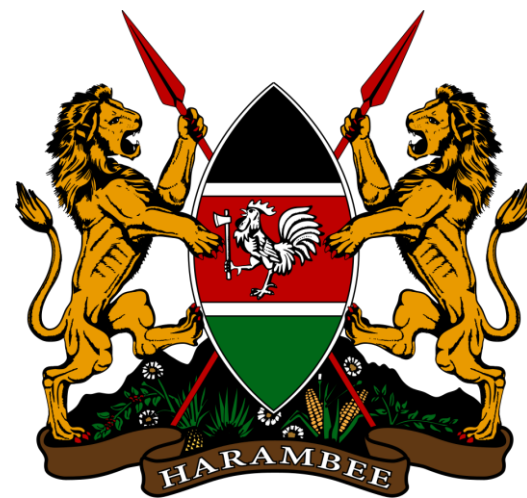




UNITED NATIONS
Office for Outer Space Affairs



United Nations
UNGSC

Regional Digital Public Infrastructure to address Human-Nature Security and Resilience in Africa

Dr. Remi Chandran
Japan

Remote Sensing Technology Center of Japan (RESTEC),

Dr. Shadrack Ngene

Ministry of Tourism and Wildlife, Nairobi, Kenya

Mr. Edward Phiri

Lusaka Agreement Task Force, Nairobi, Kenya

Mr. Lorant Carzan

United Nations Office for Outer Space, Vienna, Austria

Mr. Jumpei Takami

United Nations Office for Outer Space, Vienna, Austria

Dr. Werner Balogh

European Space Agency, Paris, France

Mr. Kais Zoubi

United Nations Global Service Center, Brindisi, Italy

Mr. Diego Gonzalez

United Nations Global Service Center, Brindisi, Italy

Ms. Lara Prades

United Nations Global Service Center, Valencia, Spain

Human-Nature Security and Resilience in Africa - 4 key problems

- **Human Wildlife Conflict** – causing damage humans, animals, properties and crop loss. In Kenya alone pays 7 million USD in Compensation to the victims of human wildlife conflict.
- **Illegal wildlife crime** – A growing challenge in Africa – with links to organised crime.
- **Agro-pastoral conflict** - Violent conflicts between farmers and pastoralists, popularly referred to as farmer–herder conflicts, have increased in many sub-Saharan African countries.
- **Climate change, Flood and Drought** – Seasonal changes and migratory patterns influences by weather.
- **Zoonosis** – spread of Zoonotic diseases.

Human-wildlife Conflict is a major problem in Sub-Saharan Africa



Government of Kenya spends 7 Million USD/ year on Compensations alone

Poaching continues to be a challenge in Sub-Saharan Africa



Image Copyright@The David Sheldrick Wildlife Trust

Conflicts between indigenous people, pastoral and Agro-pastoral communities



Image Copyright
@BApCN

Measures to address the problem

- The plan to address the problem was initiated during the Tokyo Conference for Combating Wildlife Crime held at the UN university in 2014.
- Step one was to gather feedback from the various stakeholders and member states of Lusaka Agreement Task Force.
- In this regard, several conferences were initiated involving African Member countries
- The discussions lead to the need for a regional command and control facility in Nairobi and a regional Digital Public Infrastructure to be hosted at the United Nations facility in Valencia and Vienna.

Science-Policy Forums to address the challenges related to
information sharing on Human-Nature Conflicts
March 3, 2014 -Tokyo Conference on Combating wildlife Crime.
United Nations University, Tokyo.



Moderator: Dr. Remi Chandran, Researcher, United Nations University & Chief Policy Advisor of Wildlife Enforcement Monitoring System Initiative.

Panelists: Ms Maria Mutagamba, Minister of Tourism, Wildlife and Antiquities of Uganda; Mr.Kunio Mikuriya, Secretary-General of the World Customs Organization; Ms. Elizabeth Mrema, Executive Secretary CBD, Dr. Ng Chong, Director, Campus computing, United Nations University; Prof. Robert Hoppe- University of Twente; Vivek Menon Executive Director Wildlife Trust of India.

