

29 September - 01 October 2026 ESA-ESRIN | Frascati | Italy

Environmental Crimes joint workshop with ESA-JRC-UNODC

Use of Earth Observation tools and data by Indigenous communities to combat
environmental crimes in Peru: use cases, lessons and insights.

Ruth Nogueron, World Resources Institute
Wendy Pineda and Plinio Pizango, Rainforest Foundation US

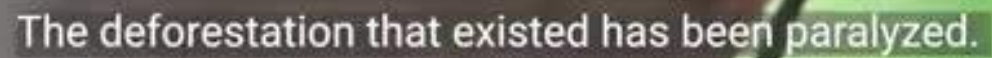


Buen Jardín del Callarú

 European Commission

 United Nations Office on Drugs and Crime

 ESA
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Pablo García, secretary and second leader, Native Community of Buen Jardín, Loreto



**Environmental crimes
in the Peruvian Amazon**

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Convergence with drug trafficking and organized crime

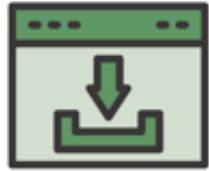
Illegal gold mining



WRI-RFUS project to leverage technology to combat nature crime in the Peruvian Amazon



1. Early warning deforestation alerts from automated interpretation of satellite images are made available in GFW platform.



2. A technology hub (usually an Indigenous organization) downloads the early warning deforestation alerts from GFW.



3. Using USB drives, paper maps, and tablets, ORPIO sends the data with communities via boat.



4. Community patrols, appointed by the community assemblies investigate the alerts in their territories to detect and document illegal activities.



5. Patrols present the findings to the community assemblies. The information is sent to the technology hub. The assemblies address the issue when only community members are involved. Depending on the severity of the issue and the degree of involvement of third parties, the assemblies:



6a. negotiate with the invaders. In some cases, the invaders leave the territory, in others the community expels them.



6b. prepare formal legal complaints directly, or through Indigenous federations.



6c. Share information confidentially with trusted authorities



7. Authorities launch investigations based on the information shared. In some cases, investigative journalists also launch investigations or, in close coordination from communities, publish stories to raise awareness and increase public pressure on the issue.



8. The technology hub compiles and curates the information. Non-sensitive information is made publicly available through their own geospatial portals.

1 – Satellite-derived products



GLAD-L (Landsat)

Tropics (30°N - 30°S)
All tree cover; updated every 8 days
Cloud limitations

GLAD-S2 (Sentinel-2)

