

WILDFIRES, BUSHFIRES AND FOREST FIRES IN ANGOLA



FIRE IN QUIÇAMA NATURAL PARK

WILDFIRES, BUSHFIRES AND FOREST FIRES IN ANGOLA



- **SUMMARY:**

INTRODUCTION

1. DIFFERENCES BETWEEN WILDFIRES, BUSHFIRES AND FOREST FIRES
2. BRIEF DESCRIPTION OF FOREST FIRES IN ANGOLA
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4. PREVENTION AND SUITABLE MANAGEMENT
5. IMPACT OF FOREST FIRES ON BIODIVERSITY
6. GOVERNMENT INTERVENTIONS
7. RECOMENDATIONS TO FIGHT AGAINST THE FOREST FIRES
8. COURT OF AUDITORS ACTIONS
9. CONCLUSIONS

BIBLIOGRAPHY USED (summarized)

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INTRODUCTION

PRESENTATION OBJECTIVES: PRESENT ANGOLAN'S FOREST FIRE DIFFICULTIES AND PROPOSE CORRECTIVE MEASURES TO MINIMIZE THEM

FOREST AREA IN THE WORLD: 4,06 BILLIONS OF HECTARS

FOREST AREA IN ANGOLA: 69 MILLIONS OF HECTARS

THE FOREST AREA OF THE PLANET SHELTERS MORE THAN:

- 60.000 TREE SPECIES;
- 80% OF AMPHIBIANS;
- 75% OF BIRD SPECIES;
- 68% OF MAMMALS.

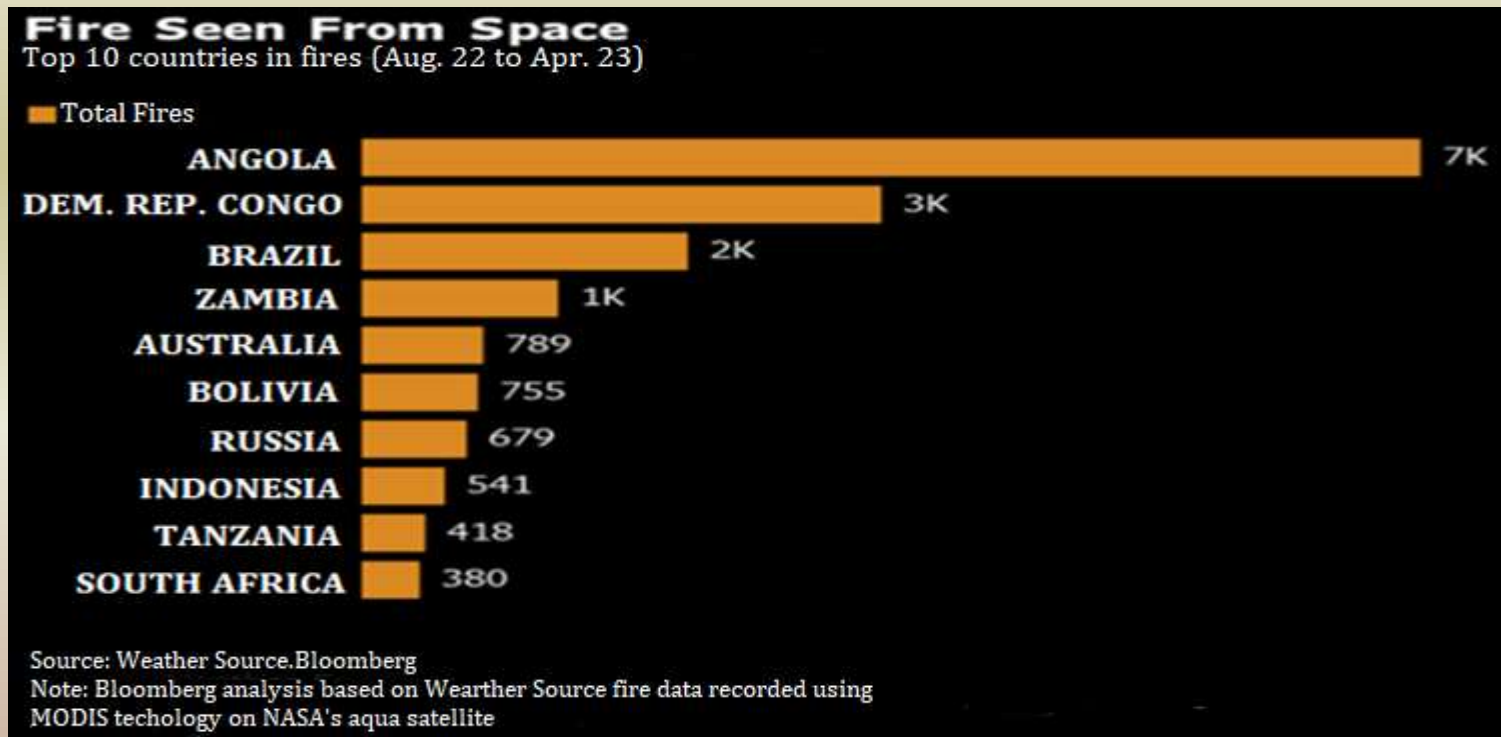
ACCORDING TO **FAO** (*FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS*), THE SITUATION IN ANGOLA IT'S WORRYING.

