (CAFEC) and the Environmental Monitoring and Policy Support (EMAPS). CAFEC focuses on conserving biodiversity and sustaining carbon-rich forests (IR 1 and IR 2). EMAPS promotes improved environmental policies, regulation and governance by achieving IR 3 and IR 4.

CARPE focuses on select large tropical forest landscapes within the Central Africa region that were selected based on: their international biodiversity value, the relatively rich carbon content of their forests, investments made in strengthening local community institutions, and through lessons learned in CARPE II of proven and cost-effective techniques and technologies that can change behavior to less destructive environmental practices. The Chinko Project was selected to improve the management of the Chinko Nature Reserve after the initial selection process because of its importance for biodiversity.

The purpose of the Chinko Project is to enhance the ability of African Parks- the reserve’s managing organization - to sustainably and more effectively monitor and implement various conservation interventions within the Chinko Nature Reserve. The Chinko Project activities seek to safeguard the valuable biodiversity within the Chinko Nature Reserve for future generations through anti-poaching efforts, scientific research on flora and fauna and educating stakeholders and community members about the value of the Chinko Nature Reserve.

The proposed infrastructure improvements of the Chinko Nature Reserve’s roads, airstrips, and FOBs enable rapid and reliable year-round movements throughout the park to monitor wildlife and poacher movements and intervene where necessary. The construction of the community center provides a location within the reserve to educate stakeholders and community members. The center is also the planned venue to train future community members in natural resource management techniques.

Of these activities, only the construction of the community center does not directly involve monitoring and actions to counter poaching activities within the Chinko Nature Reserve. Furthermore, this separate, distinct activity does not appear to have potentially significant issues
that would require an EA (as summarized in Table 6). This intervention is considered separate and distinct from the other proposed interventions considered in this Scoping Statement. As a result, the construction of the community center can be addressed in an amendment to the Initial Environmental Examination as a Negative Determination with Conditions that address the less significant Issues, summarized in Table 7.

2.2 PROPOSED ACTION

2.2.1 INTRODUCTION AND BACKGROUND

USAID/CAR Programs

Approximately 80 million people depend on the forests and natural resources of Central Africa, including the unique features in the Chinko Nature Reserve in eastern Central African Republic (CAR). These resources, which are globally important for their biodiversity and for global climate regulation, face threats that require balancing the management of these resources to satisfy people’s needs with the conservation of these valuable resources for future generations.

USAID programming for the CAR is directed from the USAID/Democratic Republic of the Congo (DRC) Mission in Kinshasa. USAID activities in the CAR have focused, for the most part, on responding to humanitarian crises in the country. However, USAID also addresses conservation management in the CAR through its Central Africa Regional Program for the Environment (CARPE). CARPE operates in the CAR, in addition to other countries in the Congo River watershed, including the DRC, Republic of Congo, Cameroon, Gabon, and Equatorial Guinea. CARPE convenes these member states to work with local communities to sustainably manage natural resources and make long-term plans for forest land use in the Congo River Basin. In the CAR, USAID/CARPE funds conservation management in the Chinko Nature Reserve, implemented by African Parks.

CARPE, currently in its third phase of implementation, focuses on organizational and systems capacity building by supporting the institutionalization of conservation monitoring and management techniques developed during the previous two phases of CARPE. In addition to USAID support for CARPE in the CAR, the U.S. Fish and Wildlife Service has supported programming to increase eco-tourism opportunities in the Dzanga-Sangha National Park, and to implement anti-poaching plans in the Chinko Nature Reserve (USFWS, 2017).

2.2.2. OVERVIEW OF CAR’S ENVIRONMENT AND DEMOGRAPHIC DATA

Demographics

The population of CAR is 4.7 million, of which 60% live in rural areas while 40% reside in urban areas (CIA, 2017). The United Nations Development Program ranks the CAR at 188 out of 188 countries on the Human Development Index (UNDP, 2017). The Multi-Dimensional Poverty Index (MPI) of 2010 found that over 77% of the population is considered multi-dimensionally poor, meaning individuals meet at least three out of the following ten indicators of poverty: child mortality, nutrition, years of schooling, school attendance, cooking fuel, toilet, water, electricity, floor, and assets. (Note: The MPI has not been updated since 2010 due to a lack of data.) Out of the 28 national surveys conducted in 2010, the only countries with higher percentages of
people considered to be multi-dimensionally poor than the CAR were South Sudan (91%), Chad (87%), Burkina Faso (84%), and Burundi (80%) (University of Oxford, 2017). The World Bank classifies the CAR as a Low Income Country (a country with a gross national income (GNI) of per capita less than $1,005) since CAR’s GNI per capita is $700 (PRB, 2017). Only 36.8% of the adult population is literate and only 44.4% complete primary school (UNESCO, 2017). The average life expectancy in the CAR is 53 years, though 44% of the population is 15 or younger (CIA, 2017) (PRB, 2017).

Internal turmoil has plagued the CAR since 2002. The internal conflict has increasingly progressed from 2003 when Francois Bozize seized the government in a violent coup, to 2005 when armed opposition to the Bozize government started to coalesce in northern CAR. In late 2012 and 2013, when the coalition of armed opposition groups, the Seleka, seized power in Bangui, followed by clashes between the Seleka and anti-Balaka forces for several years, until international agencies intervened to set up a transitional government and the national elections of March 2016, when Faustin-Archange Touadera became president. As of 2017/2018, criminal groups, more than 14 armed factions, a multitude of local militia groups, groups of regional mercenaries, and a national army fight for control of the CAR and its natural resources, intermixed with continued ethnic violence between the Muslim and Christian communities (The Enough Project, 2017). In July of 2017, aid agencies withdrew from the CAR over fear for their employees’ safety. The UN stated that 2017 has seen the highest levels of displacement since 2013, with more than 1 million people being forced from their homes (BBC, 2017). Approximately 500,000 refugees are living in the countries bordering the CAR, and approximately 600,000 people have been displaced within the CAR (UNHCR, 2017).

The turmoil in CAR has reached the Chinko Nature Reserve, where hundreds of Internally Displaced Persons (IDP) resided in a camp within the reserve boundaries until June/July 2018. The situation in the region around the Chinko Nature Reserve is unstable as Anti-Balaka and Seleka militias and splinter groups compete for territory. These conflicts and mass population movements place enormous pressures on the environment in and around the Chinko Nature Reserve.

Environment

The CAR lies on a large plateau with rolling hills in the northeast and within the rainforests in the southwest (Kelman, 2017). The southern two thirds of the country lie within the Congo River Basin, while the northern third lies within the Chari River Basin. The Chinko Nature Reserve lies within the Ubangi River watershed, which makes up the Congo River Basin in southern CAR.

The Congo River Basin is a globally important biodiversity hotspot. Its forests act as the planet’s second “set of lungs” after the Amazonian Rainforest and are a carbon sink that mitigates global warming. The Congo River Basin in the CAR contains three forest ecosystems: the Northern Congolian forest-savanna mosaic, in which the Chinko Nature Reserve is located, that stretches from the western to eastern border of CAR, covering the majority of the southern half of the country; the Northeastern Congolian lowland forests that reach into a small section of southern CAR (Mbomou prefecture); and the Northwestern Congolian lowland forests that reach into a small area of southwestern CAR (Yale, 2017). In 2010, the Observatoire des forêts d’Afrique
Centrale found that about 11% of the country has dense rainforests, whereas the majority of the country is a mosaic of woodlands and sparsely forested woodlands (79%) (COMIFAC, 2017). However, the Global Forest Watch reports, based on 2000 data, that 76% of the country is forested, with an estimated nine percent of the remaining forests deemed to be primary forests.

There are numerous threats to the forests and biodiversity of the CAR. The country’s civil unrest directly impacts its environment as IDP camps exacerbate the pressures on CAR’s forests causing deforestation and desertification. Waste created from these camps contaminate local ecosystems, including soil and water. IDP camps also require cooking fuel that is usually woody biomass harvested from the forest (UNOCHA, 2017). Other persistent pressures on forests are from subsistence agriculture, mining, and timber extraction that strip the land of forests, pollute soils and water ways forests rely on, or thoroughly degrade forests (Mongabay, 2017). Due to these stressors, the CAR’s level of forest degradation is extremely high, although its deforestation rate is very low at 0.07% (World Bank Group, 2017).

Threats to wildlife in the CAR are as numerous as threats to the forests. Commercial bushmeat trading, elephant poaching, and extractive industries stress CAR’s wildlife (U.S. Fish and Wildlife Service, 2017). The Congo Basin Forest Partnership found that the bushmeat market was a severe threat to the country’s biodiversity. Both endangered and non-threatened species are exploited for the meat, as well as skins, showing overall diminishing populations of animals, including the local extinction of some species (World Bank, 2017). As bushmeat hunters are opportunists, so are gatherers of non-timber forest products (NTFPs) that harvest rattan, bamboo, mushrooms, insects, honey, bark, and leaves. This unsustainable harvesting stresses the regeneration of these plants and producers of the NTFPs and can ultimately disrupt the healthy functions of an ecosystem (World Bank, 2017). CARPE researchers have noted that 11 out of 20 of the most economically valuable NTFPs in Central Africa are unsustainably harvested and surmises that “few if any commercially valuable NTFPs can be harvested sustainably from the wild” (Clark, 2001).

In 1977, it was estimated that more than 35,000 elephants were residing in Northern CAR. In 2017, no elephants or evidence of elephants were observed during an aerial survey of Northern CAR (including Bamingui-Bangoran National Park, Manovo Gounda St. Floris National Park, Vassako-Bollo, Gribingui-Bamingui, l'Aouk Aoukale, Yata Ngaya Reserves, Presidential Park Awakaba, the Nana-Barya Reserve and Mbitoye and Moyen-Sido areas) (Science X Network, 2017). The lack of law enforcement and overall instability throughout the country due to civil unrest has left elephants unprotected.

Climate change is expected to impact the CAR over the next several decades via increases in the annual average temperature (similar to the global projected increase of 1.5C to 2.75C), changes in the amount of annual rainfall (in the range of +25% to -10%) and increases in the frequency of extreme events like storms, floods, and droughts (World Bank, 2017). On the Climate Risk Index, the CAR ranks 165 out of 178 countries, with a score of 154 (Sönke Kreft, 2017). Overall, the people of CAR are highly vulnerable to climate change as the highly impoverished population will experience more exposure to extreme climate hazards, such as heavy rains, floods, or drought (UNFCCC, 2015).
2.2.3 PROJECT DESCRIPTION AND PROPOSED LOCATION

Under an agreement with the CAR government, the Chinko Nature Reserve will be managed by African Parks for 50 years. The mandate of African Parks is to protect and improve the biodiversity of the Chinko Nature Reserve, including protection from poachers, NTFP gatherers, and those employed in the extractive industries. In order to ensure effective law enforcement and to implement anti-poaching strategies, African Parks plans to upgrade the infrastructure within the reserve.

As the reserve is extremely remote and covers 17,600km² of unique habitat, anti-poaching strategies must include methods for rangers to access far-flung locations within the reserve quickly and reliably. Additional airstrips and forward operating bases (FOBs) for rangers, along with an improved road network, will greatly increase the accessibility of the reserve to law enforcement officials.

Figure 1 Location of Chinko Nature Reserve within the CAR

Airstrips aid in anti-poaching measures, biodiversity studies, and wildlife relocations. The construction of new airstrips can allow more reconnaissance flights to identify poacher movements and rapidly deploy, resupply, or evacuate rangers in areas where poachers are active. The ability to use aircraft in remote areas provides an opportunity to study the area’s wildlife by enabling aerial wildlife counts and deploying scientists into areas where high-levels of biodiversity are expected. The Chinko Nature Reserve currently has one airstrip that can be
used for aircraft such as the Antonov-An-26. However, the airstrip needs to be expanded to accommodate the C130-Hercules, to translocate animals, conduct major resupply efforts, and enable evacuations in case of the spread of military or rebel operations.

FOBs enable rangers to have a more sustainable presence in at-risk areas and to conduct more frequent patrols in remote areas. FOBs act as a deterrent to poachers by increasing the likelihood that they would encounter rangers in each area. The higher the frequency of patrols in remote locations throughout the year will decrease the access to and discourage poachers who operate in these areas.

Improvements to the Chinko Nature Reserve’s road network will also support the rapid deployment and provisioning of rangers stationed at the FOBs or on patrol. As the current road network is composed of widened trails - which in many areas cannot be accessed during the rainy season - upgrading the road network to all-season roads will greatly increase the effectiveness of the wildlife management programs.

In addition, African Parks has proposed the construction of a community training center to train rangers, scientists, and eventually, to host nearby community members, government officials, teachers, and youth. This center will provide a venue for briefings and training on the value of the wildlife in the Chinko Nature Reserve, as well as the impact of farming, livestock rearing, and other economic activities on the reserve. An ecological model-farm is planned at the community training center to showcase permaculture principles, non-pest farming, and recycling.

The four proposed interventions are: 1) the upgrade of the 835 km of the reserve’s road network to all-season roads, 2) the construction of six FOBs, 3) the expansion of the main headquarters’ airstrip and the creation of smaller airstrips next to each FOB, and 4) the construction of a community training center.

1) **Improved Road Network** – 835 km of the 2,145 km of existing roads within the reserve need to be maintained, upgraded, and potentially realigned to ensure accessibility to key locations within the reserve (see Figures 3 and 4). Such road improvements entail expanding the width of the road alignment so that a total of 10 m of cleared space is available, as shown in Figure 2. Along the 10-m wide roadway, vegetation (shrubs, saplings, grasses, etc.) will be removed, earth will be moved to properly grade the road, and rocks will be relocated to aid in the passage of vehicles.

To facilitate drainage from the road surface, a slight crown (no more than 0.4 m in height) will be developed by grading soil to the centerline of the road to facilitate drainage. These road improvements should provide increased visibility, proper grading, the establishment of drainage ditches, and all-season access in difficult terrain or flood-prone areas.
Figure 2 Proposed Cross Section of the Improved Road

Figure 3 Chinko Nature Reserve showing current and proposed road networks, FOBs, and Airstrip locations
Figure 4 Chinko Nature Reserve (zoomed in closeup view) showing current and proposed road networks, FOBs, and Airstrip locations
2) **Expansion of the HQ Landing Strip** – The reserve’s main landing strip will be expanded to an area 2 km long by 40 m wide (the current airstrip is approximately 1.7 km long). The airstrip will be graded similarly to the road network with a crest at the centerline. The area is mainly red murram, with some places of small stones that red murram will be laid atop to cover the stones. For the expansion to occur, trees and vegetation within this zone will be removed and the terrain will be flattened and graded. Grasses will be either burned or cut to maintain this space. Any tree that is cleared will be saved for future construction projects. Any rocks that obstruct the grading of the airstrip will be removed.

3) **Establishment of Forward Operating Bases (FOBs)** – The construction of six new temporary FOBs is proposed. Each FOB will include tents, a food storage area, a small airstrip and a small communication center (Foundation Segre, 2017). These tent structures will be installed on earthen platforms covering an area of approximately 1000 m². These locations will be located in relatively open areas to limit vegetation removal.

4) **Clearing for FOB Airstrips** – Airstrips for Ultra-Light Motorized aircraft (ULMs) and helicopters will be established adjacent to each FOB. The size of the airstrips will be, at maximum, 450m by 20m. The exact alignment of the strips will be selected to avoid removing trees and to take advantage of flat surface areas. The construction of the airstrip will consist of removing trees, roots, and stones. All work will be completed manually without grading equipment.

5) **Construction of the Community Training Center** – The community center will consist of 8 rooms in an accommodation block with adjacent toilets and showers. A kitchen, restaurant, and meeting room will also be constructed. Bricks will be pressed on-site. Stones will be collected and shaped to form the structures’ foundations. Construction sand will be collected from a small nearby river and gravel will be collected from areas around the HQ. Wood beams and planks will be purchased from wood cutters in Bakouma and installed by carpenters on-site. Black soil will be used as mortar and for plastering mixed with sand. Cement and metal roof sheeting will be imported from Bangui. A model farm will also be added near to the community center for training purposes.
3.0 SCOPING METHODOLOGY

Preparation of this Scoping Statement followed the requirements of 22 CFR 216 by the Global Environmental Management Support (GEMS II) assessment team. Beyond 22 CFR 216 requirements, this scoping statement has: incorporated limited, remote, stakeholder consultations (due to the constraints on travel and access to stakeholders that the civil unrest in the CAR presents); described in general terms the alternatives to be considered in the EA itself; and otherwise embodied accepted good environmental assessment practice.

The following are key elements of the technical approach:

- **A 5-day field mission** was undertaken by the GEMS II CAR socio-economic specialist based in Bangui (further described below).

- **Evaluation of Environmental Impacts** was completed **remotely** by undertaking a desk review of literature, interviews with stakeholders, and GIS analysis based on publicly available geospatial data, augmented with georeferenced data and photography collected by and provided by African Parks.

- **Evaluation of Social Impacts** was completed based on data **collected in country** by a GEMS II CAR socio-economic specialist (see below), as well as IP responses to GEMS II queries.

The Scoping Team has made every effort to contact the stakeholders as agreed in consultation between USAID/DRC and GEMS II. Due to security concerns, field work in the CAR has been limited to only communications with the management of the Chinko Nature Reserve, as visiting and communicating with local stakeholders around the Chinko Nature Reserve is impossible. The CAR socio-economic specialist was in contact with in-country experts in Bangui. All other consultations have been performed remotely via email and teleconference.

The Scoping Team consisted of a five-person team consisting of:

- James Jolley, Team Leader/Water Resources Specialist (The Cadmus Group)
- Byron Kominek, NRM/EIA Specialist (The Cadmus Group)
- Dr. Joseph Baliguini, Socio-Economic Specialist (University of Bangui)
- Ana Rosner, GIS Manager (The Cadmus Group)
- Kathleen Hurley, EIA Specialist and Quality Assurance/Quality Control (The Cadmus Group)

3.1 DESK REVIEW PROCESS

The desk review process consisted of literature searches online along with requests for documentation from African Parks. Background information on the socio-economic and political conditions in the CAR and in/around the CAR was procured from United Nations agencies,
USAID documentation, reports from academic and research institutions, articles from respected news agencies, international conservation organizations’ websites, and plans and reports from the Chinko Project. Information pertaining to the laws, codes, and regulations relating to environmental impact assessments and construction activities in the CAR were found in the Food and Agriculture Organization’s archives.