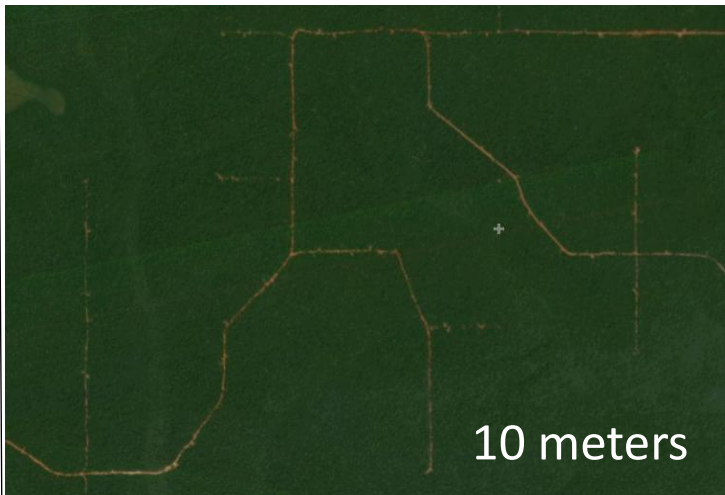
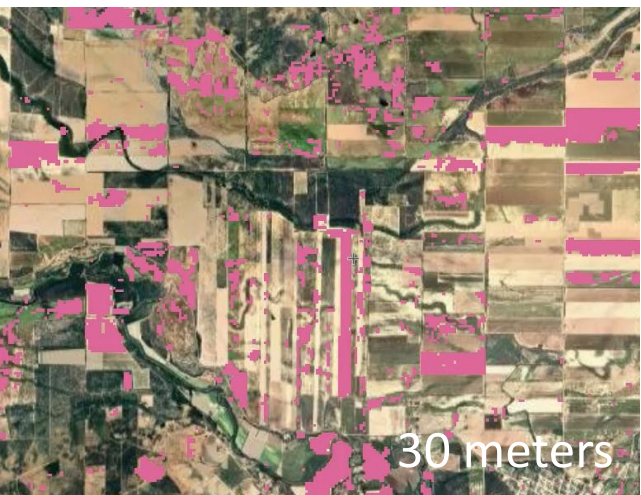
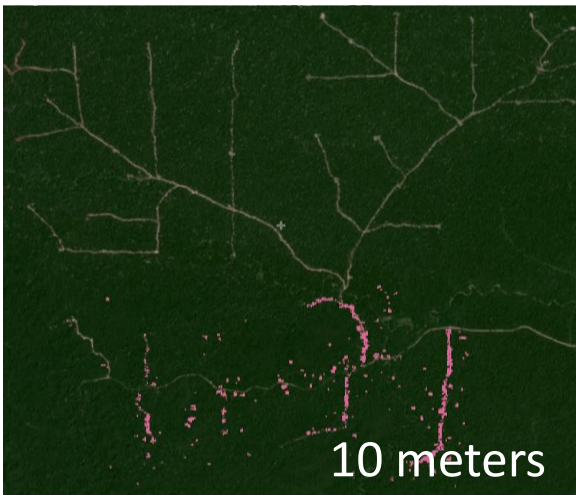
Humid primary forests in the Amazon
Updated every ~5 days
Cloud limitations

DIST-Alerts (Landsat & Sentinel-2)

Global vegetation disturbance alerts; repeat disturbances
Updated weekly
Cloud limitations

RADD (Sentinel-1)

Humid primary forests in Africa, Amazonia, Mesoamérica and Southeast Asia
Updated every 6-12 days
No cloud limitations; works day and night



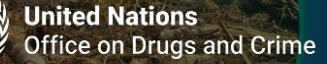
Integrated alerts: Combines the best available information to obtain more detailed and accurate alerts

2. NRT monitoring data disseminated on GNW

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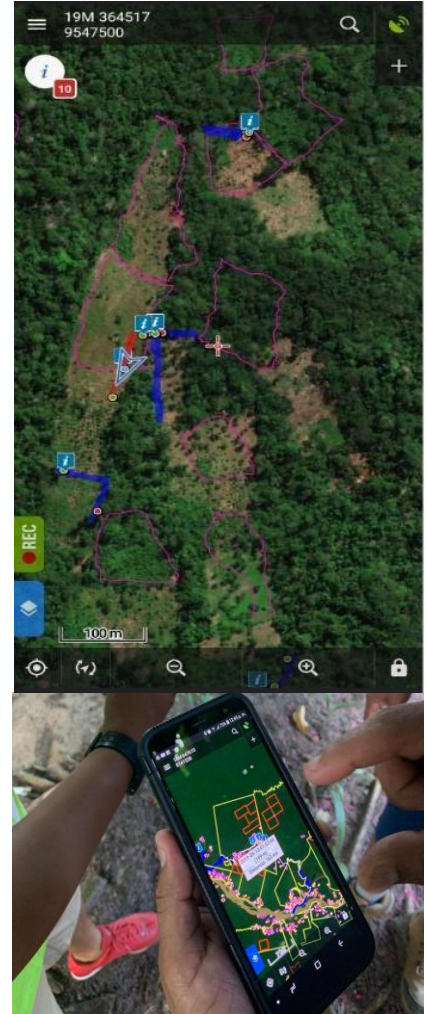


4. Tech hubs send data to communities

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5. Patrols

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6. Patrols present to results to community assembly

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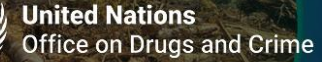


6. The assembly decides...

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Depending on the severity and the involvement of third parties, the assembly can:



6a

Negotiate with the invaders. Some leave, others are expelled.