United Nations/Kenya Conference on Space Technology and Applications for Wildlife Management and Protecting Biodiversity

27-30 June 2016, United Nations Office at Nairobi Kenya

Organized by the United Nations Office for Outer Space Affairs and the Government of the Republic of Kenya supported by the European Space Agency and hosted by the United Nations Environment Programme (UNEP)



TICAD -7 Side Event

Strengthening Information Sharing Infrastructure and Governance Frameworks to Address Human-Nature Conflicts

A high level panel of experts attended the side event organised by Lusaka Agreement Task Force (LATF) supported by RESTEC



His Excellency, Félix Tshisekedi
President of Democratic Republic of Congo



Prof. Chiho Watanabe
President , NIES Japan



Dr. Aloyce Nzuki ,Permanent Secretary of
MNRT, Republic of Tanzania



Dr. Midori Paxton, Head of Ecosystems and
Biodiversity, UNDP

Science-Policy Forums to address the challenges related to information sharing on Human-Nature Conflicts
Pan-African Conference

Strengthening Information Sharing Infrastructure and Governance Frameworks to Address Human-Nature Conflicts - Arusha- Tanzania, June 17-19, 2019



The distinguished delegation included Hon. Dr. Hamisi A. Kigwangalla (MP)-Minister for Natural Resources and Tourism; His Excellency Mr. Shinichi Goto, Ambassador of Japan; Ms. Jenny CORREIA NUNES Head of Section, EU Delegation to Tanzania; UNDP Resident Representative of Tanzania; Permanent Secretary of MNRT, Director of MNRT and President of RESTEC.

Existing Digital Public Goods (DPG) developed and to be integrated as part of the Regional DPI

- **Human Wildlife Conflict** – Kenya Government has developed a monitoring and compensation tool to address the impact of HWC.
- **Illegal wildlife crime** – Lusaka Agreement hosts the Wildlife Enforcement Monitoring System (WEMS).
- **Agro-pastoral conflict** – ACLED database is currently compiling data on pastoral conflict.
- **Climate change, Flood and Drought** – Monitoring Seasonal changes and migratory patterns influences by weather.
- **Zoonosis** – African governments are cooperating to develop a regional DPI in monitoring pandemics.



SHADRACK NGENE

HOME

KWS REPORT

KWS VERIFIED

KWS REJECTED

INVOICES

RECEIPTS

REPORTS

DOWNLOADS

LOGOUT

Human- Wildlife Conflict **Monitoring and Compensation Measure**

Cases reported

Dashboard / Incidence / Cases

HUMAN WILDLIFE CONFLICT Claim Analysis Report

Filter By Category

All

Filter By County

All

Filter By Constituency

All

Filter By Date Reported

Multiple selections

Status

All

Claims Per Category

Category	Claims Reported
	4
Crop Damage	8,955
Human Death	73
Human Injury	214
Livestock	3,381
Property Damage	920
Total	13,547

CVO Pending

728

Claim Analyst Pending

3197

Claim Analyst Approved

1530

Declined By Analyst

4057

Approved By PS

237

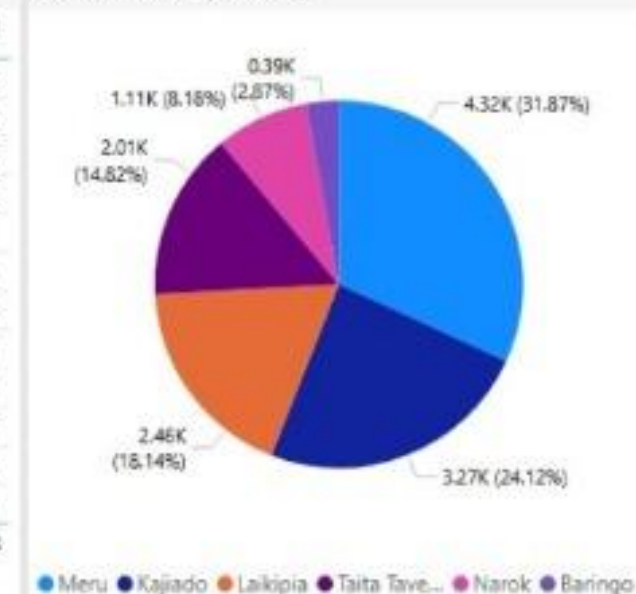
Approved by AIE

152

Claims Per Month

Month	Claim Count	Total UnPaid
January	2,145	55,594,495
February	1,099	55,930,175
March	869	32,881,900
April	574	19,231,925
May	1,908	7,047,475
June	1,632	43,284,440
July	1,377	50,540,026
August	1,050	58,080,067
September	932	57,346,305
October	679	11,935,925
November	568	46,948,000
December	714	15,114,250
Total	13,547	453,934,983