3.2 FIELD WORK: INTERVIEWS AND FOCUS GROUPS

Due to deteriorating security issues in the Chinko Nature Reserve, it was deemed unsafe for Dr. Joseph Baliguini to travel to the reserve as part of this assessment. In email correspondence of January 23rd, 2018, the Chinko Park Manager, David Simpson, indicated that a site visit would be extremely risky because of the increased presence of armed Sudanese herders, poachers, and illegal activities by corrupt local officials. These separate potentially dangerous groups coalesced into an unacceptably risky situation in which to request a team member to venture.

In lieu of site visits to the reserve, interviews with stakeholders in Bangui were conducted by Dr. Joseph Baliguini. The stakeholders interviewed include the following:

1) Chargé de mission: Ministère de la Défense Nationale; 30 November 2017;
2) Expert National: Ministère de la Défense Nationale, Projet Chinko; 4 December 2017;
3) Directeur de la faune et des aires protégées: Ministère des Eaux, Forêts, Chasse et Pêches; 15 December 2017;
4) Député de la ville de Yalinga; 14 December 12, 2017;
5) Député de Bangassou 2; 13 December 2017;
6) Député de Bakouma; 16 December 2017;
7) Député de Rafai; 14 December 2017.

In addition, phone interviews were conducted by James Jolley, GEMS team leader, with stakeholders, if possible. The three stakeholders interviewed via telephone (or Skype) include:

1) Coordonnateur National: WWF-RCA; 3 April 2018;
2) Director: Wildlife Conservation Society, Sahel/Savanna Region; 27 July 2018;

In order to capture additional input from stakeholders in written format, the following 10 stakeholders were sent questionnaires via email: (No completed questionnaires were returned.)
1) Conseiller Technique Principal: Programme de maintien de la Biodiversité et Gestion durable des Forêts (BGF); Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH; Kinshasa – Gombe, République Démocratique du Congo.

2) Coordonnateur: FLEGT; Ministère des Eaux et Forêts – République Centrafricaine (RCA);

3) Directeur de Programme: Energie, Mines et Environnement, JICA-Agence Japonaise de Coopération Internationale, République Démocratique du Congo;

4) Directeur Général de la Planification et de l’Évaluation Environnementale: Ministère en Charge de l'Environnement; Bangui, RCA;

5) Directeur Général: Agence centrafricaine de développement rural (ACDA), Bangui, RCA;

6) Responsable de Base: Invisible Children; Bria, RCA;

7) Responsable: Médecins Sans Frontières; Bangassou, RCA;

8) Chef de Mission: Médecins Sans Frontières; Bangui, RCA;

9) Point Focal: ACTED/RRM, Bangassou, RCA; and,

10) Head of Office: Mercy Corps; Bria, RCA.

The questionnaires (in French) are provided in Annex A.
4.0 AFFECTED ENVIRONMENT

Available baseline data is provided below, including any data gaps.

4.1 LOCATIONS AFFECTED AND ENVIRONMENTAL CONTEXT (ENVIRONMENT, PHYSICAL, CLIMATE, SOCIAL)

4.1.1 HUMAN ENVIRONMENT

Population and Demographic Trends

Central African Republic’s estimated population of 5.6 million is comprised of people from various ethnic groups. Estimates show that 33 percent of Central Africans identify as Baya, 27 percent as Banda, 13 percent as Mandija, 10 percent as Sara, 7 percent as Mboum, 4 percent as M’Baka, 4 percent as Yakoma, and 2 percent as other ethnic groups. The official language of the country is French, but 90 percent of Central Africans speak Sangho, the national language, or their own tribal languages. The population of Central Africa is young, with 40 percent of the population being between 0 to 14 years of age. The population growth rate was estimated at 2.12 percent as of 2017. The death rate was estimated as 13.2 deaths per 1,000 people, which ranks CAR as the country with the eleventh highest death rate in the world (CIA, 2017). The average life expectancy is 53 years with an infant mortality rate of 96.1 out of every 1,000 live births (UNDP, 2017, CIA, 2017).

Most CAR citizens live in conditions of extreme poverty and chronic food insecurity without access to basic services (UNDP, 2017). The World Bank estimates that less than seven percent of the population has access to electricity, while only 30 percent of the population has access to safe water (World Bank, 2010). These are pre-conflict statistics, suggesting that the situation has become worse overtime for many CAR citizens.

The conflict has displaced over 20 percent of the population, resulting in a large population of refugees in neighboring countries and internally displaced persons (IDPs) (USAID, 2017). IDPs have been forced to flee their homes for their own safety, in fact, there was a significant community of IDPs who had taken up residence within the Chinko nature reserve (now dispersed). These IDPs sought refuge within the park from the dangerous militia groups (African Parks, 2017).

The distribution of the population is highly skewed towards the western and central part of the country, with a significantly higher concentration in and around the capital city of Bangui, where 20 percent of the CAR’s population lives (Dominguez-Torres and Foster, 2011). 40.6 percent of the population lives in urban areas, and the estimated rate of urbanization from 2015-2020 is 2.73 percent (CIA, 2017). During the conflict, rapid and haphazard urbanization centered on Bangui was driven by significant displacement in other parts of the country (Dominguez-Torres and Foster, 2011).
In 2016, there were approximately 2.194 million people in the CAR workforce. The main economic sectors of the country are agriculture (42.9 percent of GDP), industry (16 percent of GDP), and services (41.1 percent of GDP). The main agricultural products are cotton, coffee, tobacco, cassava, yams, millet, corn, bananas and timber. The main industries are gold and diamond mining, logging, brewing, and sugar refining (CIA, 2017).

As can be observed on the population density map above, the region of the Chinko Nature Reserve is very sparsely populated. Only a region to the west and south west of the reserve within Mbomou prefecture is significantly populated.

The Chinko Nature Reserve spans the prefectures of Mbomou and Haute-Kotto. The below table shows the population (for the years of 1988 and 2003) for all the prefectures in the CAR. The yellow highlights indicate the prefectures within which lies the Chinko Nature Reserve.
4.1.2 POVERTY

The Central African Republic has struggled to maintain order and stability ever since its independence in 1960. The country is ranked among the least developed in the world.

As of 2014, the Central African Republic has an HDI of 0.352, which makes it the country with the lowest HDI out of the 188 countries whose data has been gathered. This value has remained consistently low since 1990, with very little upward progression. The CAR has an adult literacy rate of 36.8 percent and the expected years of schooling are 7.1 years (UNDP, 2017).

Life expectancy (53) has fluctuated greatly since 1960 when it was at its lowest (36.5). Between 1985 and 2002 the CAR experienced a decrease of 6.1 years and since 2002 has been steadily increasing to the current estimate of 53 years. These fluctuations, and the comparably low life expectancy compared other central African countries, are most likely due to the intermittent violence that has been afflicting the country ever since its independence in 1960, as well as the...
country’s poor health infrastructure, high rates of disease, and precarious food security (World Bank, 2010) (CIA, 2017).

Data, such as the statistics mentioned above, are strong indicators of the poverty levels in a country. The CAR continues to struggle with issues of poverty, despite its wealth in natural resources.

4.1.3 POLITICAL/SOCIAL SITUATION

The Central African Republic gained its independence in 1960, which began an era of instability and misrule, until civilian rule was established in 1993, a period which lasted only a decade. In 2002 rebel forces of the Movement for the Liberation of Congo entered the country, and violence overtook the country. In 2003, President Ange-Felix Patasse was unseated during a military coup led by General Francois Bozize, who was affirmed president in 2005. Lawlessness reigned in portions of the northwest and northeast of the country for the next few years. After peace accords in 2007, and the assignment of UN peacekeeping forces, violence persisted as the Lord’s Resistance Army (LRA) began raiding the country in 2008. In 2009, as the rebels infiltrated the capital, French forces were deployed in Bangui, in coordination with Ugandan forces who mobilized to eastern CAR, in pursuit of the LRA. The UN declared that more than 1 million people had been affected by the civil unrest of the country. In 2010, the UN Security Council voted to remove UN peacekeeping forces from Chad and the CAR, this decision allowed for rebel forces to attack the northern CAR city of Birao (BBC, 2017). President Bozize was reelected in 2011, in elections widely suspected of being illegally conducted. The government continues to have very little control in the countryside and particularly the more remote areas of the country. In 2012, the African Union sent troops into the CAR to hunt LRA leader Joseph Kony. In parallel several rebel groups coalesced into the Seleka rebel group and launched coordinated attacks to take control of various areas in the northern and central parts of the country (CIA, 2017).

In 2013, Seleka took control of Bangui, forming a coalition government with President Bozize. Though, a few months later the coalition dissolved, and the rebels seized the capital. Rebel leader Michel Djotodia assumed the presidency, and the National Transitional Council was formed. UN peacekeeping forces returned to the country in the hopes of restoring security and building a functioning government. Meanwhile, armed conflict flared between Muslim and Christian fighting groups. Throughout 2014, peace efforts were made to reconcile the various armed groups, but, in 2015, ethnic cleansing against Muslim groups was continued by Christian militia. Peaceful presidential elections were held in 2016 electing Faustin-Archange Touadera. Touadera continues working towards the promotion of peace in the CAR through his disarmament, demobilization, reintegration, and repatriation (DDRR) program (CIA, 2017). Nevertheless, the government has only a limited presence outside the capital city of Bangui, as a large percentage of the country remains under the control of armed groups. The violence continues today with some aid agencies withdrawing from the central and southeastern regions of the CAR over fear for their employees (USAID, 2017).

Since the 2013 coup, the humanitarian crisis in the CAR has worsened. The CAR has a high mortality rate and a low life expectancy that can be attributed to a variety of factors, including disease, a poor health care system, low food security, and the armed conflict itself. The CAR
also has a weak educational system and a low literacy rate, which are issues exacerbated by the insecurity as schools close, teachers become scarce, infrastructure, funding, and supplies become low, and families and individuals are displaced from their homes (CIA, 2017). In 2017, the UN stated that it has seen the highest levels of displacement since 2013 with more than 1 million people being forced from their homes (BBC, 2017) and that there are estimated to be 534,000 internally displaced persons (IDPs) in CAR (USAID, 2017). Corruption remains a concern as the country ranks 159 out of 176 in Transparency International’s 2016 Corruption Perceptions Index (Transparency International, 2016).

The conflict in the CAR has many causes, and not one aspect can be pointed to as the main cause. Competition over land and natural resources is one such aspect. Although not a triggering factor, it is still important to consider the link between natural resources and conflict. Poor governance - generally and in the environment and natural resources sectors - has played a role in shaping the context of conflict-ridden CAR. (UNEP, 2009).

The CAR is a country prone to political instability and armed conflict, which can detrimentally affect conservation efforts in an area as remote as the Chinko reserve (African Parks, 2017). For the Chinko Project Region, national and regional security remain a threat to the conservation and safety of the site. Rebel and militia groups in the region continue to create unsafe conditions while also disrupting supply chains from Bangui to the reserve.

4.1.4 GENDER AND YOUTH

Women and children continue to be significantly more susceptible to the challenges presented by the socio-political instability of the country. An example lies in the practice of evicting widows from their homes after the death of their spouse/partner. During an era of violence and confusion, many have left their homes only to return later to learn that they have no home to come back to (UNHCR and NRC, 2014). During times of war and insecurity, sexual violence is often used as a weapon along with the more obvious guns (Margolis, 2017). Women’s rights in these cases are severely limited.

In another example, the low rates of education and employment detrimentally affect the country’s youth. The CAR is a young country, with a population pyramid heavily weighted towards the young; children 0-14 years old comprise 40.09 percent of the total population. Despite the high number of youth, there are very low levels of youth development in CAR, a situation that will detrimentally affect the future development of the country (Tabary, 2016).

4.1.5 LAND USE PRACTICES

Agriculture and Pastoralism

The percentage of land used for agriculture in the CAR is currently 8.1 percent of the total surface area of the country. This percentage is divided into arable land (2.9 percent), permanent crops (0.1 percent), and permanent pasture (5.1 percent). Irrigated land in the CAR covers an area of 10 square kilometers (CIA, 2017).

Historically, the CAR has been involved in large scale agricultural production. Large investments were made in the cotton industry in the 1980s and 1990s. Coffee, cocoa, sesame and tobacco
production used to be important large-scale products as well. Unfortunately, these levels have declined over time, and may now even be completely collapsed. This is a result of the ongoing conflict, as rich agricultural zones are being heavily affected by the conflict (UNEP, 2009).

According to the UNEP report from 2009, pastoralists, who are mostly semi-nomadic herders from the Mbororo ethnic group, represent 10% of the total population in the CAR. In 1993, permanent grazing land was estimated to be 5%, which is expected to have continued to decrease as the conflict continued (UNEP, 2009). According to the pastoralism corridors mapped by the International Peace Information Service (IPIS) from 2012 to 2017, there are large concentrations of pastoralists in southern central and eastern CAR, in the areas surrounding Chinko (IPIS, 2017).

Mining Industry

The mining industry is an important sector of the CAR’s economy and is essential to the livelihoods of many Central African households. (For additional discussion of the mining industry and livelihoods, please see Section 4.1.6) The main minerals that are mined in the country are diamonds and gold. The minerals were first discovered in the early twentieth century while the country was still under French colonial rule. International mining companies ruled over the mining sector in the 1950s, but after independence in 1960 these companies retreated. Despite this, diamond production increased considerably. The new government liberalized the diamond sector, which lead to a rush to mining zones. In this time, annual diamond exports rose from 70,000 carats in 1960 to around 537,000 in 1965. The diamond sector has since been used by various rulers as personal investment by demanding a share of the production and imposing high taxes on the mineral exports. Even though the CAR is a relatively minor diamond producer compared to countries such as Angola and the Democratic Republic of Congo, the quality of the diamonds is extremely high. 80 percent of the CAR’s diamonds are gem quality and the quality ranks fifth in the world. The actual figures of production are more likely than not an underestimate, as there is a large amount of both diamonds and gold that are exported illegally (Matthysen and Clarkson, 2013).

Over 84 percent of mineral extraction in the CAR is artisanal. Artisanal mining is most prevalent in the southwest region of the CAR. The deposits are spread along the Mambéré, Lobaye, Sangha, and Kadei rivers (Matthysen and Clarkson, 2013).

There are various ways to legally join the artisanal mining sector in CAR. Miners can get a miner’s card that allows them to operate in designated artisanal mining zones, demarcated by the government. If a miner wants to work outside of these areas he can also apply for a prospecting, or artisanal mining exploitation license (Matthysen and Clarkson, 2013).

The mining industry in the CAR is highly informal, with some mining occurring in the eastern part of the country outside control of the government. It is estimated that 30 percent and 95 percent of diamonds and gold leave the country illegally. The size of the country, the low population density, and the inaccessibility of many mining zones makes the sector difficult to regulate and monitor (Matthysen and Clarkson, 2013).
The environmental impacts of the mining sector can be immense in a country where the understanding of environmental issues and the capacity to address them is often minimal. Many miners do not understand the possibility of exhaustion of these resources, many also do not believe that mining has negative impacts on the environment, and those that do are more worried about feeding their families than coming up with sustainable solutions. Mining can have detrimental impacts on the watercourses of the country. It can cause water pollution and diversion of streams, which can limit access to clean water and disturbs fish breeding grounds. The contamination of water in the CAR often involves siltation and sedimentation. Pollution by chemicals such as mercury can become a problem as miners from neighboring countries are pushed into the country. Mining activities have also caused deforestation as minerals are being depleted and miners are being pushed further into forests. Trees are therefore logged to make room for the mining, agricultural, and poaching activities of mining camps (Matthysen and Clarkson, 2013).

Forestry

The forestry sector in the CAR represents 40 to 50 percent of national exports. It is the most competitive economic sector in the country and drives much of the national growth. It employs 4,000 permanent employees and thousands of temporary workers. The sector is managed by the Ministry of Water, Forestry, Fisheries, and Hunting (MEFCP). The richness of the CAR’s forests lies in the fact that the country has a number of valuable commercial species such as Sapelli, Ayous and Aniegre. The formal industrial logging takes place in production forests where Forest Operation Management Permits have been issued. These logging areas are restricted to the southwestern part of the country. As of 2010, there were nine forestry companies operating in the country, the majority of them foreign. In 2009, the CAR was selected by the Participant Committee of the Forest Carbon Partnership Facility to support the country in developing a Readiness Preparation Proposal (R-PP) with the goal of establishing a national REDD+ (Reducing Emissions from Deforestation and forest Degradation) strategy, along with other environment focused plans. The original draft was submitted in March of 2011 and has been since updated. The most recent version is from May 2013. Despite the importance of the forestry sector to the country’s economy, the Congo Basin Forest Partnership 2005 report declared logging as a medium level threat (World Bank, 2010).

Hunting and Bushmeat Trade

The 2005 Congo Basin Forest Partnership report declared the bushmeat market as a severe threat. Hunting is a traditional and long practiced activity in the CAR. Game remains an important source of protein and income for many people in the country, both urban and rural. The countryside provides firewood, Non-Timber Forest Products, and most significantly bushmeat, to the urban population. Unlike forestry, bushmeat is a hidden, but important, contributor to the economy. From 2016/2017 assessments done by the IUCN, 25 vulnerable, endangered, and critically endangered species have a decreasing population trend including the Shoebill, Giraffe, Western Gorilla, Chimpanzee, Lion, Leopard, Giant Eland, Grey Parrot, and the Nubian Flapshell Turtle (IUCN’s Red List, 2017). While these at-risk species are not always the primary focus of the bushmeat trade (ungulates are), bushmeat hunters will kill and sell meat or other parts from any animal they come across. There have already been some local
extinctions, and even the numbers of non-threatened species are diminishing. The bushmeat trade is technically regulated by law, but the laws are both poorly enforced and rarely respected. The Wildlife Protection Code allows for traditional hunting of ‘ordinary’ game by those with traditional hunting rights and permits. The law also states that the commerce of bushmeat is illegal, but of course it still takes place. Furthermore, the Regional Direction of Taxes and Commerce collects taxes to allow for the transport and sales of bushmeat, while the MEFCP sets sale quotas. It is implied that this bushmeat being sold through these means comes from legal sources, but there is very little inspection or penalization. The MEFCP is not equipped or staffed well enough to be able to enforce these laws. In addition to local hunters, the threat comes from Chadian and Sudanese poachers as well. These poachers use military weapons and cause immense damage to wildlife, particularly to elephants (World Bank, 2010).