6b

Prepare formal legal complaints, directly or through federations.



6c

Share information confidentially with trusted authorities.



7. Responses from authorities



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"Decenio de la Igualdad de oportunidades para mujeres y hombres"
"Año de la lucha contra la corrupción e impunidad"

MINISTERIO PÚBLICO
FISCALÍA DE LA NACIÓN

DISTRITO FISCAL DE LORETO
Fiscalía Especializada en Materia Ambiental

CARPETA FISCAL N° 308-2018

IMPUTADO : WALTER RÍOS TORRES
AGRAVIADOS : COMUNIDADES SANTA ELENA, VISTA HERMOSA Y NUEVO LIBERTADOR
EL ESTADO
DELITO : CONTRA LOS BOSQUES O FORMACIONES BOSCOSAS
FISCAL RESPONSABLE: JACKELINE HOFMANN PANDURO

DISPOSICIÓN DE AMPLIACIÓN DE INVESTIGACIÓN PRELIMINAR

DISPOSICIÓN FISCAL N° 02-2019-MP-FFMA.
Iquitos, 16 de Abril
Del dos mil diecinueve

VISTO:

Los actuados a nivel preliminar en la presente investigación, en los seguidos por los representantes de las Comunidades del Río Tambor, Santa Elena, Vista Hermosa y Nuevo Libertador contra Walter Ríos Torres y los que resulten responsables, por la presunta comisión de Delito contra Los Recursos Naturales, en la modalidad de Delitos contra los Bosques o Formaciones Boscosas, previsto en el artículo 310º del Código Penal, en agravio del Estado, debidamente representado por el Procurador Público Especializado en Materia Ambiental; y;

CONSIDERANDO:

PRIMERO.- Mediante Disposición Fiscal Número Uno, de fecha 15 de Febrero del 2019, se dispuso promover investigación preliminar en sede fiscal por el plazo de sesenta (60) días, con la finalidad de llevar a cabo las diligencias preliminares, para el esclarecimiento de los hechos denunciados, lo cual hasta la fecha, no se ha podido cumplir

*Cualquier Reporte Participativo del Sistema de Justicia
Dr. GHA 310413

*Comprometidos con la vida y el medio ambiente,
que nos da la riqueza, la salud y la vida de todos."