Claim Count By County



Pending Approval Claims

9,894

Approved Claims

3,487

Total Paid Claims Amount

10,000,000

Total No of Claims

14K

Total Unpaid Claims Amount

453,934,983

Microsoft Power BI

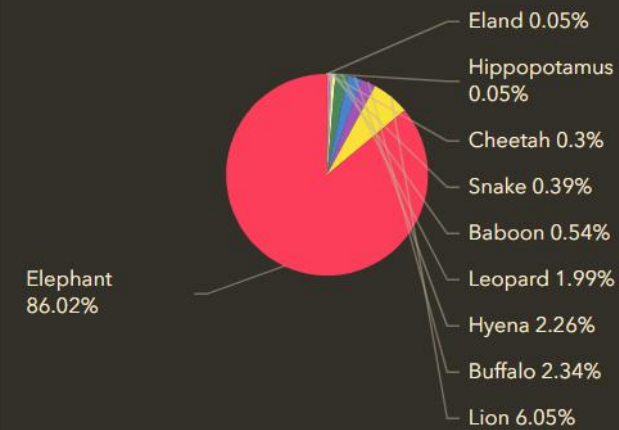
Human- Wildlife Conflict **Monitoring and Compensation**

Measure

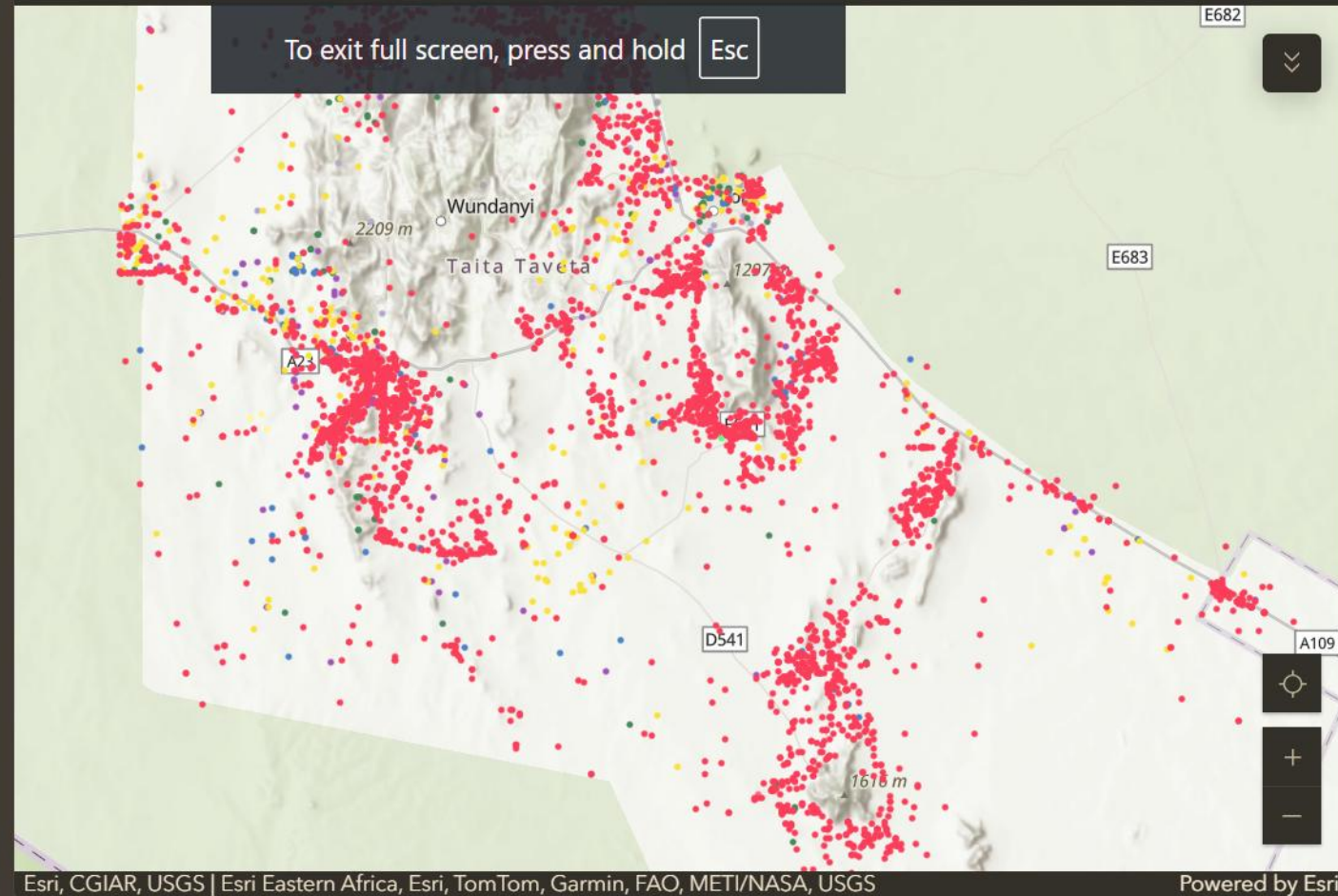
Total Human Wildlife Conflicts

5.6k

Species Wise Conflict



Human Wildlife conflict in the Tsavo ecosystem in Kenya



Human Wildlife Conflict in 2020 to 2024

- Elephant
- Lion
- Hyena
- Leopard
- Buffalo
- Baboon
- Snake
- Cheetah
- Hippopotamus
- Eland
- Other



The Human-Wildlife Conflict Monitoring and Compensation tool will be integrated with the Geospatial Risk Index Tool (GSRIT) development by RESTEC and Hokkaido University.