4.1.6 ECONOMIC/LIVELIHOODS

Subsistence agriculture, forestry and mining are the main livelihoods supporting the economy of the Central African Republic, as described above. More than half of the GDP is dominated by the agricultural sector. Timber, diamonds, and cotton lead the export earnings. Despite the CAR being a resource rich country, there are several limitations to the country’s economic development, including a poor transportation system, a largely unskilled workforce, and a poor track record of macroeconomic policies. The armed conflict between the government and rebel groups has also greatly impeded development. The CAR remains a country with great inequality in its distribution of income (CIA, 2017). The country has a Gini coefficient of 56.2, indicating a high deviation of the distribution of income among individuals or households from a perfectly equal distribution (UNDP, 2017).

Several livelihood activities in and around Chinko—including cattle herding by nomadic pastoralists or transhumant herdsmen and artisanal mining by local communities—pose significant challenges from a wildlife conservation perspective. The movement of cattle and people through Chinko disturbs wildlife as well as threatens natural resources. There is an increase in the risk of disease for many wild ungulates that use the same paths and water sources as cattle. Herdsmen and miners shoot wild animals for direct consumption and for dried meat to be sold later in regional markets. Figures 7 and 8 below are “heat” maps that show the presence and movement of herders and poachers in the Chinko nature reserve area. The red indicates areas with the highest concentrations. Other threats to wildlife in Chinko include poisoning of large predators by herdsmen to protect their cattle, exotic invasive flora species carried by people and cattle traversing the area. The encroachment of the mining industry into the region poses another threat. African Parks has predicted that illegal, small-scale gold and diamond mining will increase in the southern region of the reserve. The presence of this mining industry could become a significant threat to the wildlife and natural resources of the region particularly due to the hunting and habitat degradation associated with informal and unregulated small-scale artisanal gold and diamond mining (African Parks, 2017).
Figure 7 Maps Showing presence of Cattle Herder and Poachers in Chinko-2016 (left) and 2017 (right)

Figure 8 Map Showing Transhumant Activity in Chinko Nature Reserve
4.1.7 INFRASTRUCTURE

Most of the economic activity, demographics changes, and infrastructure development favors the urban areas, in particular the city of Bangui. There is an even greater lack of infrastructure in rural areas, such as the area surrounding the Chinko Nature Reserve. Despite urban areas being favored, only 8 percent of the population in urban areas have access to electricity. As the urban population continues to grow by 2.73 percent, the development of rural areas continues to fall by the wayside (CIA, 2017).

Chinko Nature Reserve

The Chinko Nature Reserve region is accessible by planes arriving to the Kocho Camp airport (African Parks, 2017). The park itself is accessible by a single road with a gate to limit who comes in (African Parks, 2017). The Chinko Nature Reserve, because of its recent history as an area managed by the Central African Wildlife Adventures, a privately-owned safari hunting company, already has some infrastructure in place. The Chinko Project took those over, including roads, warehouses, containers, generators, and various other equipment. The existing infrastructure was in a relatively good state, but the NGO aims to improve and expand the infrastructure of the area (African Parks, 2017). Despite the basic road network that is currently in place and the camp headquarters, the reserve has limited infrastructure. Along with this lack of infrastructure, the remoteness of the reserve means that transportation of goods from Bangui to Chinko can take up to 3 weeks (African Parks, 2017).

Transportation

The CAR, with no railways and only about 600 km of paved roads, is inefficient in its movement of goods and people. Many people do use unpaved roads, but most of the population relies on the waterways, such as the Ubangi river, for commerce and communication. This means that a majority of the country's international trade is shipped by river. The only international airport is at Bangui-Mpoko, and its runways are deteriorated (Domínguez-Torres and Foster, 2011). While there are regional airports throughout the country as well, their services are irregular and dependent on a sporadic supply of fuel (Giles-Vernick, O'Toole, and van Hoogstraten, 2017).

The roads in the south west region of the country are in good condition, relative to the roads in the south east and north east that range from being in fair or poor condition (Domínguez-Torres and Foster, 2011). Only 62 percent of paved roads are in good or fair condition overall, whereas only 2 percent of the unpaved network is in good or fair condition. These conditions are significantly lower than peer countries. Not only is the road quality poor, there are also not enough of them. The total road density over arable land is 41 km/1000 km² which compared to the 145 km/1000 km² average value of other low-income fragile states is rather low. The rural road network density is even lower at 25 km/1000 km² (Domínguez-Torres and Foster, 2011). Given the political instability and civil strife in CAR in recent years, the roads have probably deteriorated since 2011.

The CAR has two primary transportation corridors. The Douala-Bangui corridor that runs through Cameroon is often un navigable in the rainy seasons due to the road conditions in Cameroon. This corridor extends 1,700 km and serves as the connection between the CAR and
the closest port, which is in Douala, Cameroon. The other corridor is the Pointe Noire-
Brazzaville-Bangui corridor, which involves transit along the Ubangi River, which becomes
unnavigable in the dry season (Domínguez-Torres and Foster, 2011).

River transport remains an important method of transportation within the CAR. There are 5,000
km of waterways but only 2,067 km of them are navigable for four months a year. The Congo
and Ubangi rivers have traditionally been the main routes for exportation of products and was
once the preferred route for timber, but because of civil conflict in the CAR and the Republic of
Congo, traffic has decreased and routes through Cameroon have become the preferred method
for timber and other exports. The river is still used for petroleum during the navigable season
(Domínguez-Torres and Foster, 2011).

**Power**

The power infrastructure in the CAR is also lacking. There are only two transmission lines that
connect Ombella-Mpoko and Bangui. There are three main hydropower plants (Boali 1, Boali 2,
and Boali 3 with capacities of 14.9 MW, 14.9 MW, and 10 MW, respectively) and a diesel plant
with a capacity of 6 MW (Domínguez-Torres and Foster, 2011). As of 2015 the CAR’s total
installed capacity is 44 megawatts (MW) (CIA, 2017). The power infrastructure is in need of
refurbishment and repair due to damage caused during the civil war. In addition, over 50
percent of the distribution lines are more than 30 years old (Domínguez-Torres and Foster,
2011).

**Water and Sanitation Services**

Access to safe water and sanitation services in the CAR is extremely scarce; the rates of
access are the lowest in the region. The CAR relies on low-cost technologies like boreholes and
latrines that often fail to ensure water and sanitation when not handled properly. At the time of
the latest WASH research conducted in 2011, there were no sewerage networks, a lack of
which can cause poor drainage and increased health risks such as diarrhea and malaria.
(Domínguez-Torres and Foster, 2011).

Around 70 percent of the population of the CAR relies on boreholes and wells as their main
source of water. The use of boreholes and wells though, does not necessarily indicate access to
safe water. As of 2004, only 10 percent of wells were disinfected on a regular basis and even
then, only 47 percent of these provided safe water (Domínguez-Torres and Foster, 2011).
Furthermore, one-fourth of the boreholes are out of service, and those that are in service are
providing water to 1,500 to 2,000 people, three times the government norm. Once again, as with
most resources in the CAR, urban access to stand posts is 10 times higher than rural access to
stand posts. In rural areas, 95 percent of the water that people use comes from boreholes with
hand pumps (World Bank, 2010). Overall, only 14 percent of the rural population has access to
safe water compared to 61 percent in urban areas (Domínguez-Torres and Foster, 2011).
4.1.8 BIOPHYSICAL ENVIRONMENT

Geology and Soils

The Central African Republic (CAR) has a very diverse landscape as it lies on a large plateau with rolling hills in the northeast and rainforests in the southwest (Kelman, 2017). According to the World Wildlife Fund (WWF), “Central Africa’s active seismic history exposed many rock types that provided parent material for diverse soil catenas.” (Kelman, 2017):

“The transition from the equatorial forest to northern latitude savannas was most probably gradual throughout the early Pleistocene. Two main factors sharpened the transition zone. Initially, about 50,000 years ago, fires became a frequent disturbance. Secondly, for the last 3,000 years humans have burned clearings for farms and livestock, further reducing tree densities and creating wooded grasslands. These historic land use patterns reflect plant-soil interaction. Nutrient-poor oxisols traditionally have been left under forest or [fire-fallow cultivation]” (Kelman, 2017). The Chinko Nature reserve itself lies primarily within the Northern Congolian Forest Savanna Mosaic ecoregion, as defined by the World Wildlife Fund to include the northernmost savanna woodlands in Africa. Most of the region sits on a plateau of an average elevation of 500 m (Kelman, 2017). The country as a whole is mostly covered by lateritic soils and the soil types include plinthosols, ferrasols, arenosols and some acrisols (Upton & Ó Dochartaigh, 2016). The central and eastern areas of the region, within which lies the Chinko Nature reserve, are characterized by oxisols, namely soils of low fertility and a weathered nature (Kelman, 2017). According to the Soligrids data collected by ISRIC World Soil Information, the soil in the Chinko region is predicted to be composed of ultisols (defined by the USDA soil units), meaning that the soil is high in clay and low in fertility (ISRIC, 2017). According to a study done by the USDA Natural Resources Conservation Service on the soil resources of Africa, ultisols are less susceptible to water erosion unless they are severely mismanaged (Eswaran, Almaraz, van den Berg, and Reich, 1997). Soil quality can be greatly degraded by various means, including mining, poor agricultural practices, and poor water and sanitation practices, among others.

Hydrology and Water Resources

There are over 2,000 km of navigable waterways in the CAR. This landlocked country contains the drainage divide, formed by a plateau running southwest to northeast, between the Lake Chad and Congo River basins. The northern third of the CAR contains tributaries to the Chari River in the Lake Chad basin while the remaining two-thirds of the territory contains tributaries to the Ubangi River in the Congo River basin. The Ubangi River forms the southern political boundary between the CAR and the DRC (Giles-Vernick, O’Toole, and van Hoogstraten2017).

As noted in Figure 9, the Chinko Nature Reserve lies between the Chinko River (on its eastern boundary) and the Mbali River (on its western boundary) both of which drain south and southwest into the Mbomou River, one of the major tributaries to the Ubangi River. The Chinko River joins the Mbomou River near the town of Rafai. At this point, the average annual flow in the Chinko River is 397 m³/s (1952-1973 period of record) draining its watershed of 52,308 km² (GRDC, 2017). The relative abundance of water at the reserve is reflected in an annual runoff
depth within the Chinko River watershed (at the Rafai hydrometric station) of 239 mm per year (GRDC, 2017).

The water resources of the CAR are subject to several demands including agricultural production, which represents 77 percent of total water use, domestic use, which represents 18 percent, and industrial use, which accounts for the remaining 5 percent (Domínguez-Torres and Foster, 2011). The renewable water resources per capita\(^1\) in the CAR are estimated to be 33,300 cubic meters per year (UNSD, 2011), a total which is much larger than the 8,000 m\(^3\)/year average for Sub-Saharan Africa (World Bank, 2007). Despite the relative abundance of water resources in the CAR, strains on the water resources have resulted in a decrease in total water volume every year as well as the deterioration of water quality, particularly at traditional water sources that provide water to about 60% of the population. Viable sources of potable water remain scarce in the CAR (FAO, 2005).

Much of the region is characterized by two seasons, a wet-season and a dry-season. Rainfall averages 1,343 millimeters per year, but this varies considerably across regions and times of year (Domínguez-Torres and Foster, 2011). In the area around the Chinko Nature Reserve the annual average rainfall varies between 1500 and 1600 mm per year (Orange, Wesselink, & Clement, 1995). The long wet-season, from May to December, drastically affects operations in the Chinko Nature Reserve area, as wet season infrastructure has not been fully developed (African Parks, 2017).

**Forest Cover**

The Central African Republic has about 28.3 mega hectares (Mha) of forests, which amounts to 45% of the country's total land. Around 80% of the forest cover is composed of savannah forests and the remaining 20% are dense forests (FCCPF and UN-REDD, 2011). The denser rainforests are located along the Ubangi and Sangha rivers in the south-eastern portion of the country (Giles-Vernick, O'Toole, and van Hoogstraten, 2017).

Today, while rainforests cover 11% of the CAR, very little of the forest cover can be considered primary forest (COMIFAC, 2017). Global Forest Watch reports that CAR had 62% tree cover in 2010. FAO data indicates that primary forests occupy 3.2% of the country. (Global Forest Watch, 2018).

These forests, that cover much of central Africa, including the CAR, represent 30 percent of Africa's vegetation. Most of the country's forests have been logged for valuable tree species, including sapelli, ayous, and sipo (Mongabay, 2006), species that are endemic to the western portion of central Africa (IUCN, 1998). When available, timber is collected, and the wood is generally exported to Europe, sometimes through illegal channels. Fuelwood collection has also placed pressure on the nations' forests (Mongabay, 2006).

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\(^1\) Renewable fresh water resources per capita = Total volume of river run-off and ground water from precipitation within the country + Inflow of surface and groundwaters divided by the total population of the country.
Figure 9 Habitats and Rivers within the Chinko Nature Reserve
Figure 10 Habitat and Existing and Proposed Roads
Figure 11 Map of Vegetation Coverage in the Central African Republic: http://data.wri.org/forest_atlas/caf/report/caf_atlas_v1_fr.pdf
Figure 12 Map of Forested Regions and Protected Areas in the Central African Republic:
According to the CAR’s 2011 Readiness Preparation Proposal there are various indirect and direct threats targeting the forest cover of the country. The indirect threats include (UN-REDD, 2011):

1) Weak institutions in the country
2) A weak economy that is based on the exploitation of natural resources
3) The lack of diffusion of progress throughout different sectors
4) Increasing population of the country
5) A weak sense of environmental awareness
6) Insecurity and the political and armed conflict taking place.

The more direct threats include (UN-REDD, 2011):

1) Unsustainable livestock farming
2) Unsustainable use of slash and burn agriculture
3) The unregulated exploitation of wood and non-wood forest products
4) The development of infrastructure such as roads, mines, and homes

The threats have not reached every area of the Congo River Basin yet, but according to the FAO, 14 million hectares of forest worldwide are lost each year, and 934,000 of those are from the Congo River Basin (IRIN, 2006). The Chinko Nature Reserve has been relatively sheltered from these threats of agriculture, overgrazing, and deforestation, but is part of a larger ecoregion that is under threat. The Congo River Basin as a whole contains three forest types: the Celtis, the Manilkara, and the Gilbertiodendron forests. The Celtis forests are low in wood density with high growth rates, found in rich soils, and have a great diversity of trees when not degraded. The Manilkara forests are high in wood density with low growth rates, found in poor sandy soils, and can have as high a diversity of trees as the Celtis forests when undisturbed. The Gilbertiodendron forests are dominated by an evergreen species that is high in wood density with slow growth rates, found in medium rich soils, and are low in biodiversity and productivity (CoForChange, 2014).

The Chinko Nature Reserve itself lies in an area with a mixed landscape of tropical forest and Congolese savannah (African Parks, 2016). The program area lies in the Haute-Kotto and Mbomou prefectures/provinces. The tree cover in Haute-Kotto and Mbomou in 2000 was 80% and 92%, respectively, making the Mbomou prefecture the 6th most forested area of the CAR out of 17 prefectures (Global Forest Watch, 2017). It is most likely that the forest in the Chinko Nature Reserve is composed of gallery species, which grow wherever there are watercourses, plentiful rain, available groundwater, and low fire frequency (Kelman, 2017).

Likely tree species in the wooded savannah region of the Congo River Basin are Afzelia africana, Aningeria altissima, Chrysophyllum perpulchrum, Cola gigantea, Morus mesozygia, and Khaya grandifoliola, a shade intolerant tree known as one of the African mahoganies (Global Forest Atlas, 2017).

In terms of threats to the forest cover of this particular area, it is currently known that there is no significant forestry exploitation in the Chinko Nature reserve area (African Parks, 2017).
4.1.9 PROTECTED AREAS AND BIODIVERSITY

The Chinko Nature Reserve was previously four separate CAR-government owned hunting zones, leased by Central African Wildlife Adventures, a privately-owned safari hunting company. In 2014, African Parks began to manage the reserve in partnership with the CAR Ministry of Forestry, Environment and Tourism. The elephant population in the area has decreased to an estimated 100 individuals from a population that once numbered in the thousands. Species of buffalo, lion, and other animals have also been decimated. Sudanese and local poachers travel regularly into the Chinko Nature Reserve for ivory and bush meat (African Parks, 2017).

The Chinko Nature Reserve is situated in the Chinko-Mbари drainage basin in eastern CAR. The mosaic of ecosystems in Chinko makes it incredibly rich and unique in biodiversity. The area is composed of a mosaic of sparsely inhabited Medio-Sudanian and Sudano-Guinean savanna with some patches of Congo Basin forest-savanna. Due to its wide diversity of habitats, more than 400 bird species have been recorded in the Chinko Nature Reserve. Chinko is also home to a healthy number of large antelopes, notably the Giant Eland and the Bongo (African Parks, 2017).