THE SPECIALISTS AND RESEARCHERS CONTRIBUTION AROUND THE WORLD IN THIS CONFERENCE WILL ALLOW THE SHARING OF INFORMATION, KNOWLEDGE, EXPERIENCE AND GOOD PRACTICES, FOR THE CONSTRUCTION OF A SAFER AND SUSTAINABLE GLOBAL SCENARIO.

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INTRODUCTION (cont.)

IN TERMS OF **CPLP**, AFTER BRAZIL, ANGOLA IS THE COUNTRY WITH A LARGER FOREST AREA AND IT'S AMONG THE TEN COUNTRIES WITH THE BIGGEST FOREST AREA DEVASTATED BY FIRE IN THE WORLD.



WILDFIRES, BUSHFIRES AND FOREST FIRES IN ANGOLA



1. DIFFERENCES BETWEEN WILDFIRE, BUSHFIRE AND FOREST FIRE

- **WILDFIRE:** FLAME, COMBUSTION OR BURNING THAT TAKES PLACE IN A CERTAIN VEGETATION;
- **BUSHFIRE (CONTROLLED BURN):** CONTROLLED AND PLANNED EVENT IN WHICH THE FIRE IS USED FOR SPECIFIC PURPOSES SUCH AS LAND CLEARING, SOIL PREPARATION FOR CROPS OR PASTURE RENEWAL, PREDOMINANT PRACTICE IN ANGOLA;
- **FOREST FIRE:** UNCONTROLLED BURNING THAT OCCURS IN VEGETATION AREAS SUCH AS STEPPES, SAVANNES OR FORESTS AND MAY BE CAUSED BY NATURAL OR HUMAN FACTORS;

FOR THE PURPOSE OF THIS COMMUNICATION WE DECIDED TO GENERALLY USE THE TERM FOREST FIRES BECAUSE IT COVERS A LARGER AREA, INVOLVING A GREAT LENGTH OF VEGETATION THAT CAN CAUSE SIGNIFICANT ENVIRONMENT AND SOCIAL DAMAGES.

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2. BRIEF DESCRIPTION OF FOREST FIRES IN ANGOLA

ANGOLA, LOCATED IN SOUTHWEST AFRICA, HAS A VARIETY OF ECOSYSTEMS, INCLUDING SAVANNES AND TROPICAL FORESTS AND SEMI-ARID AREAS. IN THIS CONTEXT, THE BUSHFIRES ARE PREDOMINANT EVENTS, PRACTISED AS A TRADITIONAL FARMING TECHNIC IN ORDER TO PREPARE THE SOIL FOR CROPS OR PASTURE RENEWAL. ACCORDING TO THE SPECIALISTS, THIS PRACTICE IS THE FOREST FIRES MAIN FACTOR, SPECIALLY DURING THE DRY SEASON.