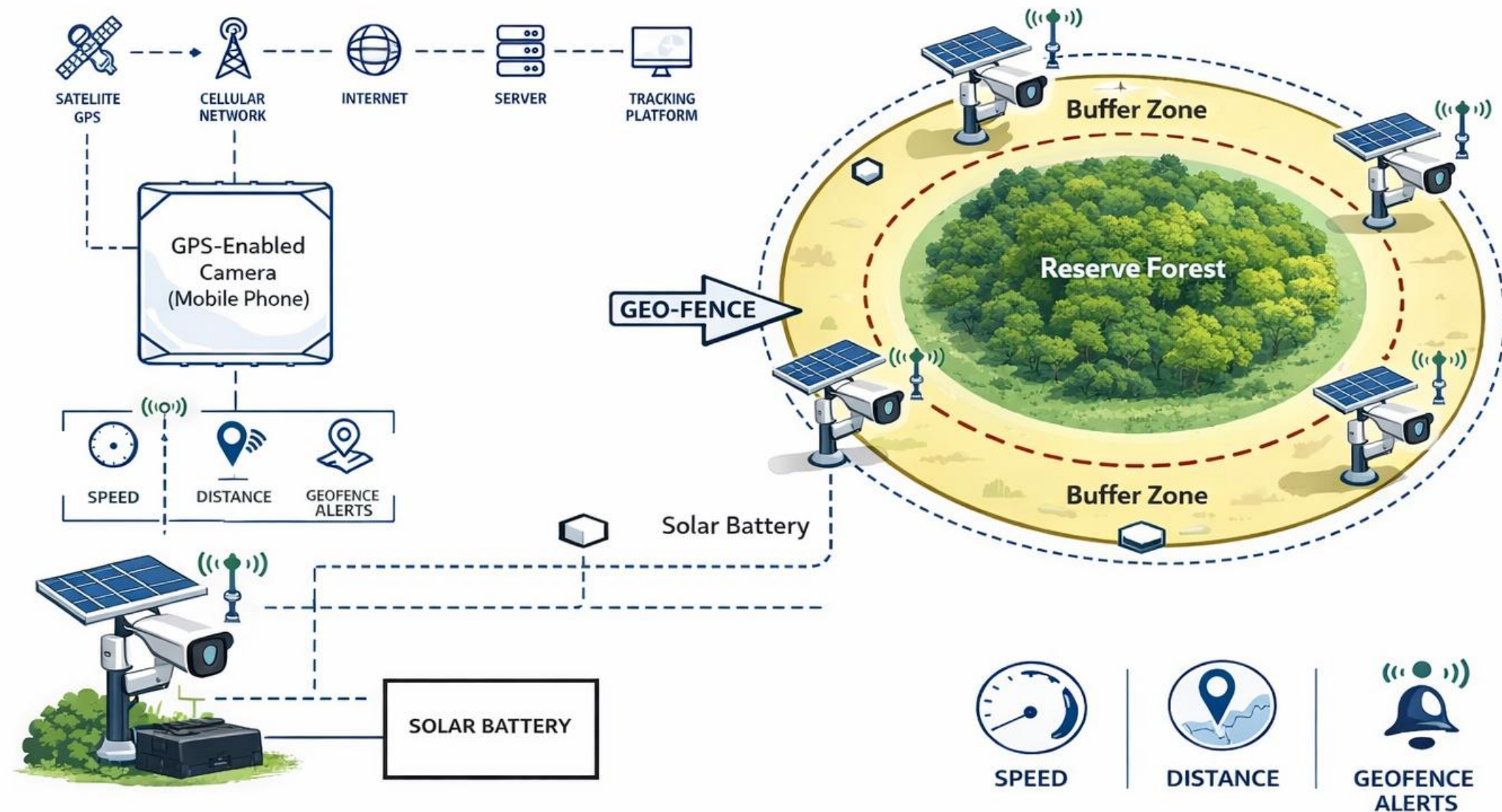
E-WARN Tool

Human- Wildlife Conflict **Prevention** Measure

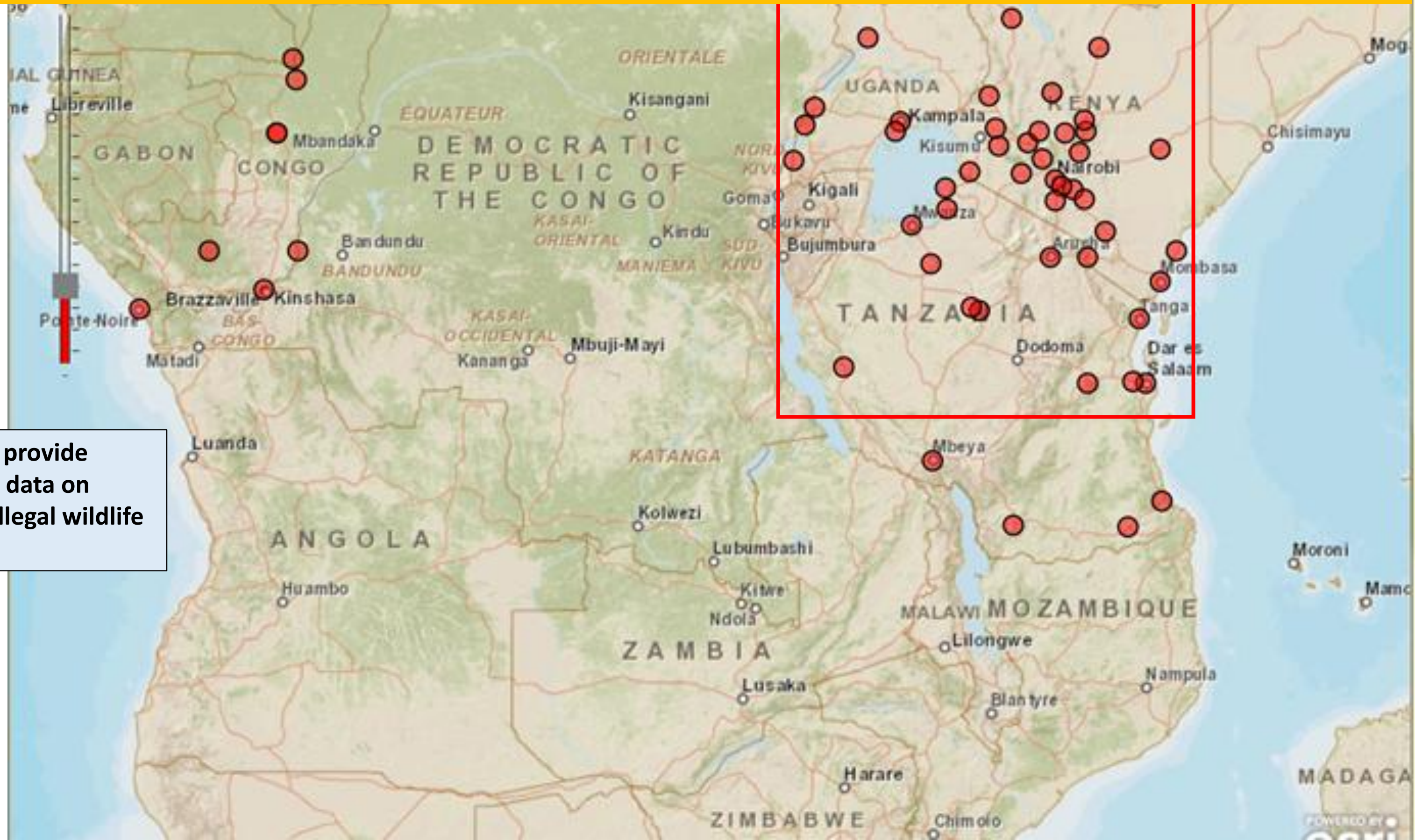
GPS-Enabled Camera Monitoring System

For Reserve Forest Surveillance

Real time
monitoring of
Animal
movement
using GPS
based Camera
and Starlink
internet
connection