The Chinko Nature Reserve is surrounded by a buffer zone of around 340,600 ha and a transition zone of 1,313,200 ha. The buffer zone is an area where certain livelihood activities that are compatible with protected area conservation efforts can take place. The transition zone is where most of the communities near the reserve live. Although conservation work is taking place in the region, Chinko’s legal status as a protected area has not yet been declared (OFAC, 2015).
Figure 14 Map of Protected Areas in the Central African Republic: http://data.wri.org/forest_atlas/caf/report/caf_atlas_v1_fr.pdf
<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status (Year Published)</th>
<th>Region (based on map from IUCN red list)</th>
<th>Link to Map</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acinonyx jubatus</td>
<td>Cheetah</td>
<td>Vulnerable (2015)</td>
<td>Possibly Extant in eastern CAR</td>
<td>Link</td>
</tr>
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<td>Afzelia Africana</td>
<td>Afzelia</td>
<td>Vulnerable (1998)</td>
<td>No range data</td>
<td></td>
</tr>
<tr>
<td>Afzelia bipindensis</td>
<td></td>
<td>Vulnerable (1998)</td>
<td>No range data</td>
<td></td>
</tr>
<tr>
<td>Albizia ferruginea</td>
<td>Albizia</td>
<td>Vulnerable (1998)</td>
<td>No range data</td>
<td></td>
</tr>
<tr>
<td>Ansellia africana</td>
<td>Leopard Orchid</td>
<td>Vulnerable (2013)</td>
<td>No range data</td>
<td></td>
</tr>
<tr>
<td>Aphyosemion bualanum</td>
<td></td>
<td>Endangered (2010)</td>
<td>Northwestern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Aphyosemion wildekampi</td>
<td></td>
<td>Vulnerable (2010)</td>
<td>Western and southwestern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Atoconeura luxate</td>
<td>Western Highlander</td>
<td>Vulnerable (2010)</td>
<td>Western CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Balaniceps rex</td>
<td>Shoebill</td>
<td>Vulnerable (2016)</td>
<td>Extant, non-breeding in a pocket northern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Barbus zalbiensis</td>
<td></td>
<td>Vulnerable (2010)</td>
<td>Pocket in northern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Brachystelma exile</td>
<td></td>
<td>Endangered (2014)</td>
<td>Bouar and Parc Manovo Gounda, St. Floris</td>
<td>Link</td>
</tr>
<tr>
<td>Circaetus</td>
<td>Beaudouin’s</td>
<td>Vulnerable</td>
<td>North, central, and</td>
<td>Link</td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Status (Year Published)</td>
<td>Region (based on map from IUCN red list)</td>
<td>Link to Map</td>
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</tr>
<tr>
<td>beaudouini</td>
<td>Snake Eagle</td>
<td>(2017)</td>
<td>eastern CAR</td>
<td></td>
</tr>
<tr>
<td>• Cleistopholis Staudtii</td>
<td></td>
<td>• Vulnerable (2004)</td>
<td>• No range data</td>
<td></td>
</tr>
<tr>
<td>• Congochromis dimidatus</td>
<td></td>
<td>• Vulnerable (2010)</td>
<td>• Northwestern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>• Cyclanorbis elegans</td>
<td></td>
<td>• Critically Endangered (2016)</td>
<td>• Northwestern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>• Cyclanorbis senegalensis</td>
<td></td>
<td>• Vulnerable (2016)</td>
<td>• Northwestern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>• Cycloderma aubryi</td>
<td></td>
<td>• Vulnerable (2017)</td>
<td>• Small pocket near Bangui</td>
<td>Link</td>
</tr>
<tr>
<td>• Dicliptera silvestris</td>
<td></td>
<td>• Vulnerable (2004)</td>
<td>• St. Floris N.P., Yalinga, Boukoko</td>
<td>Link</td>
</tr>
<tr>
<td>• Diospyros crassiflora</td>
<td></td>
<td>• Endangered (1998)</td>
<td>• No range data</td>
<td></td>
</tr>
<tr>
<td>• Entandrophragma angolense</td>
<td></td>
<td>• Vulnerable (1998)</td>
<td>• No range data</td>
<td></td>
</tr>
<tr>
<td>• Eriosema letouzei</td>
<td></td>
<td>• Vulnerable (2015)</td>
<td>• pl. de Ungourras; Yaloké, Savane Mayaka; Bambara region; Sav. Des Moroubas; Yanguya; Bozoum; Manova-Gounda-St. Floris National Park</td>
<td>Link</td>
</tr>
<tr>
<td>• Eudorcas rufifrons</td>
<td>Red-fronted gazelle</td>
<td>• Vulnerable (2017)</td>
<td>• Northern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>• Eugenia fernandopoana</td>
<td></td>
<td>• Vulnerable (2004)</td>
<td>• No range data</td>
<td></td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Status (Year Published)</td>
<td>Region (based on map from IUCN red list)</td>
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<tr>
<td>Giraffa camelopardalis</td>
<td>Giraffe</td>
<td>Vulnerable (2016)</td>
<td>Northern/central CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Gorilla</td>
<td>Western gorilla</td>
<td>Critically endangered (2016)</td>
<td>Southwestern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Gyps africanus</td>
<td>White backed vulture</td>
<td>Critically endangered (2017)</td>
<td>Extinct in south, southwestern CAR, extant in north, northwestern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Gyps rueppelli</td>
<td>Ruppell’s vulture</td>
<td>Critically endangered (2017)</td>
<td>Northern CAR (mostly extinct)</td>
<td>Link</td>
</tr>
<tr>
<td>Hippopotamus amphibious</td>
<td>Hippopotamus</td>
<td>Vulnerable (2017)</td>
<td>Pockets in northern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Hygrophila mediatrix</td>
<td></td>
<td>Endangered (2014)</td>
<td>Bamingui-Bangoran</td>
<td>Link</td>
</tr>
<tr>
<td>Inversodicraea cristata</td>
<td></td>
<td>Vulnerable (2017)</td>
<td>Probably extant (all of CAR)</td>
<td>Link</td>
</tr>
<tr>
<td>Khaya senegalensis</td>
<td>African Mahogany</td>
<td>Vulnerable (1998)</td>
<td>No range data</td>
<td></td>
</tr>
<tr>
<td>Ledermanniella aloides</td>
<td></td>
<td>Vulnerable (2010)</td>
<td>Pocket in northeastern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Mecistops cataphractus</td>
<td>Slender snouted crocodile</td>
<td>Critically endangered (2014)</td>
<td>Western CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Status (Year Published)</td>
<td>Region (based on map from IUCN red list)</td>
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</tr>
<tr>
<td>Mitragyna stipulosa</td>
<td>•</td>
<td>Vulnerable (1998)</td>
<td>• No range data</td>
<td></td>
</tr>
<tr>
<td>Nauclea diderrichii</td>
<td>•</td>
<td>Vulnerable (1998)</td>
<td>• No range data</td>
<td></td>
</tr>
<tr>
<td>Necrosyrtes monachus</td>
<td>• Hooded vulture</td>
<td>Critically Endangered (2017)</td>
<td>• Most of CAR except southwest. Central/southeastern area extinct</td>
<td>Link</td>
</tr>
<tr>
<td>Neophron percnopterus</td>
<td>• Egyptian vulture</td>
<td>Endangered (2017)</td>
<td>• Northern and central CAR (passage)</td>
<td>Link</td>
</tr>
<tr>
<td>Neoschumannia kamerunensis</td>
<td>•</td>
<td>Critically endangered (2014)</td>
<td>• Dzanga-Sangha reserve</td>
<td>Link</td>
</tr>
<tr>
<td>Nesogordonia papaverifera</td>
<td>•</td>
<td>Vulnerable (1998)</td>
<td>• No range data</td>
<td></td>
</tr>
<tr>
<td>Okoubaka aubrevillei</td>
<td>• Death Tree</td>
<td>Endangered (2015)</td>
<td>• No range data</td>
<td></td>
</tr>
<tr>
<td>Osteolaemus tatraspis</td>
<td>• African Dwarf Crocodile</td>
<td>Vulnerable (1996)</td>
<td>• Most of the CAR except for pocket in the north and pocket in the east</td>
<td>Link</td>
</tr>
<tr>
<td>Panthera leo</td>
<td>• Lion</td>
<td>Vulnerable (2016)</td>
<td>• Eastern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Panthera pardus</td>
<td>• Leopard</td>
<td>Vulnerable (2016)</td>
<td>• Southwest, central, and eastern CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Pan troglodytes</td>
<td>• Chimpanzee</td>
<td>Endangered (2016)</td>
<td>• Southeast CAR</td>
<td>Link</td>
</tr>
<tr>
<td>Phataginus tetradactyla</td>
<td>• Black bellied pangolin</td>
<td>Vulnerable (2014)</td>
<td>• Southwest CAR</td>
<td>Link</td>
</tr>
</tbody>
</table>
### TABLE 2. LIST OF THREATENED SPECIES IN THE CAR (IUCN, 2017)

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status (Year Published)</th>
<th>Region (based on map from IUCN red list)</th>
<th>Link to Map</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phataginus tricuspis</td>
<td>White-bellied pangolin</td>
<td>Vulnerable (2014)</td>
<td>All of CAR except northern CAR</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Placodiscus caudatus</td>
<td></td>
<td>Endangered (2004)</td>
<td>No range data</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Placodiscus opacus</td>
<td></td>
<td>Vulnerable (2004)</td>
<td>Boukoko; Rio Muni</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Polemaetus bellicosus</td>
<td>Martial Eagle</td>
<td>Vulnerable (2017)</td>
<td>All CAR except for southwest</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Psittacus erithacus</td>
<td>Grey Parrot</td>
<td>Endangered (2017)</td>
<td>Parts of southern CAR</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Raphionacme keayi</td>
<td></td>
<td>Endangered (2014)</td>
<td>Beretum</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Sagittarius serpentarius</td>
<td>Secretary bird</td>
<td>Vulnerable (2016)</td>
<td>Northern and eastern CAR</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Secamone letouzeana</td>
<td></td>
<td>Vulnerable (2014)</td>
<td>50 km E Bambari</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Smutsia gigantean</td>
<td>Giant ground pangolin</td>
<td>Vulnerable (2014)</td>
<td>Southern CAR</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Smutsia temminckii</td>
<td>Temminck’s ground pangolin</td>
<td>Vulnerable (2014)</td>
<td>Northeastern CAR</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Torgos tracheliotos</td>
<td>Lappet faced vulture</td>
<td>Endangered (2017)</td>
<td>Extinct in central CAR, extant (resident and non-breeding) in northern CAR</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Tragelaphus derbianus</td>
<td>Giant Eland</td>
<td>Vulnerable (2017)</td>
<td>Northeastern CAR, Chinko</td>
<td><a href="#">Link</a></td>
</tr>
<tr>
<td>Trigonoceps occipitalis</td>
<td>White headed vulture</td>
<td>Critically endangered</td>
<td>Northwestern CAR</td>
<td><a href="#">Link</a></td>
</tr>
</tbody>
</table>
TABLE 2. LIST OF THREATENED SPECIES IN THE CAR (IUCN, 2017)

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status (Year Published)</th>
<th>Region (based on map from IUCN red list)</th>
<th>Link to Map</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(2017)</td>
<td></td>
<td></td>
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</tbody>
</table>

TABLE 3. LIST OF KEY SPECIES AND THREATS IN THE CHINKO PROJECT AREA (AFRICAN PARKS, 2017)

<table>
<thead>
<tr>
<th>Species (IUCN Status)</th>
<th>Current Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wild Dog (endangered)</td>
<td>• Conflicts with livestock &amp; transhumance&lt;br&gt;• Vulnerable to diseases from domestic dogs</td>
</tr>
<tr>
<td>Lion (vulnerable)</td>
<td>• Conflicts with livestock &amp; transhumance&lt;br&gt;• Vulnerable to diseases from domestic dogs&lt;br&gt;• Poisoned</td>
</tr>
<tr>
<td>Spotted Hyena (least concern)</td>
<td>• Conflict with livestock</td>
</tr>
<tr>
<td>Elephant (vulnerable)</td>
<td>• Poached for ivory&lt;br&gt;• Target species</td>
</tr>
<tr>
<td>Derby’s Eland (vulnerable)</td>
<td>• Poached for meat&lt;br&gt;• Target species&lt;br&gt;• With increasing transhumance-vulnerable to diseases from livestock</td>
</tr>
<tr>
<td>Roan antelope (least concern)</td>
<td>• Poached for meat&lt;br&gt;• With increasing transhumance-vulnerable to diseases from livestock</td>
</tr>
<tr>
<td>Lelwel hartebeest (endangered)</td>
<td>• Poached for meat&lt;br&gt;• With increasing transhumance-vulnerable to diseases from livestock&lt;br&gt;• Negative habitat effects of tree encroachment due to low numbers of elephants</td>
</tr>
<tr>
<td>Defassa waterbuck (near threatened)</td>
<td>• Poached for meat</td>
</tr>
<tr>
<td>Loders Kob (least concern)</td>
<td>• Poached for meat</td>
</tr>
<tr>
<td>Buffalo (least concern)</td>
<td>• Poached for meat&lt;br&gt;• Target species&lt;br&gt;• With increasing transhumance-vulnerable to diseases from livestock</td>
</tr>
</tbody>
</table>
Elephant poaching remains a major concern in the region because organized and armed groups of militia and/or rebels, predominately from Sudan and the nearby region, are actively pursuing the remaining elephants in the reserve. In 1977, more than 35,000 elephants were estimated to be in the CAR. Over the past few decades, these elephants have been poached for their valuable ivory. Surveys in 2005 and 2010 estimated that elephant populations had diminished to 929 and 68 animals, respectively. A survey in 2017 in many protected areas of CAR (including Bamingui-Bangoran National Park, Manovo Gounda St. Floris National Park, Vassako-Bollo, Gribingui-Bamingui, l'Aouk Aoukale, Yata Ngaya Reserves, Presidential Park Awakaba, the Nana-Barya Reserve and Mbitoye and Moyen-Sido areas), observed no indications of elephant populations (Science X Network, 2017). Various rebel factions from Sudan, Chad, and the LRA are attributed for the declines in elephant population because they finance their military actions through the sale of illegal ivory poached in the CAR. The lack of law enforcement and overall instability throughout the country due to civil unrest has left elephants unprotected. Further adding to the elephants’ plight, elephants are expected to have low breeding and fertility rates as a result of stress resulting from insecurities caused by political instability and heavy poaching in the region (African Parks, 2017).

Political instability and conflict often result in intense exploitation of natural resources and wildlife, including high rates of poaching and hunting, which often target resident elephant population in or near the areas in conflict. Additionally, the movement of internally displaced persons can disrupt the habitats of large mammals, including elephants. Often institutions that normally would protect wildlife completely fall apart during times of conflict, further increasing elephant’s vulnerabilities to the threats (Beyers et al., 2011). High levels of poaching usually result in elephant families being torn apart. Disrupted family groups can result in chronic stress for elephants which has been shown to negatively affect growth, immunity, and reproduction (Gobush, Mutayoba, and Wasser, 2008).

4.1.10 CLIMATE CHANGE AND HAZARDS

The CAR territory lies within several climate zones. The northern region is characterized by a moist savanna climate, while the southern region is characterized by an equatorial forest climate. Rainfall varies from 800 mm in the north to 1600 mm in the south. In the area around the Chinko Nature Reserve the annual average rainfall varies between 1500 and 1600 mm per year (Orange, Wesselink, & Clement, 1995). The CAR has two main seasons, the dry season which begins in October and ends in March, and the wet season the rest of the year. During the rainy season the daily temperatures range between 19 and 30 degrees Celsius, and during the
The dry season the temperature ranges between 18 and 40 degrees Celsius (Giles-Vernick, O’Toole and van Hoogstraten, 2017).

The CAR contributes less than 0.002 percent of global GHG emissions (UNFCCC, 2015). 89.46 percent of the country’s emissions came from land-use change and forestry (UNFCCC, 2015). On the other hand, the CAR’s forests provide important carbon storage capacity, especially the forests in the Congo River Basin. According to Global Forest Watch, CAR has 2,843 million metric tons of carbon stocks in living forest biomass (Global Forest Watch, 2017).

Overall, the people of CAR can be described as highly vulnerable to climate change as poverty and conflict can increase vulnerability to climate change effects such as heavy rains, floods, and drought (UNFCCC, 2015).

Resource Pressures

High levels of poverty and various environmental strains put the biodiversity in the CAR at risk. The sale of bushmeat remains common, putting many species at risk. Large-scale poaching of elephants and other high value species have become prosperous for foreign poachers, leading to the devastation of animal populations. In northern parts of the country, deforestation and poor agricultural practices are resulting in desertification.

As a poverty-stricken country, CAR citizens face extreme food insecurity. Lack of resources results in exploitation of local resources, including wildlife wherever possible. Poaching for ivory and meat are common practices in the CAR (UNEP, 2009). According to the summary statistics from the IUCN Red List, there are 16 known species of mammals, 14 known species of birds, five known species of reptiles, three known species of fish, and 24 known species of plants that are threatened in the CAR (IUCN, 2017a).

There are eight known species of animals in the CAR that are critically endangered, six that are endangered, and 24 that are vulnerable (IUCN, 2017b). There is one known species of plant that is critically endangered, six that are endangered, and 17 that are vulnerable (IUCN, 2017c). Biodiversity loss will continue to have detrimental effects on the health of the country’s various ecosystems (World Bank, 2010).

An important source of resource and land pressure results from the tensions between pastoral and sedentary communities, as well as local hunters. Traditionally, a tacit and explicit understanding existed between settled communities and passing pastoralists. The settled communities could sell goods and services to the pastoralists while the pastoralists were provided access to the land that they needed. As the number of herders has grown, and pastoralists from neighboring countries migrate into the CAR driven by conflict, the tensions mount. The traditional transhumant routes are no longer in place. This places protected areas, including Chinko, in danger as these communities of pastoralists encroach on previously unused land (UNEP, 2009).