- IN ACCORDANCE TO THE AGRICULTURE MINISTRY, THE FOREST FIRES NUMBER HAS RISING SINCE 2015;
- FROM 2008 TO 2017 THE COUNTRY HAS REGISTERED 170.773 FIRES IN FOREST PARKS, OF WHICH 32.416 IN THE RAINY SEASON AND 138.357 IN THE DRY SEASON;
- IN 2019 THE COUNTRY HAS REGISTERED MORE THAN 2000 FOREST FIRES THAT RESULTED IN THE BURNING OF MORE THAN 3000 HECTARS OF FORESTS AND AFFECTED AROUND 15.000 PEOPLE;
- IN 2021 THE NUMBER OF FIRE WARNINGS HAS INCREASED WITH MORE THAN 57.154 REGISTERED FIRES AND A BURNT AREA OF 300.000 HECTARS (Global Forest Watch);
- IN LINE WITH THE SAME SOURCE, IN ANGOLA THE FOREST FIRES AFFECTS MOSTLY THE CITIES IN THE SOUTH, EAST AND CENTER OF THE COUNTRY;
- THE MOST AFFECTED PROVINCES ARE: HUAMBO, BENGUELA, BIÉ, CUANZA-SUL AND NAMIBE

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2. BRIEF DESCRIPTION OF FOREST FIRES IN ANGOLA (cont.)

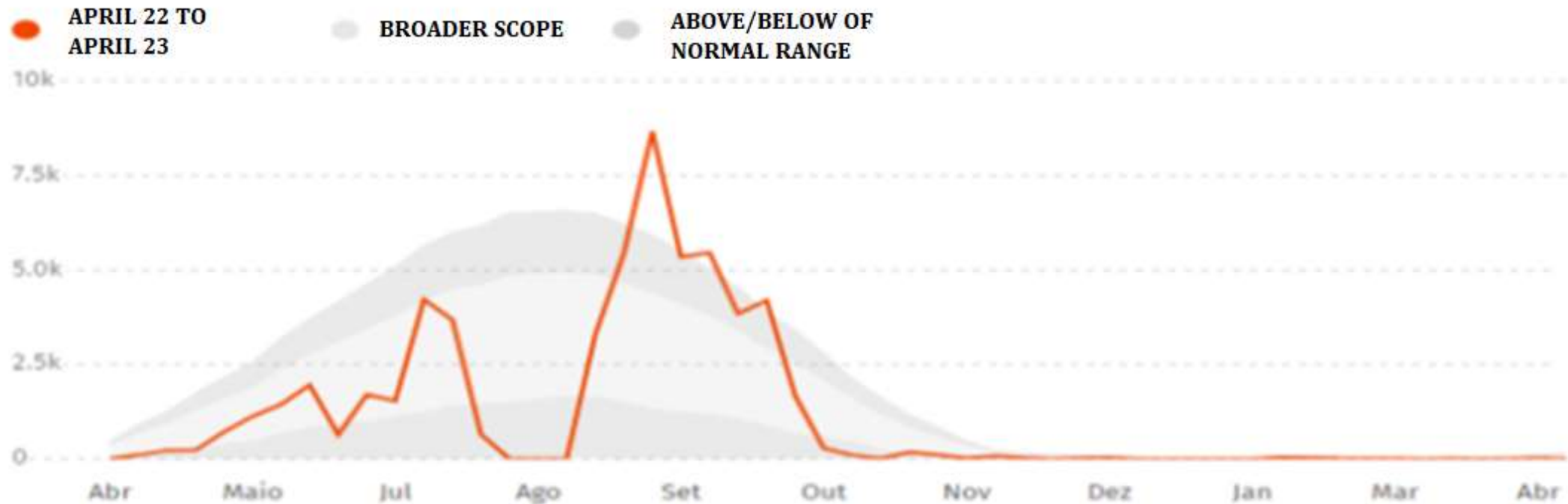
NUMBER OF FOREST FIRES IN NATIONAL PARKS BETWEEN 2008 AND 2017 OCCURRENCES OCCURRENCES PERIODS

