

**31<sup>st</sup> UN/IAF Workshop on Space Technologies for Socio-Economic Benefit**

**Adoption of Communication Satellites to Bridge the Digital Divide in  
South Sudan**

# South Sudan: Country Information



**Independence: 7<sup>th</sup> July 2011**

**Area: 644,300 km<sup>2</sup>**

**Population:  $\approx$  13,254,000**

**Demography:  $\approx$  70% below 30 yrs**

**Distribution:  $\approx$  78.4% Rural**

**Attractions: River Nile, Sudd,  
Wildlife, Culture**

# Background

## Post Independence Challenges

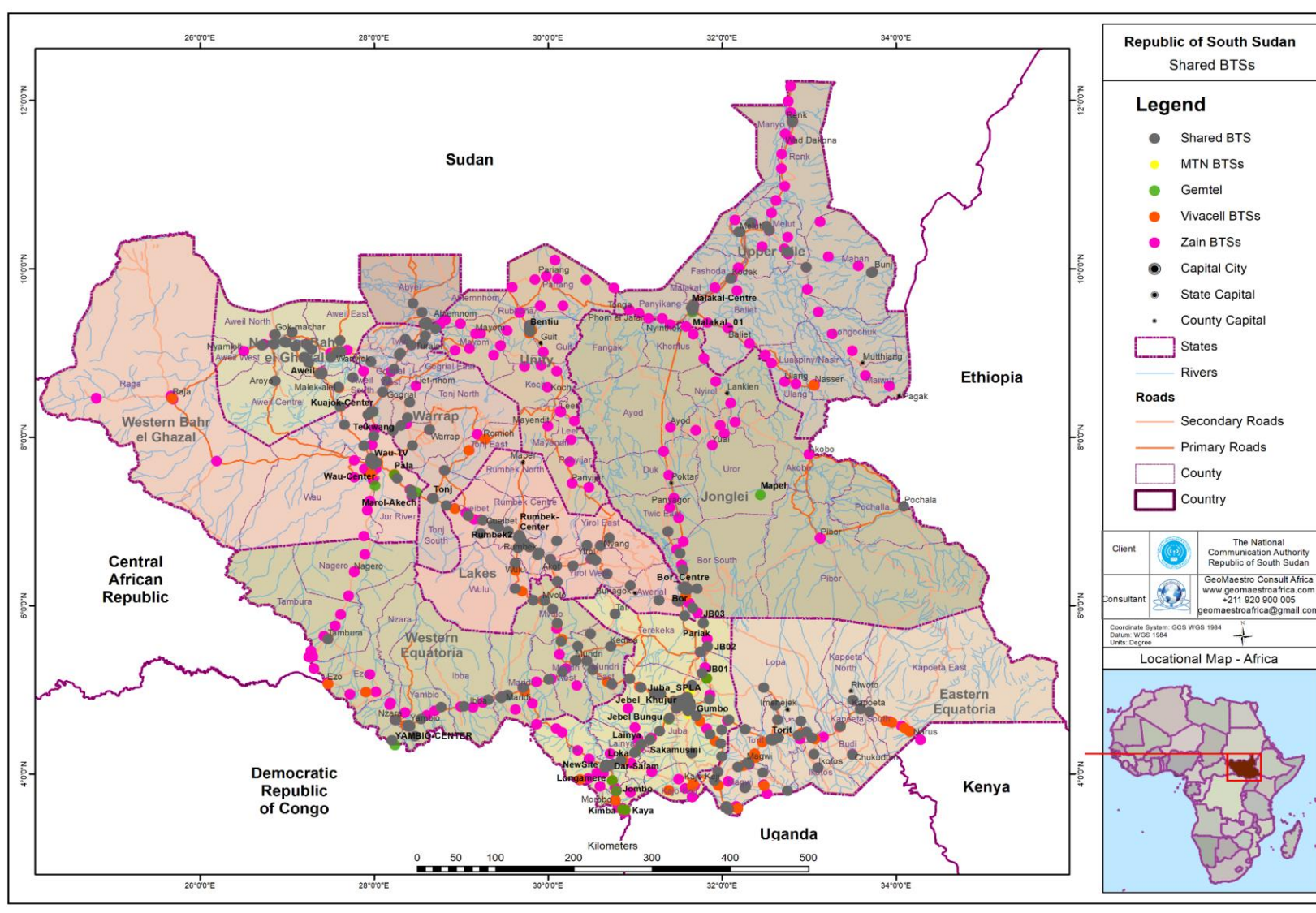
- i. Absence of legacy infrastructure
- ii. Severe ICT infrastructure deficits
- iii. Swampy terrain and sparsely distributed population
- iv. Emergence of climate change-related disasters