The resource pressures, and actors involved, are numerous in the CAR. Conflicts within the CAR, and in neighboring countries, are driving migration so that remote, formerly uninhabited areas, like the Chinko Nature Reserve are now subject to migration pressures.
4.2 APPLICABLE AND APPROPRIATE PARTNER COUNTRY AND OTHER INTERNATIONAL STANDARDS (E.G. WHO), ENVIRONMENTAL AND SOCIAL LAWS, POLICIES, AND REGULATIONS

In the CAR, the laws governing wildlife and protected areas are separate from the laws governing forests and the environment more generally. The government defines three types of protected areas:

i) Complete reserve  
ii) National parks  
iii) Wildlife reserves

These protected area categories are defined in the CAR Wildlife Ordonnance of 1984 no: 84-045 (art. 10-19). A more ambiguous definition of biosphere reserves is also included in this Ordonnance. In addition, in Article 9 of the Forestry Code, the law defines other protected areas designated as Ecological Reserves, or biosphere reserves, Special Reserves, Wildlife Sanctuaries, Flora Sanctuaries, Buffer Zones that serve as transition areas between anthropogenic zones and protected areas (OFAC, 2015). The government, as well as defining these protected areas, also defines designated hunting zones in the Wildlife Ordonnance no: 84-045. Despite the many advancements in wildlife management, there are still many gaps in the law that must be filled (OFAC, 2015). Internationally, the CAR has ratified or is signatory to the following international treaties:

- United Nations Convention to Combat Desertification
- United Nations Convention on Biological Diversity
  - Cartagena Protocol on Biosafety
  - Nagoya Protocol on Access and Benefit Sharing
- Ramsar Convention on Wetlands of International Importance
- Convention on International Trade in Endangered Species of Wild Fauna and Flora
- International Tropical Timber Agreement, International Plant Protection Convention
- United National Framework Convention on Climate Change

Additionally, CAR has ratified or is signatory to the following regional treaties:

- Yaoundé Declaration, Convention for Co-Operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region
- African Convention on the Conservation of Nature and Natural Resources
These international accords have helped to improve the national legislation and politics, but their full integration is still a distant goal when it comes to the reality on the ground (OFAC, 2015).

The Ministry of Environment and Ecology identified 19 nationally protected areas in 2010. According to this 2010 report, the total protected areas amount to 38 percent of the country’s land. In fact, three of those protected sites are classified as World Heritage Sites (Ministère de des eaux, forêts, chasse, et pêche, 2010).

Table 4 provides an exhaustive list of the threatened species found in the CAR as noted by the IUCN Red List of 2017. This table illustrates the extent of species that are threatened in the CAR. It demonstrates that there is a lack of basic research and information available on many of the mentioned species.

4.2.1 USAID ENVIRONMENTAL PROCEDURES

USAID’s Environmental Procedures, 22 CFR 216 (also known as Reg. 216), govern the environmental review process for all projects, programs, or activities supported by USAID. In accordance with 22 CFR 216.2(d), the following are among the Classes of Actions Normally Having a Significant Effect on the Environment and require an Environmental Assessment (EA):

- “Penetration road building or road improvement projects.”

The Chinko Project’s proposed road rehabilitation, airstrip clearing, and infrastructure development project falls within the penetration road building or road improvement categories. In addition, Sections 118 and 119 of the Foreign Assistance Act require an EA for:

“Activities with the potential to significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas.”

In accordance with Reg. 216, the first phase of the EA process—scoping—begins with the identification of potentially significant issues related to the proposed action and the determination of the scope of the issues to be addressed in the follow-on EA. To determine the scope of the EA, Reg. 216 encourages a participatory approach. As stated in 22 CFR 216.3(a)(4), persons having expertise relevant to the environmental aspects of the proposed action shall participate in the scoping process.

The scoping process results in a written statement—the Scoping Statement—that must include:

- A determination of the scope and significance of issues to be analyzed in the EA, including direct and indirect effects on the environment.
- Identification and elimination from detailed study of issues not significant or covered in earlier environmental review.
- A description of: (i) the timing of EA analyses; (ii) variations required in the format of the EA; (iii) tentative planning and decision-making schedule; and
• A description of how the analysis will be conducted, including expertise needed for the EA.

Once the Scoping Statement is completed, the presiding USAID Bureau Environmental Officer (BEO) may circulate copies to select federal agencies and request comments. Any comments received during scoping will be considered in the preparation of the EA and in the design and implementation of the project. The BEO must approve the Scoping Statement prior to preparation of the EA.

4.2.2 CAR POLICY AND INSTITUTIONAL FRAMEWORK

4.2.2.1 Relevant CAR Policies for the Project

Due to continuing political and social turmoil, the CAR government’s capacity to manage protected areas and enforce environmental policies and laws is weak or non-existent. In terms of the authority for conducting Environmental Impact Assessments (EIA), the Environmental Code of 2007 (Law no. 07.018) describes the requirements for this process giving the Ministry of Environment, Economy, and Sustainable Development the responsibility for EIA decision-making. The only exception lies with the Ministry of Mining where EIAs for mining activities may be decided upon. Regulations on how the EIA process is to unfold are to have been made in Statutory Instruments by the responsible Ministry. According to the Secrétariat pour l’Évaluation Environnementale en Afrique Centrale (SÉEAC), the EIA procedural framework in CAR is at an “embryonic stage.” (Please see Annex G of the 2011 SÉEAC report, Etat des Lieux du Cadre Legal, Institutionnel et Procédural de l’Evaluation Environnementale en Afrique Centrale).

The following are translated excerpts of specific policies and laws enacted by the CAR, in reverse chronological order, that impact the protection of biodiversity:

<p>| TABLE 4. RELEVANT ENVIRONMENT CODES AND ORDINANCES IN THE CAR |
|---|---|
| • Regulation | • Description |
| • The Forestry Code, 2008 (Translated sections from Loi No 08.022 Portant Code Forestier de La République Centrafricaine, 2008) | • If indigenous people are already established before the classification of an area in one of the protected area categories referred to in Article 9, then provisions shall be taken to preserve their rights to harvesting, subsistence hunting, and traditional fisheries, as long as such activities do not undermine their own integrity, interests of other communities, and to the environment. |
| • Title 1, Chapter 1, Section II, Article 17 | • The degradation or destruction, by means of cutting, plucking, poisoning, nailing, and mutilation, of species within integral natural reserves or that of protected species is forbidden unless special authorization is granted. The list of protected species is revised every |</p>
<table>
<thead>
<tr>
<th>Regulation</th>
<th>Description</th>
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<tbody>
<tr>
<td>Code of the Environment, 2007 (Translated sections from Journal Officiel de La République Centrafricaine, Edition Spéciale Loi Portant Code de l’Environnement, 2008)</td>
<td>The protection and enhancement of the environment must follow basic guidelines that include [the below selected provisions]:</td>
</tr>
<tr>
<td>Title I, Chapter 2</td>
<td>• Respect for national socio-economic and cultural development policy;</td>
</tr>
<tr>
<td>Title III, Chapter 1, Section 4, Article 36</td>
<td>• The integration of protection requirements and the placement of value on the environment in any development project;</td>
</tr>
<tr>
<td>Title III, Chapter II, Section 1, Article 47</td>
<td>• Sustainable development and integrated planning that takes into account environmental considerations in all national policies;</td>
</tr>
<tr>
<td>Title III, Chapter II, Section 1, Article 49</td>
<td>• The use of cost-effective best available practices for the prevention and mitigation of environmental damage; and,</td>
</tr>
<tr>
<td>Title III, Chapter II, Section 2, Article 58</td>
<td>• The lack of certainty within the scientific community should not delay the adoption of effective and proportionate measures to prevent the risk of serious and irreversible damage to the environment.</td>
</tr>
<tr>
<td>Title III, Chapter II, Section 7 (Regarding Environmental Impact Studies), Article 87-93</td>
<td>• The protection of nature and biodiversity conservation against all forms of degradation and threats of extinction are of general interest. The public authority and each citizen must safeguard them. Flora and fauna are protected and regenerated by rational management in order to preserve the biodiversity and ensure the balance of natural ecosystems…</td>
</tr>
<tr>
<td>Title III, Chapter II, Section 8 (Public Audience), Article 94-99</td>
<td>• Waste disposal by people who produce it or treat it must be authorized and be supervised conjointly with experts and technicians of the implicated municipalities and ministries that establish guidelines to be followed and monitored. Waste disposal must be carried out in approved landfills that are subject periodic inspections and comply with standard landfill management practices.</td>
</tr>
</tbody>
</table>
### TABLE 4. RELEVANT ENVIRONMENT CODES AND ORDINANCES IN THE CAR

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Description</th>
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<tbody>
<tr>
<td>• Waste incineration or the disposal of waste into territorial waters are strictly prohibited</td>
<td></td>
</tr>
<tr>
<td>• The incineration, immersion, burial, or disposal of hazardous waste is prohibited… without the authorization of the Ministry in charge of the Environment in collaboration with other pertinent ministerial departments that establish technical guidelines and particular rules to be observed.</td>
<td></td>
</tr>
<tr>
<td>• Any development project or physical works that risk harming the environment must be subject of a preliminary impact assessment authorized by the Minister in charge of the Environment. Environmental Impact Studies assess the direct and indirect effects of the project or work on the ecological balance in the zone of implementation and the quality of life of the inhabitants.</td>
<td></td>
</tr>
<tr>
<td>• Impact studies are made prior to project or physical work implementation by qualified experts and accredited by the Ministry in charge of the Environment. They are to be requested and paid for by the promoter or owner of the project or works.</td>
<td></td>
</tr>
<tr>
<td>• Statutory instruments establish the list of different operational categories that are subject to an EIA. Statutory instruments establish the content, methodology, and procedures of the impact studies and the conditions in which they are made public and means by which the Ministry in charge of the Environment can cease or be ceased by an Environmental Impact Study. All EIAs are subject to the decisions of the Ministry in charge of the Environment. The authorization decision of the impact study must be made the subject of a publication in accordance prescribed regulations. The Minister in charge of the Environment requires the implementation of appropriate emergency procedures to interrupt the execution of envisioned or initiated works when the terms of reference are not respected. These emergency procedures are engaged without prejudice to any</td>
<td></td>
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</tbody>
</table>
### TABLE 4. RELEVANT ENVIRONMENT CODES AND ORDINANCES IN THE CAR

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>• <strong>Regulation</strong></td>
<td>foreseen criminal penalties by this Act. Where the impact assessment is judged satisfactorily, the Minister shall issue a certificate of compliance to the promoter of the project.</td>
</tr>
<tr>
<td>• <strong>Regulation</strong></td>
<td>This act requires stakeholder consultations for any public works or construction with potential environmental impacts. The objective is to incorporate local public participation in decision-making. The public audience procedure is defined by a regulatory text. That which must be made subject to the public audience procedure includes: all plans, projects, or programs that impact the environment; the projects and results of impact studies regarding the environment; and the classification decisions and establishment or site decommissioning. The Ministry in charge of the Environment may decide on its own initiative to use the public audience procedure on any environmental issue. Any legal person may refer to the Minister in charge of the Environment to implement the public audience procedure on the environment. The request must be accompanied by a justification file. The Minister in charge of the Environment, after receiving technical advice from competent authorities, may accept or refuse grounds for refusal, the application provided for the previous article. In case of refusal, the persons referred to in Article 98 may refer to the Administrative Court territorially responsible for the decision.</td>
</tr>
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</table>

| Water Code of 2006                               | Any activity that could pollute, alter the quality of, or degrade management structures, is subject to regulation by the Administration in charge of water. The discharge of wastewater and other wastes that may affect the quality of water or degrade development / hydraulic works is prohibited. |
| Title IV, Chapter 1, Articles 65-69               |                                                                                                                                            |
| Ordinance 84.045                                  | It is forbidden for fully protected animals to be 1)                                                                                  |

*Translated sections from Loi No 06.001 du 12 Avril 2006 Portant Code de L’Eau de la République Centrafricaine, 2006*
### TABLE 4. RELEVANT ENVIRONMENT CODES AND ORDINANCES IN THE CAR

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Description</th>
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<tbody>
<tr>
<td>1984, Concerning the Protection of Wildlife and the Regulation of Hunting in the Central African Republic (Translated sections from Ordonnance No 84-045 Portant de la Faune Sauvage et Réglementant L’Exercice de la chasse en République Centrafricaine, 2017)</td>
<td>captured, or have their eggs, larvae, nests, or lodgings collected or destroyed; and 2) exported, with the exception of holders of commercial capture permits. Partially protected animals are permitted to be hunted. Ordinary game or partially protected animals may be exported with 1) a formal written declaration stating that the animal’s exportation will not result in profit and that the animal will be donated to a zoo; 2) an exportation authorization provided by the Directorate of Waters, Forest, and Hunting; 3) a Sanitary Certificate issued by the Directorate of Breeding; and 4) the payment of a special tax for the exportation of live animals.</td>
</tr>
<tr>
<td>Under List 1 of Annex 2</td>
<td>Enforcement authority rests with 1) the judicial police, 2) the Administration of Waters, Forests, Hunting, and Fishing, 3) sworn hunting guides, and 4) park and reserve rangers.</td>
</tr>
</tbody>
</table>

#### 4.2.3 INTERNATIONAL LAW/TREATIES

The government of the CAR is a party to several key international treaties which are summarized in Table 5 in Appendix D.

#### 4.2.4 STATUS OF THE PROJECT IN RELATION TO CAR REQUIREMENTS

Because Chinko Project will be removing trees, vegetation, and disrupting the habitats of both flora and fauna within a natural reserve, the following CAR regulations are applicable:

- Forestry Code 2008. Title I, Chapter 1, Section V, Sub-Section 4, Article 77: The degradation or destruction of species within a natural reserve is forbidden unless special authorization is granted (presumably from the Ministry Environment, Economy, and Sustainable Development (MEESD)).
- Code of the Environment 2007. Title III, Chapter II, Section 7 (Regarding Environmental Impact Studies), Article 87-93: Physical works that risk harming the environment are subject to a preliminary impact assessment authorized by the Minister in charge of the Environment.
- Ordinance 84.045, 1984. Under List 1 of Annex 2 (Concerning the Protection of Wildlife and the Regulation of Hunting in the Central African Republic): It is forbidden for fully protected animals to have their eggs, larvae, nests, or lodgings destroyed.
Due to these requirements, the Chinko Project must contact the MEESD to inform the Minister of the planned works in the Chinko Nature Reserve and detail the planned extent of vegetation removal, degradation, or destruction. As part of this communication, the Project will need to ask for permission to conduct the works within the nature reserve and request from the Minister either 1) that the Minister accept the format of the EA produced for USAID program purposes as sufficient effort to be approved as a preliminary impact assessment by the Minister, or 2) that the Minister provide detailed guidance on the format and requisites of a preliminary impact assessment that would be acceptable to the Minister as a preliminary impact assessment. Further, the Chinko Project must ascertain if in any of the areas where vegetation will be removed or degraded if any fully protected animals have their eggs, larvae, nests, or lodging in order to avoid these areas completely.

4.3 SCOPING PHASE GAPS (LIMITATIONS OF THE SCOPING STUDY)

Individuals, organizations, and sites that were not visited by the Scoping Team, and that should be included in the EA itinerary (if possible), are listed below, as well as documents that the Scoping Team was unable to obtain during the scoping phase.

4.3.1 INDIVIDUALS AND ORGANIZATIONS THAT THE SCOPING TEAM WAS UNABLE TO MEET

The team was unable to meet with the following stakeholders: (Please see Section 4.2 for the list of stakeholders who were consulted via telephone, email and in-person interviews).

Communities and/or individuals currently accessing the Chinko Nature Reserve to extract or utilize its resources that include:

- Displaced peoples in the reserve
- Local hunters
- Fishers

Chinko Reserve staff members apart from the Park Manager that include:

- Park Rangers
- Construction Workers
- Other relevant staff members

Government entities in Bangui that include:

- Ministry of Agriculture and Rural Development “Ministère de l’Agriculture et du Développement Rural”

Representatives from NGOs in Bangui including:

- Conseil Inter Organisation Non Gouvernementale de Centrafrique (CIONGCA)
- Concertation Nationale des Organisations Paysannes de Centrafrique (CNOP)
• Catholic Relief Services
• Save the Children
• World Vision CAR

4.3.2 SITES THAT THE SCOPING TEAM WAS UNABLE TO VISIT

The Scoping Statement team was unable to visit the Chinko Nature Reserve due to deteriorating security concerns. A GEMS II environmental impact assessor was never planned to conduct a field visit to ground truth potential environmental impacts from this project due to the already risky security situation. However, it was decided that it would be necessary to have on-the-ground meetings to understand the social impact of this project and that a subcontractor of national origin, Dr. Baliguini, would likely face less risk and could accomplish the task. However, based on correspondence with the Chinko Park Management, it became evident that a site visit by Dr. Baliguini would be extremely risky because of the increased presence of armed Sudanese herders, poachers, the LRA, and illegal activities by corrupt local officials. These separate potentially dangerous groups coalesced into an unacceptably risky situation in which to request a sub-contractor to venture.

4.3.3 DOCUMENTS THAT THE SCOPING TEAM WAS UNABLE TO OBTAIN

The Scoping Statement team was unable to obtain the following documents and information as either they do not exist due to the lack of research conducted on the Chinko Reserve and the CAR in general or they were not available at the time of this scoping statement. The EA Team should further obtain them, if possible, for the EA:

• Literature regarding the movements of relevant critical species within the project area, including threatened and endangered species;
• Reserve-specific information regarding the mapping of seasonal and permanent streams or wetlands; and,
• Design drawings for the proposed FOBs and the Community Training Center.
5.0 IDENTIFICATION AND ELIMINATION OF ISSUES

Per 22 CFR 216.6(c)(5), impact analysis involves identifying the future consequences of a proposed action, including the evaluation of potential direct, indirect, and cumulative effects of the project on the environment. Significant impacts are recommended for further analysis in the EA or EIS, and the rationale for eliminating issues that are not significant is provided.

5.1 POTENTIAL EFFECTS OF THE PROJECT ON THE ENVIRONMENT (DIRECT, INDIRECT, CUMULATIVE) AND SIGNIFICANT EFFECTS TO BE ANALYZED IN THE ENVIRONMENTAL ASSESSMENT

As stated in Reg. 216, a concern can be eliminated from detailed study in the EA if the issue is not significant or has been covered by earlier environmental review or approved design considerations. In addition, Issues may be determined not to be significant because straightforward mitigation actions within the manageable interest of USAID are specified that will, with high probability, keep impacts below a significant level.