NAME OF NATIONAL PARK	OCCURRENCES		OCCURRENCES PERIODS			
	N.º	%	Rainy Season (September - May)	Dry Season (May - September)	Days	Nights
BICUAR	17 903	10,48%	3 581	14 322	16 316	1 587
CAMIA	59 521	34,85%	13 095	46 426	58 403	1 118
CANGANDALA	5 199	3,04%	936	4 263	5 098	101
IONA	42	0,02%	5	37	31	11
LUENGUE- LUIANA	40 975	23,99%	7 785	33 190	39 654	1 321
MAVINGA	19 827	11,61%	3 172	16 655	19 401	426
MUPA	14 618	8,56%	2 193	12 425	14 378	240
QUIÇAMA	12 688	7,43%	1 649	11 039	12 524	164
TOTAL	170 773	100,00%	32 416	138 357	165 805	4 968

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2. BRIEF DESCRIPTION OF FOREST FIRES IN ANGOLA (cont.)

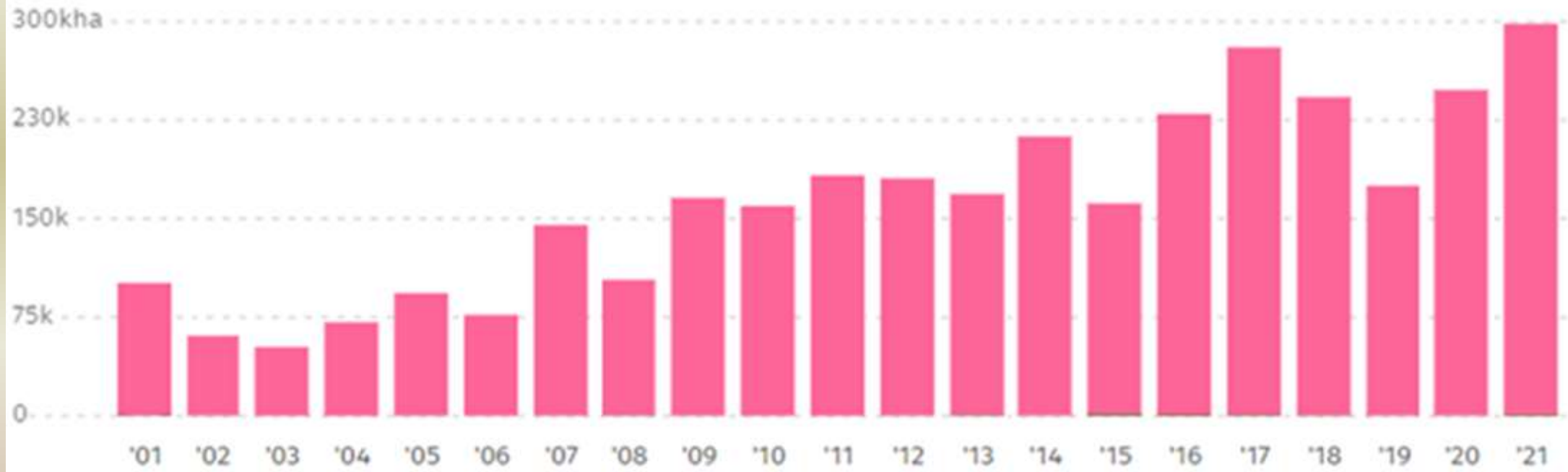
FOREST FIRES WARNINGS BETWEEN APRIL 2022 AND APRIL 2023



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2. BRIEF DESCRIPTION OF FOREST FIRES IN ANGOLA (cont.)