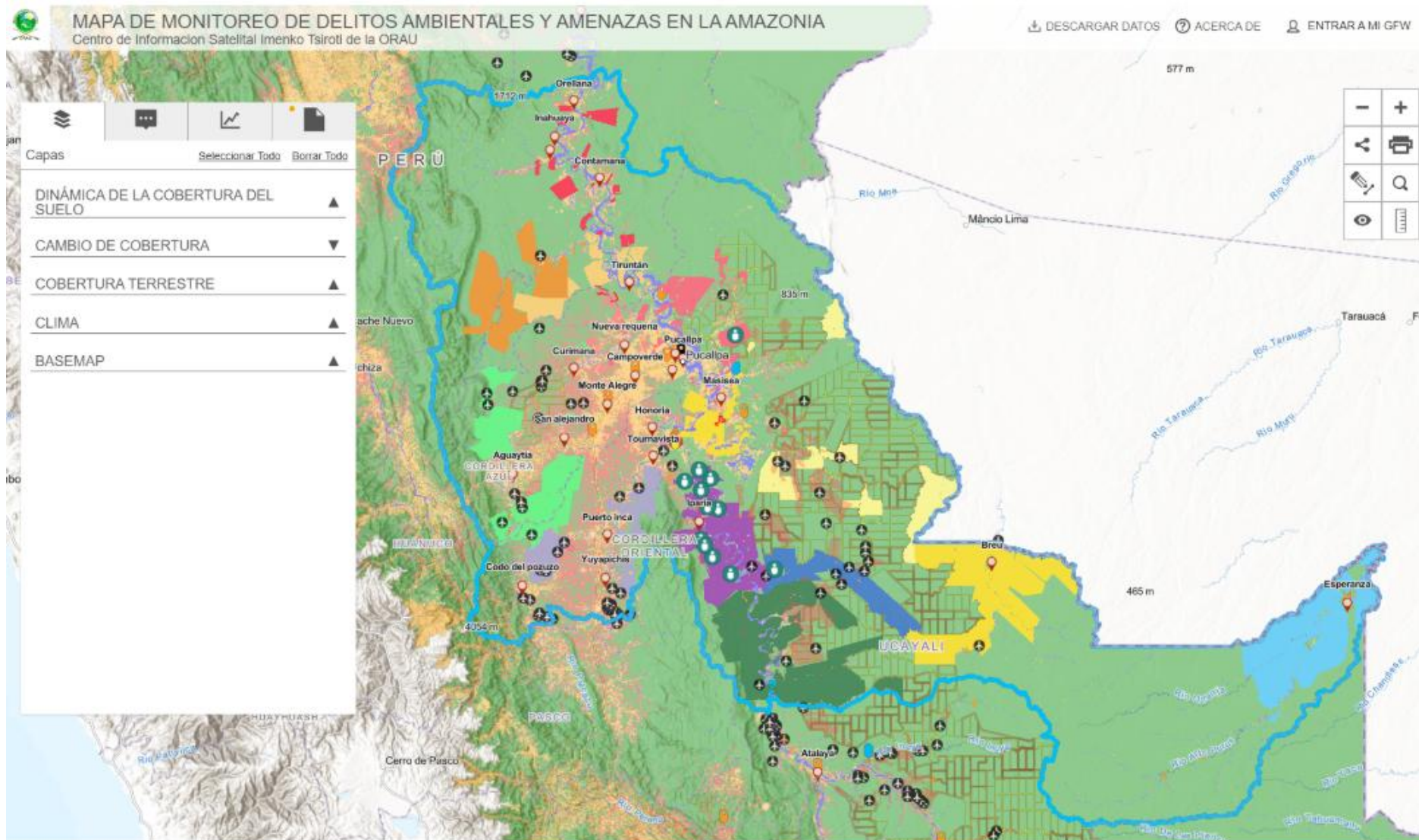
8. Data sovereignty



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Outcomes and insights



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**“Monitoring is now
part of the heritage of
Peru’s Indigenous
peoples.”**

**Jorge Perez Rubio
President
AIDESEP**



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Connected and starting collaborations directly with trusted enforcement actors



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Outcomes and insights

**Monitoring
infrastructure helped
speed up titling
processes**

**Payment for ecosystem
services**

**Government recognition
as forest guardians**

**Reduction in
deforestation***

*Slough, Kopas & Urpelainen (2021), PNAS,
doi:10.1073/pnas.2015171118.

<https://news.mongabay.com/2024/09/record-number-of-indigenous-land-titles-granted-in-peru-via-innovative-process-commentary/>

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Record number of Indigenous land titles granted in Peru via innovative process (commentary)



Miguel Guimaraes Vasquez, Wendy Pineda
6 Sep 2024 Amazon

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Outcomes and insights

Resistance to external threats

Satellite imagery allows them to “see” beyond their territory

Logistics, escape route planning, including from fires

Monitoring is a deterrent

Peer-to-peer. Group of Indigenous trainers



Thank you



Indigenous monitors, empowered with satellite data, technology, and enforcement authorities, stop environmental crime.

Ruth Nogueron, WRI | Wendy Pineda and Plinio Pizango, Rainforest Foundation US

ruth.nogueron@wri.org | wpineda@rainforestus.org | ppizango@rainforestus.org



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