5.1.1 SIGNIFICANT ISSUES IDENTIFIED IN THE SCOPING PROCESS

An issue is deemed significant if it represents: (1) a nonconformance with a USAID or CAR national environmental requirement; (2) classes of actions normally having a significant effect on the environment as defined under 22 CFR 216.2(d); or (3) cumulative effects associated with the proposed project.

An impact generally refers to an effect caused by the proposed action, such as induced changes in the pattern of land use, population density or growth rate, or related effects on air and water and other natural systems, including ecosystems (USEPA, 2005). An impact can be either primary or secondary.

Primary impacts refer to actions and effects that occur at the same time and place. Secondary impacts or cumulative effects refer to “impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonable, foreseeable future actions.” These effects result from multiple activities over time or geographic areas and may last for many years beyond the life of the project that caused the effects. Typically, the cumulative effects assessment of a proposed project considers the overall effects of “associated facilities” on those same environmental and human resources and systems in the project area of influence.

The EA will describe best practices (from the USAID sector environmental guidelines; from lessons learned in Africa, and elsewhere; and from other EAs) for the mitigation of potential adverse impacts listed in Table 4. These best practices are considered required for the Chinko 2

2 See http://www.usda.gov/rus/water/ees/pdf/AECI_FEIS/Sect_4.pdf. U.S or the definition of cumulative effects offered by the Council on Environmental Quality. This definition is used in the National Environmental Policy Act and is the reference document for USAID EIA regulations.
Project, and, as with all mitigation measures, must be included in standard operating procedures (SOPs) and in the Chinko Project’s Environmental Mitigation and Monitoring Plan.

In the EA, the Team will use the potentially significant issues as the framework for the Environmental Consequences discussion (22 CFR 216.6(c)(5)), which will include (but not be limited to): the environmental impacts of the alternatives; any adverse effects that cannot be avoided; irreversible or irretrievable commitments of resources; direct and indirect effects and their significance; cumulative effects; possible unintended consequences; possible conflicts between the proposed action and land use plans, policies, and controls for the areas; and energy requirements.

The potentially significant issues summarized in Table 6, have been selected during this scoping statement because there is not sufficient information on the environment around the proposed infrastructure to be built, rehabilitated, or expanded to provide effective and sufficient mitigation measures to ensure that any negative environmental impacts from these issues are minimized. A thorough investigation of the specific sites where construction activities are planned is necessary to address these potentially significant issues. This additional investigation can verify that specific mitigation measures can be created and implemented to avoid or minimize negative impacts to the unique environmental features that the Chinko Project seeks to protect. The following is an explanation of the significance of each issue. Please note that Table 6 describes potential mitigation measures for each issue.

1) Preservation of migration corridors for fauna and potential negative impacts on threatened and endangered species or primary/undegraded forests.

The proposed activities have the potential to hinder or bar wildlife movement, and to damage or destroy primary forests and the habitat of threatened or endangered species. As shown in Figure 15 and 16 in Annex B, the proposed construction sites are located in a variety of ecosystem types. Migration corridors represent areas that wildlife move through to access food, water, shelter, or mates. Access through these corridors is often seasonally dependent. The proposed improvements to the roads in the Chinko Reserve (i.e., the 10m-wide strip that continues for hundreds of kilometers) will not likely deter the local migration of large fauna (e.g., elephants, lions, giant eland); however, small mammals, reptiles, and amphibians could be put at greater danger to predation when crossing the de-vegetated zone of these improved roads.

Such an additional stressor could cause a population decline for a species in areas where, for example, its shelter will be clearly separated from its source of water, food, or potential mates by the proposed improved road or airstrip. Furthermore, as these species may exist in areas where they play a significant role in the ecosystem as a food source, carrier of plant seeds, or deterrent to pests, the broader forest ecosystem may be damaged due to their loss. Moreover, the expansion of roads and airstrips may be in proximity to habitats with threatened or endangered species that could be damaged or destroyed during the infrastructure construction. Without more information on the abundance and distribution of threatened and endangered species which may be affected and the locations where these species could be disrupted by the proposed construction, appropriate mitigation measures cannot be created to effectively and sufficiently preserve these wildlife corridors.
2) Crossing streams/wet areas or meadows.

The proposed improved road network will cross intermittent streams, wetlands, and wet meadows where valuable / sensitive ecosystems are typically found (noted to be 39 times in Figure 17 in Annex B). The construction or widening of roads through or near to wetlands can damage these ecosystems through soil erosion and sedimentation, degradation of water quality, alterations to hydrology, prevention of fish/amphibian movements, impacts on wildlife access to water, and disruptions to aquatic and riparian ecosystems. Without more information on the specific locations where the roads will cross these sensitive ecosystems, effective and sufficient mitigation measures cannot be developed to adequately avoid or minimize the impact of the proposed road construction on these areas.

3) Soil Erosion and Gully Formation.

The proposed improved road network has the potential for substantial erosion that could lead to gully formation. A gully is a break in the land that is formed when water runs through soil, often along sloped areas. Such gullies resemble ditches of various sizes yet can support the flow of a substantial amount of water. As the proposed improvements to the roads includes traversing sloped areas in some locations, the formation of gullies along or perpendicular to the roads could occur if not adequately designed and maintained. If fill is extracted near the road, the resulting excavations may also create gullies, erosion and additional hazards. The lack of proper design and maintenance can lead to road failure and the alteration of natural water flows, which would result in sedimentation of streams/wetlands and the inability to use the road. Without more information regarding the soil types, slopes, and hydrology of in the areas where the roads will be constructed, effective and sufficient mitigation measures cannot be created to adequately avoid or minimize the formation of gullies over time or the alteration of natural water flows that could change the predicted locations of gully formation.

Table 6 summarizes these three significant issues and proposes potential mitigation measures to address them.
Note: Table 6 includes content adapted from Keller and Sherar, 2003; USAID, 2015; U.S. Department of Transportation, 2018; and, VicRoads, 2012

### TABLE 5. POTENTIALLY SIGNIFICANT ISSUES TO BE ADDRESSED IN THE EA

<table>
<thead>
<tr>
<th>No.</th>
<th>Concerns</th>
<th>Construction Activity</th>
<th>Determination of Significance</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preservation of migration corridors for fauna and potential negative impacts on threatened and endangered species or primary/undegraded forests.</td>
<td>Improved Road Network; Expansion of HQ Landing Strip; and, Clearing for FOB Airstrips.</td>
<td>Proposed infrastructure improvement could create barriers to wildlife (e.g., small mammals, birds, reptiles, amphibians) or damage or destroy habitat of threatened or endangered species or primary forests. Because specific data on abundance and distribution of threatened and endangered species are not available for the project area, the potential significance of this concern is uncertain. This is an information gap that will be further identified and located.</td>
<td>Identify and locate wildlife corridors, feeding and mating areas, threatened and endangered species habitats, and older growth forests (to the extent possible). Discern the larger landscape of normal wildlife movements (e.g., between an identified inhabited area and a food or water source) and reroute or relocate infrastructure developments to avoid disturbing these areas as much as possible. Ensure workers are trained to avoid disturbing this habitat, if threatened and endangered species habitats are identified near (within 30 m) of infrastructure upgrades, in suspected areas of such species, conduct systematic wildlife monitoring to plan functional wildlife adaptations to infrastructure developments. Train workers to identify sign of endangered species. Conduct ongoing research and piloting of non-damaging means to determine effective ways to deter wildlife away from infrastructure when life-threatening circumstances exist (e.g., take-off or landing of aircraft, passing of vehicles, use of light reflective materials).</td>
</tr>
</tbody>
</table>
### TABLE 5. POTENTIALLY SIGNIFICANT ISSUES TO BE ADDRESSED IN THE EA

<table>
<thead>
<tr>
<th>No.</th>
<th>Concerns</th>
<th>Construction Activity</th>
<th>Determination of Significance</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>researched in the EA.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Crossing streams /wet areas or meadows</td>
<td>Improved Road Network</td>
<td>Roadways constructed through or near to wetlands can damage valuable ecosystems and habitat, cause soil erosion and sedimentation, degrade water quality and/or alter hydrology, prevent fish from passing, impact wildlife access to water, and disrupt aquatic and riparian ecosystems.</td>
<td>Use a multidisciplinary team (ecologist, hydrologist, soil scientist, and road engineer) to identify sensitive wetland ecosystems and either avoid road construction through them or ensure minimal impact on them by minimizing use of machinery, restricting worker movements, not constricting waterways, taking special precautions to prevent the release or dumping of debris, oil, fuel, sand, cement, or similar harmful materials, and reducing risks of erosion and sedimentation in and near to the identified areas. Minimize the number of connections between roads and water courses and minimize diversion potential. Locate fords / stream crossings where stream banks are low, the channel is well confined / narrow, the stream channel is straight, stable, and not changing shape, the road meets the stream at a right angle (except where prevented by terrain features). Bedrock locations are desirable where structures are used. Limit construction activity to periods of low flow in live streams. Minimize use of equipment in the stream.</td>
</tr>
<tr>
<td>No.</td>
<td>Concerns</td>
<td>Construction Activity</td>
<td>Determination of Significance</td>
<td>Mitigation Measures</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------</td>
<td>-------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 3   | Soil Erosion and Gully Formation | Improved Road Network                      | Formation of gullies and neglecting their maintenance can lead to road failure and the alteration of natural water flows. | Develop a gully avoidance and stabilizion plan to address interim and final erosion control needs, specific measures, and how to implement or install those measures.  

Do not extract material for road fill from areas adjacent to the roadway. To the extent that materials cannot be brought in for road fill, ensure that no trenches or other hazards are created. If fill is necessary, excavations will be rehabilitated.  

Stabilize roadside ditches with small stone riprap and/or vegetative barriers along the contour to dissipate energy and prevent the creation or enlargement of gullies.  

Extend runout drains far enough to allow water to dissipate evenly into the ground and not to add to the moisture content of soils where gullies could potentially form.  

Apply erosion control measures before the rainy season and immediately following any construction (e.g., covering disturbed or eroding areas with tree branches, tree tops, woody debris, stumps, foliage, and native vegetation).  

Maintain and reapply erosion control measures until vegetation is successfully established. |
5.1.2 LESS SIGNIFICANT ISSUES (NOT TO BE EVALUATED IN THE EA)

The Scoping Team identified the following issues; (1) that are not potentially significant and can be eliminated from consideration, or (2), whose potential negative impacts can be maintained, with high probability, to a level below significance, by implementing specific mitigation actions (Table 7 and Table 8). Table 7 considers common routine issues associated with construction while Table 8 considers issues that are not significant due to their nature and scale.

<table>
<thead>
<tr>
<th>No.</th>
<th>Concern</th>
<th>Justification for eliminating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Safety of construction workers.</td>
<td>Even though worker safety is of utmost importance, the planned construction activities do not entail work that is extraordinarily dangerous or so novel that the risks to workers are unknown. Standard safety protocols can be implemented to decrease the risk below significance.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Buried historic or archaeological resources.</td>
<td>Limited soil excavation is planned for all construction activities and no designated archaeological sites have been identified in the area. However, chance find protocols will be implemented to preserve historic and archaeological resources.</td>
</tr>
<tr>
<td>4</td>
<td>Storage of solvents, paints, fuels, lubricants, and their waste products.</td>
<td>The storage of solvents, paints, fuels, lubricants, and their waste products are a normal concern for construction activity. The level of risk for spills of these materials will be managed to below significance by the implementation of standard waste management and spill prevention protocols.</td>
</tr>
<tr>
<td>5</td>
<td>Waste management.</td>
<td>As noted in Item 4 above, best practices for waste management during construction will be implemented to minimize the risk associated with the generation and handling of construction waste.</td>
</tr>
<tr>
<td>6</td>
<td>Proper construction and site selection of the FOBs and community training center.</td>
<td>The FOB temporary structures (e.g., tent structures mounted on earthen platforms) and the single-story community training center will be completed in accordance with standard construction methods, and the construction remains small scale.</td>
</tr>
<tr>
<td>No.</td>
<td>Concern</td>
<td>Justification for eliminating</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Workers on scaffolding.</td>
<td>Scaffolding is not expected to be used in construction of the FOBs or community center. However, standard construction practices for the appropriate use of scaffolding must be used if scaffolding is used during construction.</td>
</tr>
<tr>
<td>8</td>
<td>Use of burnt bricks.</td>
<td>Burnt bricks are not expected to be used in construction of the FOBs and community center. Rather, soil-stabilized bricks will be used. As a result, the potential impacts from construction with burnt bricks will be eliminated.</td>
</tr>
<tr>
<td>9</td>
<td>Borrow/quarry pits.</td>
<td>The use of borrow/quarry pits during the proposed construction activities is not envisioned; however, the limited use of small-scale pits, if necessary, will be managed by implementing standard best practices to minimize the risk of such impacts below the level of significance.</td>
</tr>
<tr>
<td>10</td>
<td>Post-construction activities/decommissioning.</td>
<td>Decommissioning of existing roads will not be conducted during the proposed construction. Rather the existing roads and paths will be incorporated into the proposed improved road alignments. Wastes generated during the construction of the new improved roads will be managed in accordance with best practices as noted above.</td>
</tr>
<tr>
<td>11</td>
<td>Machinery use and maintenance.</td>
<td>Machinery use during the proposed improvements is expected to be limited to one grader and transportation vehicles. The potential negative impacts associated with the maintenance and use of the single grader along the road network and airstrips within the reserve are small scale and can be managed below the level of significance by implementing best practices.</td>
</tr>
<tr>
<td>12</td>
<td>Sourcing of sand, gravel, or fill.</td>
<td>The quantities of sand, gravel, or fill required for the community center construction are likely to be small so that the impacts associated with sourcing these materials can be minimized below the level of significance by implementing best practices. The small quantity of fill for cambering / crowning roads and airstrips will be moved from the edges of the roads or airstrips (defined as less 5 meters from the centerline) by the grader during widening</td>
</tr>
</tbody>
</table>
Table 6. Issues Deemed Routine Environmental Issues During Scoping and Justification for Eliminating

<table>
<thead>
<tr>
<th>No.</th>
<th>Concern</th>
<th>Justification for eliminating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>of the road. As a result, the impacts from sourcing these materials should not be significant as sand, gravel, or fill will not be procured from streams or where aquatic ecosystems thrive.</td>
</tr>
<tr>
<td>13</td>
<td>Erosion around infrastructure (other than for roads)</td>
<td>Because the construction of the community center and FOBs is considered small scale, the associated negative impacts from erosion can be managed below the level of significance by implementing best management practices for erosion control. Similarly, the potential impacts from erosion during construction and operation of the improved airstrips can be minimized by implementing best erosion control practices.</td>
</tr>
</tbody>
</table>
5.2 RATIONALE FOR ELIMINATION OF ISSUES THAT ARE NOT SIGNIFICANT

The Scoping Team identified the following issues that are not potentially significant, due to the nature of the activity and its scale and can be eliminated from consideration in the EA (Table 8).

<table>
<thead>
<tr>
<th>No.</th>
<th>Concern</th>
<th>Justification for eliminating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Air quality - construction</td>
<td>Construction activities, such as grader road work that could result in dust, will be short in duration (often less than five days at any one location).</td>
</tr>
<tr>
<td>2</td>
<td>Air quality - operation</td>
<td>During operation, the improved infrastructure will produce some dust but where dust is produced, it will be infrequent (airstrips) and/or people will be not affected (vehicle driving on a road in the reserve where no communities are present).</td>
</tr>
<tr>
<td>3</td>
<td>Noise pollution - construction</td>
<td>Construction activities such as bull dozer/scraper road work that could result in noise pollution will not exceed a maximum of five days at any one location, so this could be considered an acute impact.</td>
</tr>
<tr>
<td>4</td>
<td>Noise pollution – operation from road and airfield use</td>
<td>Increased vehicle traffic on improved all-season roads, additional flights at the new airfield, and flights from FOBs are not expected to result in increased impacts on local fauna due to the infrequency of flights and road usage.</td>
</tr>
<tr>
<td>5</td>
<td>In-migration of poachers using the newly established road network.</td>
<td>The Chinko Nature Reserve has a single entrance on the existing road that is guarded by African Parks’ staff. External actors can only access the road network at this guarded entrance. It is extremely unlikely that poachers would open their own vehicle paths to connect with the Chinko Nature Reserve road network.</td>
</tr>
<tr>
<td>6</td>
<td>Impacts related to poor management of human waste.</td>
<td>The Chinko Nature Reserve is far from neighboring communities that would be susceptible to contamination by human waste. In addition, human wastes will be managed by best practices for sanitation appropriate to the scale of the human occupation to minimize risks of impacts to the local environment below significance (e.g., latrines at the community center and FOBs).</td>
</tr>
</tbody>
</table>
### Table 7. ISSUES DEEMED INSIGNIFICANT DURING SCOPING AND JUSTIFICATION FOR ELIMINATING

<table>
<thead>
<tr>
<th>No.</th>
<th>Concern</th>
<th>Justification for eliminating</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Trucking of murram.</td>
<td>Murram and similar soils are found on-site in the road alignment or at the airstrips, so the trucking of murram will not be necessary.</td>
</tr>
<tr>
<td>8</td>
<td>Blasting rock.</td>
<td>Rock outcroppings will be avoided during construction and road improvements so that rock blasting will not occur.</td>
</tr>
<tr>
<td>9</td>
<td>Vehicle traffic.</td>
<td>Because traffic on the improved roads will be limited to African Park vehicles, an increase in traffic is not expected.</td>
</tr>
<tr>
<td>10</td>
<td>Improved access to natural resources leading to their destruction/exploitation.</td>
<td>Only Chinko Project staff will have access to the road network. These staff and employees are prohibited from hunting and cutting down trees.</td>
</tr>
<tr>
<td>11</td>
<td>Spread of communicable diseases.</td>
<td>The increase of communicable diseases due to the normal increased communication roads provide does not pertain to this project as no human populations will be linked as a result of the infrastructure developments.</td>
</tr>
<tr>
<td>12</td>
<td>Damage to bridges in flood-prone areas.</td>
<td>The Chinko Project does not intend to construct bridges during the proposed infrastructure improvements.</td>
</tr>
</tbody>
</table>
6.0 ALTERNATIVES

This section contains a preliminary list of reasonable alternatives that the EA Team may consider, in addition to alternatives that may be identified during the EA process. Reasonable alternatives, which will be compared in the EA, must meet the project purpose and need. USAID’s Reg. 216 requires that the EA must present and compare alternatives to the proposed action. The analytic basis for comparing alternatives must also be presented, along with reasons for eliminating those alternatives that are not included in the detailed EA study.