BURNT AREA (ha) FROM 2001 TO 2021



WILDFIRES, BUSHFIRES AND FOREST FIRES IN ANGOLA



3. CAUSES AND POTENTIAL FACTORS OF THE FOREST FIRES IN ANGOLA

THE CAUSES AND POTENTIAL FACTORS OF THE FOREST FIRES IN ANGOLA ANALYSIS MAY CONTRIBUTE TO THE DEVELOPMENT OF MORE EFFECTIVE STRATEGIES FOR PREVENTING AND FIGHTING FIRES, AS WELL AS PROVIDING VALUABLE INFORMATION FOR THE MANAGEMENT AND CONSERVATION OF THE COUNTRY'S NATURAL AREAS.

THE FOREST FIRES IN ANGOLA ARE DUE TO A FUSION OF NATURAL, HUMAN AND COMBINED CAUSES AND FACTORS.

NATURAL CAUSES:

- WEATHER CONDITIONS (droughts and high temperatures increases the risk)
- PRESENCE OF COMBUSTIBLE MATERIAL (dry leaves, dead wood)
- LIGHTNING STRIKES

ACCORDING TO THE *ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH*, THE DROUGHTS ARE ONE OF THE MAIN FOREST FIRES CAUSES IN ANGOLA.

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3. CAUSES AND POTENTIAL FACTORS OF THE FOREST FIRES IN ANGOLA (cont.)

HUMAN CAUSES:

- ITINERANT AGRICULTURE;
- BURNING OF SOLID WASTE;
- POACHING;
- TIMBER HARVESTING;
- FIRES TO CLEAR LAND AGRICULTURAL;
- LAND CLEARING FOR THE CONSTRUCTION OF HOUSING;
- MANUFACTURE OF CHARCOAL;
- NEGLIGENCE WITH CIGARRETTES AND IMPROVISED COOKERS IN THE FOREST.

IN ACCORDANCE WITH AN EVALUATION OF THE *ENVIRONMENTAL MONITORING AND ASSESSMENT*, 60% OF THE FIRES ARE CAUSED BY THESE CAUSES.

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3. CAUSES AND POTENTIAL FACTORS OF THE FOREST FIRES IN ANGOLA (cont.)

COMBINED CAUSES:

THE COMBINED CAUSES ARE THE ONES WHERE THE NATURAL AND HUMAN CAUSES COMBINE TO MAXIMIZE THE RISK AND SPREAD OF THE FOREST FIRES.

- **EXAMPLES:**
 - PROLONGED DROUGHTS AND/OR HIGH TEMPERATURES WITH AGRICULTURAL BURNING;
 - DRY LEAVES AND/OR DEAD WOOD WITH CHARCOAL MANUFACTURING.

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3. CAUSES AND POTENTIAL FACTORS OF THE FOREST FIRES IN ANGOLA (cont.)

POTENTIAL FACTORS OF THE FOREST FIRES:

- TOPOGRAPHY OF THE LAND (steep mountains with cliffs);
- TYPE OF VEGETATION (some of them with high content of oil, such as eucalyptus);
- DENSITY OF FOREST (the flames spread more easily);
- UNAVAILABILITY OF IRRIGATED WATER (which could facilitate the access of the firemen).

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4. PREVENTION AND SUITABLE MANAGEMENT

- ENVIRONMENTAL EDUCATION (to raise public awareness);
- SUITABLE FOREST MANAGEMENT (to reduce forest density and increase the resistance of forest to fire);
- CONTROL OF THE USE OF THE FIRE (to avoid its propagation);
- EARLY DETECTION;
- QUICK RESPONSE.

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5. IMPACT OF FOREST FIRES ON BIODIVERSITY

- IN ANGOLA, THE FOREST FIRES HAS LED A SIGNIFICANT NEGATIVE IMPACT BOTH IN AS BIODIVERSITY AS IN LOCAL POPULATION.