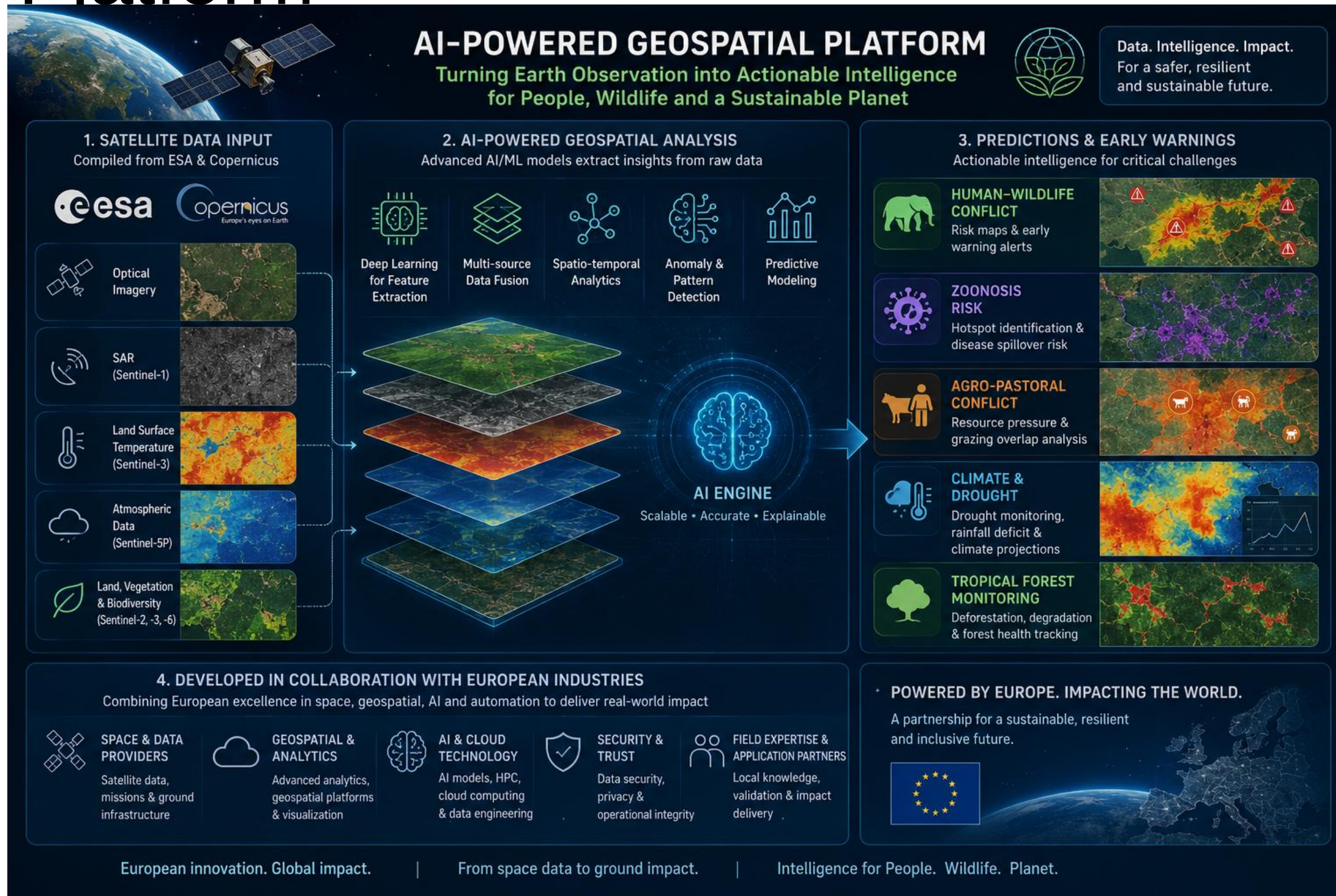


Science Application -Innovation– Geo-spatial technology to address Illegal Wildlife Crime