Below is a list of possible alternatives. It will be the EA Team’s responsibility to identify reasonable alternatives to conduct the comparative analysis.

6.1 NO ACTION

The Chinko Nature Reserve protects and maintains this unique, at-risk, rich biodiversity area in eastern CAR. Under current conditions, the wildlife within the reserve is subject to poaching by local hunters, Sudanese herdsmen, the LRA, and opportunistic local government officials. The poaching threat could in fact result in the extermination of certain species in the Chinko Nature Reserve. In other areas of the CAR, namely Bamingui-Bangoran National Park, Manovo Gounda St. Floris National Park, Vassako-Bollo, Gribingui-Bamingui, l'Aouk Aoukale, Yata Ngaya Reserves, Presidential Park Awakaba, the Nana-Barya Reserve and Mbitoye and Moyen-Sido areas, the elephant population has decreased from approximately 35,000 in 1977 and to almost zero due to poaching to supply the ivory trade.

Without construction of the proposed improvements to the FOBs, roads, airfields and other infrastructure within the Chinko Nature Preserve, African Parks can continue their wildlife protection operations; however, expansion of these operations would be inhibited as access to certain areas would be limited. For example, without construction of the FOBs, ranger teams could not react quickly to identified poacher activity. Similarly, without improved road networks, ranger teams would not have access to the large area of the reserve’s core during the rainy season. Without additional airstrips, ranger teams could not be resupplied or otherwise aided rapidly in time-sensiive situations.

In summary, the No Action alternative would maintain the existing infrastructure in support of current limited wildlife protection operations and possibly result in the deterioration of the biodiversity stock of the Chinko Nature Reserve.

6.2 ALTERNATIVE ONE

Because it is expected that the proposed improvements to the road network will have the highest potential for significant environmental impacts in the Chinko Nature Reserve, this alternative includes the proposed construction of FOBs and the airfield, and does not include the proposed road improvements.

This alternative will meet the objectives of the Chinko Project through:
(1) The increased use of aerial vehicles (e.g., fixed-wing planes like cessnas at the extended airfield, and ULMs, or microlights at the very small FOB fields) to transport resources and

(2) The increased number of personnel to operate the additional FOBs to conduct patrols or respond to illegal incursions. Having additional well-staffed FOBs will provide more rapid and reliable year-round ground movements throughout the park to monitor wildlife and poacher movements and establish a stronger law enforcement presence. Additional flying hours will provide more time needed to monitor activities within the reserve and potentially faster resupply and transfer of ranger units.

Both the small airstrips and light buildings at each FOB are expected to have less of a significant environmental impact than the proposed road improvements because: (1) the proposed infrastructure at each FOB has a relatively small footprint (maximum airstrip size is 0.009km² and the FOB is approximately 0.003 km²) and (2) the temporary nature of their use as FOBs will not always be manned and airstrips will not be constantly in use (i.e., daily ultralight aircraft flights).

Given the size of the FOBs and their airstrips, 80 additional FOBs and their accompanying airstrips could be established and equate to only a tenth of the minimum area that the road network will impact.

This alternative may entail higher costs than the proposed road improvements to achieve an appropriate number of additional ultralight aircraft, fuel, tent structures, pilots, mechanics, and rangers capable of maintaining operations in the additional FOBs. The greatest foreseen limitation of this alternative, beyond the cost implications, is the availability of pilots, mechanics, and qualified rangers to be hired for these new positions.

6.3 ALTERNATIVE TWO

Reiterating the fact that the road network improvements will likely have the largest environmental impact on the Chinko Reserve, a further proposal is to reduce the number of kilometers to be constructed or rehabilitated and elongate the timeframe for construction. The Chinko Project could select the 500 km of roads least likely to impact wetlands or other sensitive ecosystems and rehabilitate or construct those roads over the course of five years, instead of upgrading the proposed 835 km of road. During that timeframe, it can be determined whether or not different access roads can be constructed or rehabilitated that will have less of an impact on sensitive ecosystems and be more, or just as, functional as the originally planned road network system. Funding not used for road construction or rehabilitation during the upcoming five year window could be used to hire more rangers, establish more FOBs and airstrips, and provide for an increase in foot-patrols in at-risk portions of the reserve accessible from FOBs.

6.4 PROPOSED ACTION

The proposes action includes four proposed interventions: 1) the upgrade of 835 km of the reserve’s road network to all-season roads, 2) the construction of six FOBs, 3) the expansion of
the main headquarters’ airstrip and the creation of smaller airstrips next to each FOB, and 4) the construction of a community training center.

The proposed infrastructure improvements of the Chinko Nature Reserve’s roads, airstrips, and FOBs included in the proposed action will enable more rapid and reliable year-round movements throughout the park to monitor wildlife and poacher movements and intervene where necessary. The construction of the community center provides a location within the park to educate stakeholders and community members as well as train future community members in natural resource management techniques. Each of these activities speaks to USAID/CAR’s CARPE DO 2: Maintain the ecological integrity of the humid forest ecosystem of the Congo basin, as in stabilizing greenhouse gas emissions through sustainable natural resource management.
7.0 METHODOLOGY AND SCHEDULE FOR PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

Per 22 CFR 216.3(a)(4) and ADS 204, the Scoping Statement shall include a description of the timing for preparation of the environmental analysis, including phasing, if any; approach for meaningful stakeholder consultation, variations required in the format of the Environmental Assessment, and the tentative planning and decision-making schedule.

7.1 METHODOLOGY FOR CONDUCTING THE ENVIRONMENTAL ASSESSMENT AND SCHEDULE

The EA for the Chinko Project will follow the format required by USAID in 22 CFR 216.6.

The following tentative task timetable (Table 9) is proposed for preparation of the EA, depending upon BEO approval of this Scoping Statement prior to the start date of the EA.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Activity</th>
<th>Responsible party</th>
<th>Deliverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>XX, 2019</td>
<td>Begin preparation of EA work plan</td>
<td>Consultant</td>
<td>Work plan</td>
</tr>
<tr>
<td>XX to XX, 2019</td>
<td>Begin additional research and identify potential interviewees for the EA; identify available and relevant GIS data layers</td>
<td>Consultant</td>
<td>NA</td>
</tr>
<tr>
<td>XX to XX, 2019</td>
<td>Continue with additional research; develop preliminary GIS maps, and conduct interviews for the EA</td>
<td>Consultant</td>
<td>NA</td>
</tr>
<tr>
<td>XX to XX, 2019</td>
<td>Compile and analyze information; complete GIS analysis</td>
<td>Consultant</td>
<td>NA</td>
</tr>
<tr>
<td>XX, 2019</td>
<td>Submit draft EA</td>
<td>Consultant</td>
<td>Draft EA document</td>
</tr>
<tr>
<td>XX, 2019</td>
<td>Comments received on draft EA</td>
<td>USAID</td>
<td>Comments on draft EA</td>
</tr>
</tbody>
</table>
8.0 ENVIRONMENTAL ASSESSMENT TEAM COMPOSITION

Expertise and Format for conducting the EA

The EA Team will consist of a mix of local and international experts who, as a team, will possess the expertise needed to evaluate the potential significant environmental and social impacts identified in Section 6. The following specialists would be ideal to have on the EA Team, but, would be dependent on the scope and budget for the EA. In some cases, one team member may possess more than one skill set.

- Environmental Impact Assessment specialist
- Natural Resource Management / Biodiversity specialist
- Low-Volume Road Construction specialist
- Mapping/GIS specialist
9.0 APPENDICES

APPENDIX A – QUESTIONNAIRES FOR STAKEHOLDERS
- Questionnaire for Non-Governmental Organizations
- Questionnaire for CAR Government Agencies
- Questionnaire for Donors

APPENDIX B – ADDITIONAL MAPS

APPENDIX C – REFERENCES
APPENDIX A – QUESTIONNAIRES FOR STAKEHOLDERS

Questionnaire for Non-Governmental Organizations

Questionnaire:

Enoncé de la Portée de l’évaluation de l’impact environnemental et social

La Réserve Naturelle Chinko

USAID a embauché The Cadmus Group à élaborer cet énoncé de la portée de l’évaluation évaluation d’impact environnemental des travaux de construction prévues à l’intérieur de la Reserve Naturelle Chinko, dans le Mbomou et Haute-Kotto. Les travaux vont impliquer la construction de 1.000 km de réhabilitation des routes, quatre pistes d’atterrissage, plusieurs postes des gardes-forestiers non-permanent, et un centre communautaire.

(L’objectif de ce questionnaire est d’assurer qu’on pourra identifier et évaluer avec précision les impacts environnementaux et sociétaux de pertinence qui peuvent se produire à cause des travaux de construction prévues. On a élaboré une série des questions ci-dessous. On vous prie de considérer que ces questions soient ouvertes, et n’hésitez pas de partager vos opinions sur des sujets qu’on n’a pas inclus dessous mais que vous en pensez qu’on a dû considérer.

A la dernière page du questionnaire, on a inclus une liste des domaines susceptibles qui ont été identifiées pendant cette phase de délimitation, et d’énoncé de la portée de cette évaluation; s’il vous plaît noter ceux qui sont pertinents, donner-les la priorité, et fournir des notes ou d’autres information que nous aidera avec cette évaluation.

Merci pour votre aide. N’hésitez pas de nous contacter si vous avez des questions.)
**Questionnaire: Organisation non gouvernementale (ONG)**

1. Quelles sont les raisons pour lesquelles votre ONG travaille aux environs de la Réserve Naturelle Chinko ?

2. Avec quelles communautés aux environs de la Réserve Naturelle Chinko travaillez-vous, et à quelle distance de la Réserve Naturelle Chinko sont-elles situées ?

3. Quelle est la relation entre ces communautés et la Réserve Naturelle Chinko ?

4. Pourriez-vous décrire le statut socioéconomique de ces communautés ?

5. Pensez-vous que le projet d’infrastructure à la Réserve Naturelle Chinko aura un effet sur les communautés voisines, soit pendant la construction soit après ?

6. Les habitants des communautés voisines, avaient-ils des soucis par rapport le projet à la Réserve Naturelle Chinko ? Si c’est le cas, pourquoi ? Les habitants soutiennent-ils le projet ?

7. Quelles sont les principales préoccupations environnementales et sociales qui se sont présentées pendant que le projet a été planifié ? Que pensez-vous sur la gestion de ces préoccupations ?

8. Votre organisation a-t-elle déjà d’expérience avec la Réserve Naturelle Chinko ou avec des autres réserves pareilles à la Réserve Naturelle Chinko ?
   
   o Qu’est-ce que votre organisation a appris des travaux antérieurs concernant les préoccupations environnementales, sociales, logistiques et de sécurité qui peuvent bénéficier au projet de construction de la Réserve Naturelle Chinko et à la Réserve Naturelle Chinko elle-même ?

9. Pensez-vous qu’il pourrait y avoir des impacts environnementaux et sociaux à cause de l’augmentation de l’émigration des déplacées internes vers l’intérieur et à l’intérieur de la Réserve Naturelle Chinko, résultant de la construction ?

10. Y a-t-il des inquiétudes que les routes réhabilitées à la Réserve Naturelle Chinko pourront rendre plus visibles les gens qui travaille pour la conservation, et donc leur rendre plus vulnérables aux menaces des braconniers, de la milice, ou des autres risques ?

11. Est-ce que votre organisation anticipe des conflits entre les travaux de construction à la Réserve Naturelle Chinko et la biodiversité existante ou avec les communautés voisines ?

12. Veuillez consulter la liste à la prochaine page des effets environnementales qui peuvent résulter à cause du projet infrastructurel à la Réserve Naturelle Chinko. Veuillez sélectionner et classer par ordre de priorité ceux qui vous semblent pertinents pour le
projet de la Réserve Naturelle Chinko et proposer vos idées. Pensez-vous qu’il y a des impacts possibles qui devraient être ajoutés ou enlevés de la liste ?
Exemples des effets environnementaux potentiels liés

au projet infrastructurel à la Réserve Naturelle Chinko

Veuillez regarder cette liste et identifier et prioriser les impacts potentiels qui pourraient être associés au projet d'infrastructure de la Réserve Naturelle Chinko

1. Préservation des corridors de migration pour la faune et les impacts négatifs sur les espèces menacées et en danger ou les forêts primaires / non dégradées.
   a. Fragmentation des habitats
   b. L'accès du faune au nourriture, l'eau, et leur cheminement de la migration naturel
   c. Les effets de traversées de cours d'eau sur la reproduction
   d. La gestion de la végétation pour minimiser les effets sur la faune et flore et les berges

2. L'introduction des espèces des flores envahissantes par des véhicules et la machinerie

3. Etablissement des camps de travailleurs et bases d'opération avancées
   a. Minimisation de l'érosion des sols et le tassement pendant la construction
   b. La gestion des établissements de déchets et assainissement

4. Matériaux des routes et des pistes d'atterrissage
   a. Le tassement des sols pendant la construction
   b. L'érosion et l'envasement des cours d'eau pendant l'obtention et acheminement des matériaux de construction

5. Efficacité de déblais et remblais

6. Traversée dans le cours d'eau/ Passage a gue
   a. Sélection du site pour la traverse d'eau
   b. L'érosion et le besoin de la stabilisation des rives (par ex. enrochement, gabions)

7. Traversée des zones humides ou des champs
   a. Sélection du site pour la traverse

8. Stabilisation des cours
9. Reconstruction, réparation, réalignement, ou réhabilitation des routes et pistes d’atterrissage
   a. Erosion, sédimentation, ravinement, ou des autres problèmes qui résulte du déplacement de sol
   b. Conception des routes – il faut disperser l’eau à la traversée

10. Conception, terrassement et nivelage, et choix des sites pour les nouvelles routes et pistes d’atterrissage.

11. Entretien des routes et des pistes d’atterrissage.
   a. Sélection du site pour les pistes d’atterrissage et les bases d’opération avancées
   b. Les effets sur l’environnement avoisinant des pistes d’atterrissage et des bases d’opération avancées
   c. L’érosion, le ravinement, etc. pendant la construction ou pendant la saison des pluies

12. La migration des braconniers en utilisant le nouveau réseau routier
   a. L’expansion du réseau routier vers des zones qui n’avait pas des routes auparavant ou l’utilisation accrue des routes pendant la saison des pluies

13. Des effets possibles sur l’environnement à cause de l’augmentation de la circulation à la Réserve Naturelle Chinko dès que l’amélioration de l’infrastructure est terminée
Questionnaire for CAR Government Agencies

Questionnaire:

Enoncé de la Portée de l’évaluation de l’impact environnemental et social

La Réserve Naturelle Chinko

USAID a embauché The Cadmus Group à élaborer cet énoncé de la portée de l’évaluation d’impact environnemental des travaux de construction prévues à l’intérieur de la Reserve Naturelle Chinko, dans le Mbomou et Haute-Kotto. Les travaux vont impliquer la construction de 1.000 km de réhabilitation des routes, quatre pistes d’atterrissage, plusieurs postes des gardes-forestiers non-permanent, et un centre communautaire.

(The Cadmus Group, travaille pour USAID/GEMS, http://www.usaidgems.org/about.htm.)

L’objectif de ce questionnaire est d’assurer qu’on pourra identifier et évaluer avec précision les impacts environnementaux et sociétaux de pertinence qui peuvent se produire à cause des travaux de construction prévues. On a élaboré une série des questions ci-dessous. On vous prie de considérer que ces questions soient ouvertes, et n’hésitez pas de partager vos opinions sur des sujets qu’on n’a pas inclus dessous mais que vous en pensez qu’on a dû considérer.

A la dernière page du questionnaire, on a inclus une liste des domaines susceptibles qui ont été identifiées pendant cette phase de délimitation, et d’énoncé de la portée de cette évaluation; s’il vous plait noter ceux qui sont pertinents, donner-les la priorité, et fournir des notes ou d’autres information que nous aidera avec cette évaluation. **Merci pour votre aide. N’hésitez pas de nous contacter si vous avez des questions.**
Questionnaire: Agences gouvernementales de la République centrafricaine

1. Veuillez décrire les activités, dont le gouvernement est conscient, qui se déroulent aux environs de la Réserve Naturelle Chinko, ceux qui sont en cours et ceux qui sont à venir. (Cela peut inclure des activités exécutées par vos agences gouvernementales, par des ONGs, ou par des autres organisations).
   - Pensez-vous que les activités en cours ou ceux qui sont imminentes, pourraient-ils créer des problèmes pour la construction à la Réserve Naturelle Chinko ?
   - Est-ce que les activités en cours ou ceux qui sont à venir aux environs de la Réserve Naturelle Chinko bénéficieraient-ils la construction infrastructurelle à la Réserve Naturelle Chinko ?
   - Pensez-vous que les activités aux environs de la Réserve Naturelle Chinko encourageraient-ils l’émigration des braconniers, des milices, ou des déplacées internes dans ou hors de la Réserve Naturelle Chinko ?

2. Est-ce que le gouvernement anticipe des conflits entre les activités de construction à la Réserve Naturelle Chinko et la biodiversité existante ou avec les communautés voisines ?

3. Avez-vous d’information sur des changements de politique récents ou à venir liés à la gestion des ressources naturelles ou aux affaires de biodiversité à la République centrafricaine ? Si c’est le cas, que pouvez-vous partager avec nous ?
   - Quelle est la situation actuelle des changements de politique (la chronologie, des problèmes qui pourront entraver l’implémentation, des question contestées) ?
   - Comment ces changements affecteraient-ils l’amélioration d’infrastructure à la Réserve Naturelle Chinko ? Aurait-il des conflits ou des bénéfices ? Les deux ?