CONSEQUENCES:

- DECADES OR CENTURIES FOR FULL RECOVERY OF SOILS AND SUBSOILS;
- AFFECTATION OF LOCAL FLORA AND FAUNA;
- NATURAL AGRICULTURAL AND URBAN AREAS LOSS, AS WELL AS PROPERTIES AND HUMAN LIVES;
- LOCALITIES WITH PROLONGED DROUGHT;
- AFFECTATION OF THE OXYGEN QUALITY, WHICH CAN LEAD TO LOCAL POPULATION'S BREATHING PROBLEMS.

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6. GOVERNMENT INTERVENTIONS

IN ORDER TO FIGHT AGAINST THE FOREST FIRES THE GOVERNMENT HAS PURSUED SEVERAL INTERVENTIONS, NAMELY:

- CRIATION OF PROTECTION AND FIRE FIGHTING PROGRAMS;
- FIRE BRIGADES TRAINING;
- AWARENESS CAMPAIGN TO THE ENVIRONMENT PRESERVATION;
- REALISING INVESTMENT (in infrastructure and technology to detect and fight fires);
- IMPLEMENTATION OF LAWS AND REGULATIONS TO FIGHT THE HUMAN CAUSES.

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7. RECOMMENDATIONS TO FIGHT AGAINST THE FOREST FIRES

- INVESTING IN MONITORING TECHNOLOGY (drones and satellites);
- GENERATING MORE PUBLIC AWARENESS;
- REINFORCING THE FIRE BRIGADES (training, better equipment and more material and finance resources to respond quickly and efficiently);
- IMPLEMENTATION OF MORE PREVENTION POLICIES (prevention and prohibition of agricultures burnings programs).

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8. COURT OF AUDITORS ACTIONS

- HAS SIGNED A COOPERATION PROTOCOL WITH AFROSAI-E IN JULY/2019 IN ORDER TO CAPACITATE THEIR TECHNICIANS IN ENVIRONMENTAL PERFORMANCE AUDITS;
- IN OCTOBER 2022 HAS CREATED IN ITS TECHNICAL SERVICES DIRECTION A SECTION FOCUSED IN ENVIRONMENT PERFORMANCE AUDITS;
- AMONG MULTIPLE TASKS, THIS SECTION IN ADDITION TO ENVIRONMENT AUDITS, IT PURSUES THE SUSTAINABLE DEVELOPMENT OBJECTIVES;
- PARTICIPATE IN AUDITS IN COOPERATION WITH OTHER COUNTRIES, PARTICULARLY OF CPLP OR AUSTRAL AFRICA (COORDENATED AUDITS);
- IT'S CARRYING COORDENATED AUDITS TO THE PROTECTED AREAS IN ANGOLA (natural parks in Quiçama - Bengo, Cangandala, in Malanje, Bicuar, in Huíla, in Iona - Namibe and Maiombe Forest Reserve Maiombe in Cabinda, among others).

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8. COURT OF AUDITORS ACTIONS (cont.)

- IN ORDER TO PREVENT THE OCCURRENCE OF FOREST FIRES IN THE PROTECTED AREAS, THE COURT OF AUDITORS OF ANGOLA SUGGESTS:
 - THE IMPLEMENTATION OF MORE EFFECTIVE MANAGEMENT PLANS;
 - THE ALOCATION OF SUITABLE FINANCIAL RESOURCES;
 - MORE EFFECTIVE PREVENTION, FIGHTING AND SUPERVISION MEASURES;
 - THE INCREASING OF HUMAN RESOURCES, EQUIPMENTS AND MATERIALS AVAILABILITY;
 - ENVIRONMENT AWARENESS CONTINUOUS EDUCATIONAL ACTIONS.

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8. COURT OF AUDITORS ACTIONS (cont.)