WEMS-2.0 will provide transboundary data on poaching and illegal wildlife trade seizures

Proposed AI powered Geospatial Platform





UNITED NATIONS
UNGSC



REPUBLIC OF KENYA

DIGITAL PUBLIC INFRASTRUCTURE (DPI) & COMMAND AND CONTROL CENTRE (CCC)

FOR HUMAN-NATURE SECURITY AND RESILIENCE IN AFRICA

Secure data • Shared insights • Stronger collaboration • Sustainable Peace and development



UNOOSA

United Nations Office
for Outer Space Affairs

1. THEMATIC FOCUS AREAS

*Integrated Monitoring, Intelligence and Response
for Human-Nature Conflicts in Africa*



1. Illegal Wildlife Trade Monitoring

Detection and monitoring of poaching, trafficking routes, and cross-border wildlife crime.



2. Human-Wildlife Conflict (HWC) Response (Led by national governments)

Early warning systems, incident reporting, and response coordination.



3. Agro-pastoral and Land-use Intelligence

Monitoring of pastoral movements, land-use change, and resource conflicts.



4. Tropical Forest and Ecosystem Monitoring (Led by ITTO)

Monitoring of forest cover change, biodiversity, ecosystem health, and carbon assessment.



5. Disaster Risk Reduction (Led by UN-SPIDER)

Floods, droughts, wildfires, and climate-related disaster monitoring.



6. One Health / Zoonotic Disease Surveillance (Led by WHO)

Integrated monitoring of wildlife, livestock, human health, and disease outbreaks.



7. Law Enforcement Capacity Building (Led by UNODC)

Intelligence-led enforcement, training, compliance, and judicial support.

2. COMMAND AND CONTROL CENTRE (CCC)

Nairobi, Kenya



Centralised data visualisation and analysis



AI-powered insights and early warning



Multi-agency coordination and decision support



Secure operations and data governance



CCC to be built at the LATF facility in Nairobi, Kenya



Lusaka Agreement Task Force



UNOOSA

United Nations Office for Outer Space Affairs



STRATEGIC COOPERATION FRAMEWORK

MoU between Lusaka Agreement Task Force and UNOOSA for:

secure data sharing, capacity building, geospatial intelligence, and digital public infrastructure development.

3. DIGITAL PUBLIC INFRASTRUCTURE (DPI) HOSTED AT UNGSC CLOUD INFRASTRUCTURE

Hosted at a UN Hub (UNGSC – UN Datacentre)



Secure and neutral UN Cloud environment



Data from countries stored and managed in accordance with international norms



Interoperable data portals and interfaces



High availability, scalability, and resilience



Hosting the data at the UN cloud provides legitimacy for countries to share data across borders due to its neutrality.

5. OUTPUTS & BENEFICIARIES



FOR AFRICAN GOVERNMENTS

- Timely data and analytics for evidence-based decision-making
- Cross-border collaboration and joint operations
- Policy support and resource



FOR INTERNATIONAL PARTNERS

- Hub for global universities and research institutions
- Facilitates AI training, research and innovation collaboration
- Supports knowledge exchange

Professional Practice in Governance
and Public Organizations

Remi Chandran

The Wildlife Enforcement Monitoring System

From Silos to Synergy in Environmental
Governance

 Springer



The GEO-DPG-HWC for addressing Human-wildlife conflict was among the top 10 digital public goods selected from 540 contestants around the world.

Dr. Remi Chandran of RESTEC and **Dr. Shadrack Ngene** from the Ministry of Wildlife and Tourism of Kenya, receiving the top 10 DPI- People and Planet certificate from **Ms. Makiko Naemura** of JICA at the DPI Summit held in Cape Town, South Africa.



What next ?

- Moving from observation to collective action
- Dedicated Working Group for DPI and Biodiversity Monitoring during CEOS meeting
- Fundraising to build the capacity of African institutions in hosting the Regional DPI in Africa.

Contact

Remi Chandran (PhD)

Senior Expert

Remote Sensing Technology Center of Japan
(RESTEC)

3-17-1 Toranomom, Minato-ku,

Tokyo 105-0001,

Japan

Phone +81-80-2183-5903 (Direct)

Email: chandran_remi@restec.jp