4. Connaissez-vous des nouvelles récentes a la République centrafricaine qui concerne la Réserve Naturelle Chinko ?
   - Est-ce que les nouvelles récentes augmentent des préoccupations qu’il y a sur les problèmes écologiques à l’intérieur ou à la proximité de la Réserve Naturelle Chinko ?
   - Au vu des nouvelles récentes, pensez-vous qu’il faut faire des changements aux activités d’amélioration d’infrastructure proposées dans la Réserve Naturelle Chinko ? (Par ex. Conception du projet, logistiques, ou construction) ?

5. Comment décririez-vous votre relation avec les donateurs et les ONGs concernant le travail à la Réserve Naturelle Chinko ?
6. Y a-t-il des inquiétudes que les routes réhabilitées à la Réserve Naturelle Chinko pourront rendre plus visibles les gens qui travaille pour la conservation, et donc leur rendre plus vulnérables aux menaces des braconniers, de la milice, ou des autres risques ?

7. Est-ce que le gouvernement anticipe des impacts environnementaux à cause de l’augmentation de l’émigration des déplacées internes vers l’intérieure et a l’intérieure de la Réserve Naturelle Chinko, résultant de la construction ?

8. La prochaine page de ce questionnaire contient une liste des effets environnementales qui peuvent résulter à cause du projet infrastructurel à la Réserve Naturelle Chinko. Au vu de votre expérience précédente, veuillez décrire quels sujets vous considérez d’être les plus importants ou les plus exigeants. Pensez-vous qu’il y a des impacts possibles qui devraient être ajoutés ou enlevés de la liste ?

**Exemples des effets environnementales potentiels liés au projet infrastructurel à la Réserve Naturelle Chinko**

Veuillez regarder cette liste et identifier et prioriser les impacts potentiels qui pourraient être associés au projet d'infrastructure de la Réserve Naturelle Chinko

1. Préservation des corridors de migration pour la faune et les impacts négatifs sur les espèces menacées et en danger ou les forêts primaires / non dégradées.
   a. Fragmentation des habitats
   b. L’accès du faune au nourriture, l’eau, et leur cheminement de la migration naturel
   c. Les effets de traversées de cours d’eau sur la reproduction
   d. La gestion de la végétation pour minimiser les effets sur la faune et flore et les berges

2. L’introduction des espèces des flores envahissantes par des véhicules et la machinerie

3. Etablissement des camps de travailleurs et bases d’opération avancées
   a. Minimisation de l’érosion des sols et le tassement pendant la construction
   b. La gestion des établissements de déchets et assainissement

4. Matériaux des routes et des pistes d’atterrissage
   a. Le tassement des sols pendant la construction
   b. L’érosion et l’envasement des cours d’eau pendant l’obtention et acheminement des matériaux de construction
5. Efficacité de déblais et remblais

6. Traversée dans le cours d’eau/ Passage a gue
   a. Sélection du site pour la traverse d’eau
   b. L’érosion et le besoin de la stabilisation des rives (par ex. enrochement, gabions)

7. Traversée des zones humides ou des champs
   a. Sélection du site pour la traverse

8. Stabilisation des cours

9. Reconstruction, réparation, réalignement, ou réhabilitation des routes et pistes d’atterrissage
   a. Erosion, sédimentation, ravinement, ou des autres problèmes qui résulte du déplacement de sol
   b. Conception des routes – il faut disperser l’eau a la traversée

10. Conception, terrassement et nivelage, et choix des sites pour les nouvelles routes et pistes d’atterrissage.

11. Entretien des routes et des pistes d’atterrissage.
   a. Sélection du site pour les pistes d’atterrissage et les bases d’opération avancées
   b. Les effets sur l’environnement avoisinant des pistes d’atterrissage et des bases d’opération avancées
   c. L’érosion, le ravinement, etc. pendant la construction ou pendant la saison des pluies

12. La migration des braconniers en utilisant le nouveau réseau routier
   a. L’expansion du réseau routier vers des zones qui n’avait pas des routes auparavant ou l’utilisation accrue des routes pendant la saison des pluies

13. Des effets possibles sur l’environnement à cause de l’augmentation de la circulation à la Réserve Naturelle Chinko dès que l’amélioration de l’infrastructure est terminée
Questionnaire for Donors:

Questionnaire:

Enoncé de la Portée de l’évaluation de l’impact environnemental et social

La Réserve Naturelle Chinko

USAID a embauché The Cadmus Group à élaborer cet énoncé de la portée de l’évaluation d’impact environnemental des travaux de construction prévues à l’intérieur de la Réserve Naturelle Chinko, dans le Mbomou et Haute-Kotto. Les travaux vont impliquer la construction de 1.000 km de réhabilitation des routes, quatre pistes d’atterrissage, plusieurs postes des gardes-forestiers non-permanent, et un centre communautaire.

(The Cadmus Group, travaille pour USAID/GEMS, http://www.usaidgems.org/about.htm.)

L’objectif de ce questionnaire est d’assurer qu’on pourra identifier et évaluer avec précision les impacts environnementaux et sociétaux de pertinence qui peuvent se produire à cause des travaux de construction prévues. On a élaboré une série des questions ci-dessous. On vous prie de considérer que ces questions soient ouvertes, et n’hésitez pas de partager vos opinions sur des sujets qu’on n’a pas inclus dessous mais que vous en pensez qu’on a dû considérer.

A la dernière page du questionnaire, on a inclus une liste des domaines susceptibles qui ont été identifiées pendant cette phase de délimitation, et d’énoncé de la portée de cette évaluation; s’il vous plait noter ceux qui sont pertinents, donner-les la priorité, et fournir des notes ou d’autres information que nous aidera avec cette évaluation.

Merci pour votre aide. N’hésitez pas de nous contacter si vous avez des questions.
Questionnaire: Bailleurs de fonds internationaux

1. Veuillez décrire les activités, actuelles et au futur, qui se déroulent aux environs de la Réserve Naturelle Chinko qui sont financées par votre organisation.
   ○ Comment est-ce que les activités actuelles et à venir sont liées à l’amélioration d’infrastructure proposée à la Réserve Naturelle Chinko ?

2. Est-ce que vous avez d’informations sur des changements de politique, récents ou à venir, qui sont liés à la gestion des ressources naturelles ou de la biodiversité à la République centrafricaine ?
   ○ Quelle est la situation actuelle des changements de politique (la chronologie, des problèmes qui pourront entraver l’implémentation, des question controversées) ?
   ○ Comment ces changements affecteraient-ils l’amélioration d’infrastructure à la Réserve Naturelle Chinko ?
   ○ Pensez-vous que les changements de politique affecteraient-ils l’émigration des braconniers ou des déplacées internes dans ou hors de la Réserve Naturelle Chinko ?

3. Connaissez-vous des nouvelles récentes à la République centrafricaine qui concerne la Réserve Naturelle Chinko ?
   ○ Au vu des nouvelles récentes, pensez-vous qu’il faut faire des changements aux activités d’amélioration d’infrastructure proposées dans la Réserve Naturelle Chinko ?

4. Avec quelles organisations travaillez-vous pour coordonner vos projets par rapport les activités aux environs de la Réserve Naturelle Chinko ?
   ○ Est-ce qu’il y a de personnel à ces organisations avec qui on pouvait parler pour amasser leur perspective sur les effets environnementales et/ou les bénéfices de la construction à la Réserve Naturelle Chinko ?

5. Si vous avez d’information spécifique sur comment se fait la collaboration entre votre organisation et le gouvernement aux environs de la Réserve Naturelle Chinko, s’il vous plait indiquez-nous si vous est disponible pour une conversation par téléphone.

6. La prochaine page de ce questionnaire contient une liste des effets environnementales qui peuvent résulter à cause du projet infrastructurel à la Réserve Naturelle Chinko. Au vu de votre expérience précédente, veuillez décrire quels sujets vous considérez d’être les plus importants ou les plus exigeants. Pensez-vous qu’il y a des impacts possibles qui devraient être ajoutés ou enlevés de la liste ?
Exemples des effets environnementales potentiels liés

au projet infrastructurel à la Réserve Naturelle Chinko

Veuillez regarder cette liste et identifier et prioriser les impacts potentiels qui pourraient être associés au projet d'infrastructure de la Réserve Naturelle Chinko

1. Préservation des corridors de migration pour la faune et les impacts négatifs sur les espèces menacées et en danger ou les forêts primaires / non dégradées.
   a. Fragmentation des habitats
   b. L'accès du faune au nourriture, l’eau, et leur cheminement de la migration naturel
   c. Les effets de traversées de cours d’eau sur la reproduction
   d. La gestion de la végétation pour minimiser les effets sur la faune et flore et les berges

2. L’introduction des espèces des flores envahissantes par des véhicules et la machinerie

3. Etablissement des camps de travailleurs et bases d’opération avancées
   a. Minimisation de l’érosion des sols et le tassement pendant la construction
   b. La gestion des établissements de déchets et assainissement

4. Matériaux des routes et des pistes d’atterrissage
   a. Le tassement des sols pendant la construction
   b. L’érosion et l’envasement des cours d’eau pendant l’obtention et acheminement des matériaux de construction

5. Efficacité de déblais et remblais

6. Traversée dans le cours d’eau/ Passage a gue
   a. Sélection du site pour la traverse d’eau
   b. L’érosion et le besoin de la stabilisation des rives (par ex. enrochement, gabions)

7. Traversée des zones humides ou des champs
   a. Sélection du site pour la traverse

8. Stabilisation des cours
9. Reconstruction, réparation, réalignement, ou réhabilitation des routes et pistes d’atterrissage
   a. Erosion, sédimentation, ravinement, ou des autres problèmes qui résulte du déplacement de sol
   b. Conception des routes – il faut disperser l’eau à la traversée

10. Conception, terrassement et nivelage, et choix des sites pour les nouvelles routes et pistes d’atterrissage.

11. Entretien des routes et des pistes d’atterrissage.
   a. Sélection du site pour les pistes d’atterrissage et les bases d’opération avancées
   b. Les effets sur l’environnement avoisinant des pistes d’atterrissage et des bases d’opération avancées
   c. L’érosion, le ravinement, etc. pendant la construction ou pendant la saison des pluies

12. La migration des braconniers en utilisant le nouveau réseau routier
   a. L’expansion du réseau routier vers des zones qui n’avait pas des routes auparavant ou l’utilisation accrue des routes pendant la saison des pluies

13. Des effets possibles sur l’environnement à cause de l’augmentation de la circulation à la Réserve Naturelle Chinko dès que l’amélioration de l’infrastructure est terminée
APPENDIX B – ADDITIONAL MAPS

Figure 15 Map of the Surrounding Habitats of Proposed Segments of Roads in the Chinko Nature Reserve
### TABLE 9. ADDITIONAL DATA DERIVED FROM THE ANALYSIS OF THE SURROUNDING HABITATS BY PROPOSED ROAD SEGMENT IN THE CHINKO NATURE RESERVE

<table>
<thead>
<tr>
<th>Road Label</th>
<th>% Closed Canopy Forest</th>
<th>% Open woodland Savannah</th>
<th>% Wet Marshy Grassland</th>
<th>% Dry Grassland on Lakéré</th>
<th>% Surface Water Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road-A</td>
<td>2.9%</td>
<td>78.7%</td>
<td>-</td>
<td>10.1%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Road-B</td>
<td>7.1%</td>
<td>70.2%</td>
<td>-</td>
<td>11.7%</td>
<td>11.0%</td>
</tr>
<tr>
<td>Road-C</td>
<td>11.5%</td>
<td>53.5%</td>
<td>-</td>
<td>23.5%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Road-D</td>
<td>11.7%</td>
<td>64.6%</td>
<td>-</td>
<td>7.3%</td>
<td>16.4%</td>
</tr>
<tr>
<td>Road-E</td>
<td>5.3%</td>
<td>74.0%</td>
<td>-</td>
<td>9.4%</td>
<td>11.3%</td>
</tr>
<tr>
<td>Road-F</td>
<td>6.6%</td>
<td>76.9%</td>
<td>-</td>
<td>5.3%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Road-G</td>
<td>12.9%</td>
<td>48.7%</td>
<td>0.2%</td>
<td>19.7%</td>
<td>18.5%</td>
</tr>
<tr>
<td>Road-H</td>
<td>4.4%</td>
<td>69.7%</td>
<td>-</td>
<td>12.6%</td>
<td>13.3%</td>
</tr>
<tr>
<td>Road-I</td>
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<td>93.1%</td>
<td>-</td>
<td>6.5%</td>
<td>0.2%</td>
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<tr>
<td>Road-J</td>
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<td>-</td>
<td>13.2%</td>
<td>18.0%</td>
</tr>
<tr>
<td>Road-K</td>
<td>8.5%</td>
<td>69.5%</td>
<td>0.1%</td>
<td>4.9%</td>
<td>17.1%</td>
</tr>
<tr>
<td>Road-L</td>
<td>13.0%</td>
<td>78.9%</td>
<td>-</td>
<td>6.0%</td>
<td>2.2%</td>
</tr>
</tbody>
</table>
Figure 16 Map of the Habitats Surrounding the Proposed FOB and HQ Construction Sites in the Chinko Nature Reserve
### TABLE 10. ADDITIONAL DATA DERIVED FROM THE ANALYSIS OF THE SURROUNDING HABITATS BY PROPOSED FOB AND HQ CONSTRUCTION SITE IN THE CHINKO NATURE RESERVE

<table>
<thead>
<tr>
<th>Map Label</th>
<th>% Closed Canopy Forest</th>
<th>% Open Woodland Savannah</th>
<th>% Wet Marshy Grassland</th>
<th>% Dry Grassland on Lakéré</th>
<th>% Surface Water Body</th>
</tr>
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<tr>
<td>Airstrip</td>
<td>75.1%</td>
<td>-</td>
<td>24.9%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FOB 1</td>
<td>46.8%</td>
<td>5.9%</td>
<td>29.7%</td>
<td>0.2%</td>
<td>-</td>
</tr>
<tr>
<td>FOB 2</td>
<td>24.2%</td>
<td>30.6%</td>
<td>16.2%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FOB 3</td>
<td>81.5%</td>
<td>17.0%</td>
<td>0.5%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FOB 4</td>
<td>76.1%</td>
<td>0.0%</td>
<td>15.7%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FOB 5</td>
<td>58.5%</td>
<td>29.1%</td>
<td>9.3%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FOB 6</td>
<td>1.6%</td>
<td>54.6%</td>
<td>3.7%</td>
<td>0.8%</td>
<td>-</td>
</tr>
<tr>
<td>FOB 7</td>
<td>49.9%</td>
<td>10.9%</td>
<td>31.0%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FOB 8</td>
<td>39.6%</td>
<td>32.1%</td>
<td>16.6%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FOB 9</td>
<td>55.7%</td>
<td>5.3%</td>
<td>33.9%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FOB 10</td>
<td>-</td>
<td>40.1%</td>
<td>0.8%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HQ</td>
<td>33.4%</td>
<td>1.1%</td>
<td>48.3%</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Figure 17 Map of the Improved Road Network River Crossings in the Chinko Nature Reserve

<table>
<thead>
<tr>
<th>Crossing Map Label</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Stream Approximate Drainage Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOB 5</td>
<td>6.081250</td>
<td>23.855912</td>
<td>92,610</td>
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<tr>
<td>FOB 8</td>
<td>6.689809</td>
<td>23.660417</td>
<td>29,130</td>
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</table>
TABLE 12. ADDITIONAL INFORMATION PERTAINING TO THE LOCATION AND DRAINAGE AREA OF ROAD SEGMENTS IN THE CHINKO NATURE RESERVE

<table>
<thead>
<tr>
<th>Crossing Map Label</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Road Map Label</th>
<th>Proposed Construction Year</th>
<th>Stream Approximate Drainage Area</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>5.942677</td>
<td>23.328157</td>
<td>Road-A</td>
<td>1</td>
<td>896,640</td>
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<tr>
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<td>23.312082</td>
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<td>117,750</td>
</tr>
<tr>
<td>3</td>
<td>5.630014</td>
<td>23.324153</td>
<td>Road-A</td>
<td>1</td>
<td>440,550</td>
</tr>
<tr>
<td>4</td>
<td>5.627303</td>
<td>23.068750</td>
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</tr>
<tr>
<td>5</td>
<td>5.628157</td>
<td>23.117677</td>
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<td>1</td>
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<tr>
<td>6</td>
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### TABLE 12. ADDITIONAL INFORMATION PERTAINING TO THE LOCATION AND DRAINAGE AREA OF ROAD SEGMENTS IN THE CHINKO NATURE RESERVE

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<tr>
<th>Crossing Map Label</th>
<th>Latitude</th>
<th>Longitude</th>
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<th>Stream Approximate Drainage Area</th>
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### TABLE 12. ADDITIONAL INFORMATION PERTAINING TO THE LOCATION AND DRAINAGE AREA OF ROAD SEGMENTS IN THE CHINKO NATURE RESERVE

<table>
<thead>
<tr>
<th>Crossing Map Label</th>
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<th>Longitude</th>
<th>Road Map Label</th>
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APPENDIX C. REFERENCES


## APPENDIX D – INTERNATIONAL TREATIES

<table>
<thead>
<tr>
<th>International Treaty</th>
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<tbody>
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<td>The Voluntary Partnership Agreement between the European Union and the Central African Republic on Forest Law Enforcement, Governance, and Trade in Timber and Derived Products to the European Union</td>
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<tr>
<td>The Commission on Forests of Central Africa</td>
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<tr>
<td>The Treaty for the Sustainable Conservation and Management of Forest Ecosystems in Central Africa</td>
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<td>The International Commission of the Congo-Oubangui-Sangha Basin</td>
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<tr>
<td>The Central African Forestry Commission</td>
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<tr>
<td>The RAMSAR Convention</td>
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<td>The UN Framework Convention on Climate Change</td>
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<td>The Convention to Combat Desertification</td>
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<td>The Convention on Biological Diversity</td>
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<td>Vienna Convention for the Protection of the Ozone Layer</td>
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<td>The World Heritage Convention</td>
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