MAIN PARKS AND NATURAL RESERVES OF ANGOLA (PROTECTED AREAS)	
CITIES	RESERVES/NATURAL PARKS
BENGO	QUIÇAMA NATIONAL PARK
LUANDA	ILHÉU DOS PASSAROS NATURAL RESERVE
MALANJE	CANGANDALA NATIONAL PARK
	LUANDO INTEGRAL NATURAL RESERVE
HUILA	BICUAR NATIONAL PARK
NAMIBE	IONA NATIONAL PARK
	NAMIBE NATIONAL PARK
CUNENE	MUPA NATIONAL PARK
BENGUELA	CHIMALAVELA NATIONAL PARK
CABINDA	KAKONGO FOREST RESERVE
	MAIOMBE FOREST (AT THE EQUATOR)
	LÂNDANA SWAMP (PELICANS E FLAMISH SANCTUARY)
BIÉ	UMPULO FOREST RESERVE
	LUANGO RESERVE
HUAMBO	KAVONGUE FOREST RESERVE
CUANDO CUBANGO	LUIANA PARTIAL RESERVE
	MAVINGA PARTIAL RESERVE

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9. CONCLUSIONS

- THE FOREST FIRES REPRESENTS A SERIOUS THREAT IN ANGOLA.
- THE TECHNOLOGICAL PROGRESS AND THE SCIENTIFIC RESEARCH IN ANGOLA HAS CONTRIBUTED FOR MITIGATING THE NEGATIVE IMPACTS OF THE WILDFIRES, BUSHFIRES AND FOREST FIRES;
- THE PREVENTION AND THE SUITABLE MANAGEMENT IS ESSENTIAL;
- THE IMPLEMENTATION OF THESE MEASURES DEMANDS COORDENATED EFFORTS OF THE SOCIETY (provincial governments, local communities, NGOs and the private sector);
- THE STUDY REVEALED NATURAL AND HUMAN CAUSES AND FACTORS AND THE COMBINATION OF BOTH;
- THE GOVERNMENT REPORTS ANALYSIS HAS REVEALED THAT IN ADDITION OF THE INVESTMENTS, THE RESOURCES FOR THE PREVENTION AND FIGHTING ARE SCARCE;
- THE NEED FOR MORE ENVIRONMENTAL EDUCATION CAMPAIGNS AND MOST EXPRESSIVES;
- THE SPECIALISTS ALSO EMPHASIZED THE IMPORTANCE OF BETTER PREVENTIVE MEASURES (strip fire-rated and better detection and fire fighting technologies) AND THE DIFFUSION OF SUSTAINABLE PRACTICES TO PROTECT OUR ECOSYSTEMS, AIR QUALITY AND THE HUMAN LIFE.

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- PHYTOGEOGRAPHIC LETTER OF ANGOLA;
- SEVERAL ENVIRONMENT IMPACT STUDIES;
- ORGANIC STATUTES OF THE MINISTRY OF ENVIRONMENT;
- FAO REPORT ON FIRES IN ANGOLA
- *ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH AND ENVIRONMENTAL MONITORING AND ASSESSMENT REPORTS;*
- I.N.E. REPORT;
- MODIS TECHNOLOGY ON NASA
- FORESTS AND WILDLIFE LAW;
- MINISTRY OF ENVIRONMENT REPORTS REGARDING FOREST FIRES;
- “NOTICIAIS AO MINUTO” PORTAL;
- ENVIRONMENT MINISTRY ACTION PLAN CONCERNING THE BIODIVERSITY;
- UNDP REPORT REGARDING THE HUMAN DEVELOPMENT IN ANGOLA;
- NATIONAL POLICY FOR THE FORESTS RESOLUTION;
- WWF ANGOLA, CONSERVATION OF BIODIVERSITY IN ANGOLA 2022.

A large, ancient baobab tree stands prominently in a savanna landscape. The tree has a thick, textured trunk and a dense canopy of green leaves. In the background, there are rolling hills and a bright rainbow arching across a blue sky with scattered clouds. The overall scene is peaceful and natural.

**THANK YOU
FOR YOUR
ATTENTION**

**JUDGE COUNSELOR OF
THE ANGOLA COURT OF AUDITORS**

Fausto de Carvalho Simões - Ph.D.

Full Professor of U.A.N

e-mail: carvalho.simoes@tcontas.ao