



33RD UN/IAF WORKSHOP · SESSION 3

The Political Economy of Space in Ethiopia

Converting cooperation into sustainable national capacity

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WHY THIS MATTERS

Africa space overview:

- **21** African countries have launched space program, countries including Ethiopia, Nigeria, South Africa, Egypt leading national programmes.
- The continent has launched a combined total of **65** satellites, additional **120** to be launched by **2030**.
- African government spending on space has averaged around **\$500 million**.
- **\$4.7 billion** Spent on 58 Satellite Projects in Africa
- African Space Agency coordinating continental governance
- Rapid proliferation of EO applications for agriculture, security, and climate
- Africa spends an estimated **\$250–\$500 million annually** to access satellite data and space-based services.



Africa's space moment

\$24.95B (2024) → **\$39.52B** (2030)

Continental space economy

TIMELINE

Ethiopian space program

Key institutional and technical milestones, 2004–2022

2004

Ethiopian Space
Science Society
founded, 47
members

2013

Entoto Observatory
& Research Center
established

2016

Space Science &
Technology Institute
created, Reg.
393/2016

2018

National Space
Policy enacted

2019

First satellite
launched, with
China

2020

Second satellite
launched

2022

ESSTI merges with
Geospatial Info
Institute to form
SSGI



SSGI: 125+ staff, fully government-funded



ESSS: 15,000+ members · 28 branches ·
100+ space clubs



Plan: up to 10 satellites in 15 years



Indigenous assembly facility
(ArianeGroup, 2020)



PM chairs the Space Council —
top-level political will

Reading space through political economy

a lens I draw from Susan Strange's political economy 4 structure —
the **security, knowledge, finance and production** behind Ethiopia's space programme.



Security

Ethiopia still depends on foreign platforms for security and early warning; cooperation is helping it build the satellites and ground stations to receive and control that data itself.



Knowledge

Ethiopia can access satellite imagery, but is still building the skills to fully interpret and design with it — now growing through graduate programmes in 10+ universities.



Finance

Ethiopia's first satellites were funded largely by China; domestic budgets and more varied partners are enablers over time



Production

Ethiopia still buys most of its satellites and launches abroad; local design and assembly are the next step.

A programme built through cooperation

2019



ETRSS-1: a 70 kg Earth-observation satellite, built by China's CAST with ESSTI and 21 Ethiopian engineers, launched from Taiyuan. Cost USD 8M — China \$6M, Ethiopia \$2M (ground station & mission control). Projected to save ~USD 11M a year in data costs.



2020



ET-SMART-RSS: Ethiopia's EO nanosatellite, built by ESSTI with China's Beijing Smart Satellite, launched from Wenchang on a Long March-8 (2020). Cost ~USD 1.5M, largely China-funded; data received at ESSTI's Addis Ababa ground station.



2026



ET-RSS2: Ethiopia's third EO satellite, planned by SSGI for December 2026 — a 5-year mission with modern high-resolution imaging, developed with partners such as Shanghai Microsatellites. Data will support agriculture and food security, disaster management (floods, landslides), natural-resource and water monitoring, and urban planning.



International Cooperation has directly funded, built, and shaped major infrastructure and educational programs in Ethiopia's space sector.



Ground segment

Mission control and a data-receiving station now operating on Ethiopian soil.



Institutional & will

A space institute (ESSTI), a PM-chaired Space Council, and a national space policy (2018).



People & movement

Graduate programmes in 10+ universities; a volunteer society grown to 15,000+ members.



- Entoto ground station: 7.3 m multi-satellite receiver (2021) + 12 m antenna to 50 cm resolution
- Ground-Station-as-a-Service
- National CORS network for cm-level GNSS



Impact reaching real end-users



Agriculture

EthioSIS — Africa's first satellite soil map — covered 748 of 800 districts; groundwater mapping could irrigate ~100,000 ha, reaching 376,000 households.



Disaster risk reduction

The National Meteorological Agency runs drought early warning from 13 satellite receiving stations, refreshed every 15 minutes.



Natural resources Monitoring

National mapping agencies use EO for land, water and minerals — including surveys for the Grand Ethiopian Renaissance Dam.

But access is not the same as capacity



Still a “secondary user”

Most data is bought or accessed from foreign providers rather than produced at home.



Dependent on providers

Costs, priorities and availability are set elsewhere — and can change over time.



Data on your own terms

Owning the pipeline means timing, resolution and coverage are decided at home.



So the question: what turns external partnership into sustainable national capacity?

The path forward: two models, one direction



Vertical cooperation

Lean on an advanced partner (China) to skip steps.



Horizontal cooperation

Progress with peers — Nigeria matured from Chinese partnerships to its own design; and across AfSA.



Where Ethiopia is heading



ET-RSS2 (late 2026) and a shift from foreign-built toward co-developed, domestically driven missions.



Moving into production — building toward indigenous satellite assembly and manufacture.



A growing commercial ecosystem turning national capacity into services and jobs.



Deeper continental integration and diversified partners through AfSA and other regional and international efforts



LESSON LEARNED

Turning cooperation into lasting capacity



1

Own the strategy

Anchor cooperation in national vision, institutions and political will.



2

Invest in knowledge

Build human capital to interpret and design, the most overlooked source of power.



3

Diversify & transfer

Combine advanced-partner and peer cooperation; structure deals for technology transfer.



4

Anchor in demand

Tie space to real end-user needs — agriculture, disasters, resources — to sustain support.



5

Act now, build to produce

Timing is critical; treat dependence as a bridge, and grow academia and private industry.

Cooperation starts the journey;
governance, knowledge and transfer make it last.

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Thank you!!

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