## Approach

- i. Establishment of a regulator, Universal Service and Access Fund
- ii. Initiating a special rural connectivity program
- iii. Collaboration between the government and operators
- iv. Choice of VSATs - most feasible for rural connectivity

# Network Deployment Routes

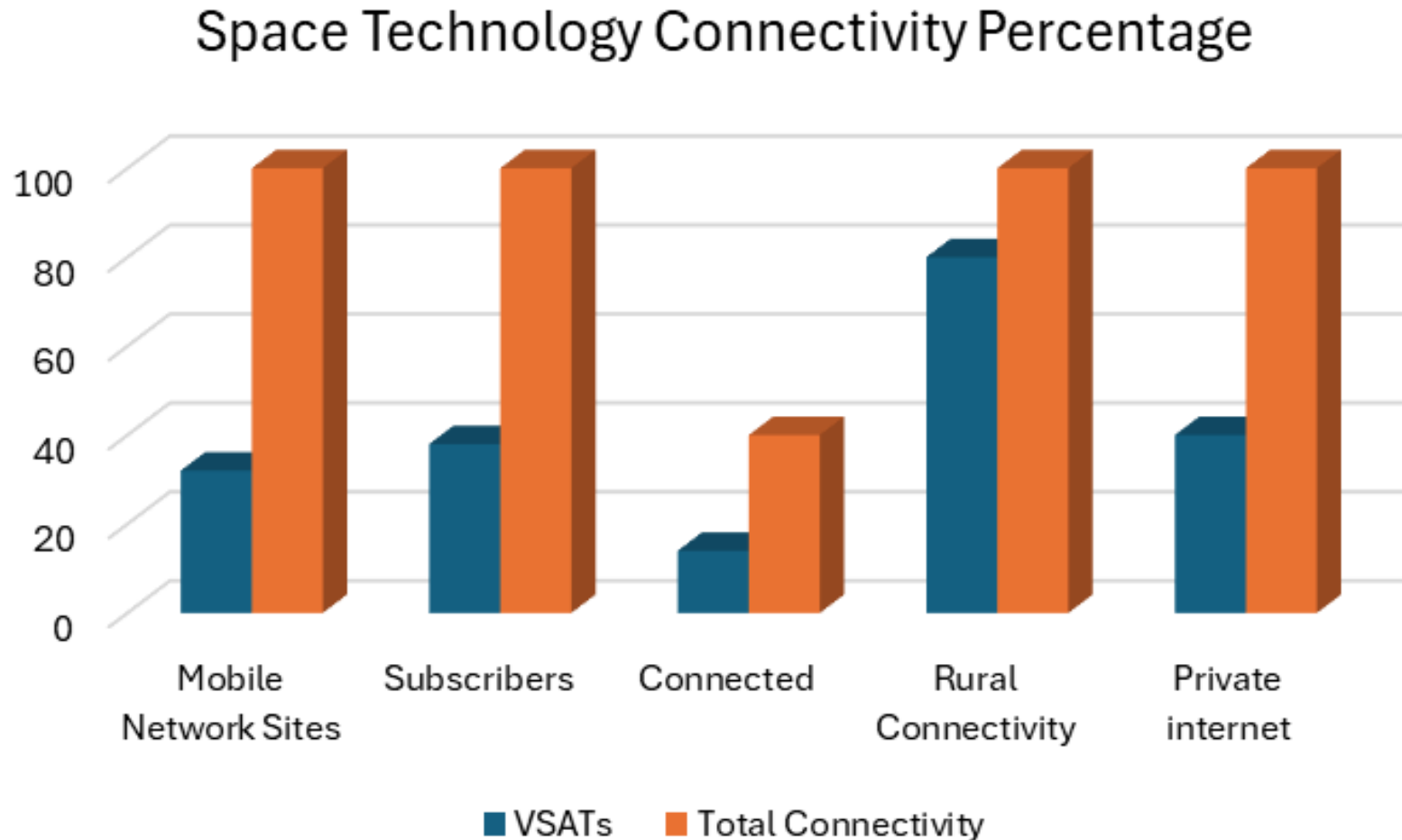


Current fiber coverage is limited to the capital

Main national backbone  
- Terrestrial microwave

Significant portion of mobile network sites are linked through satellite

# Space Service Utilization

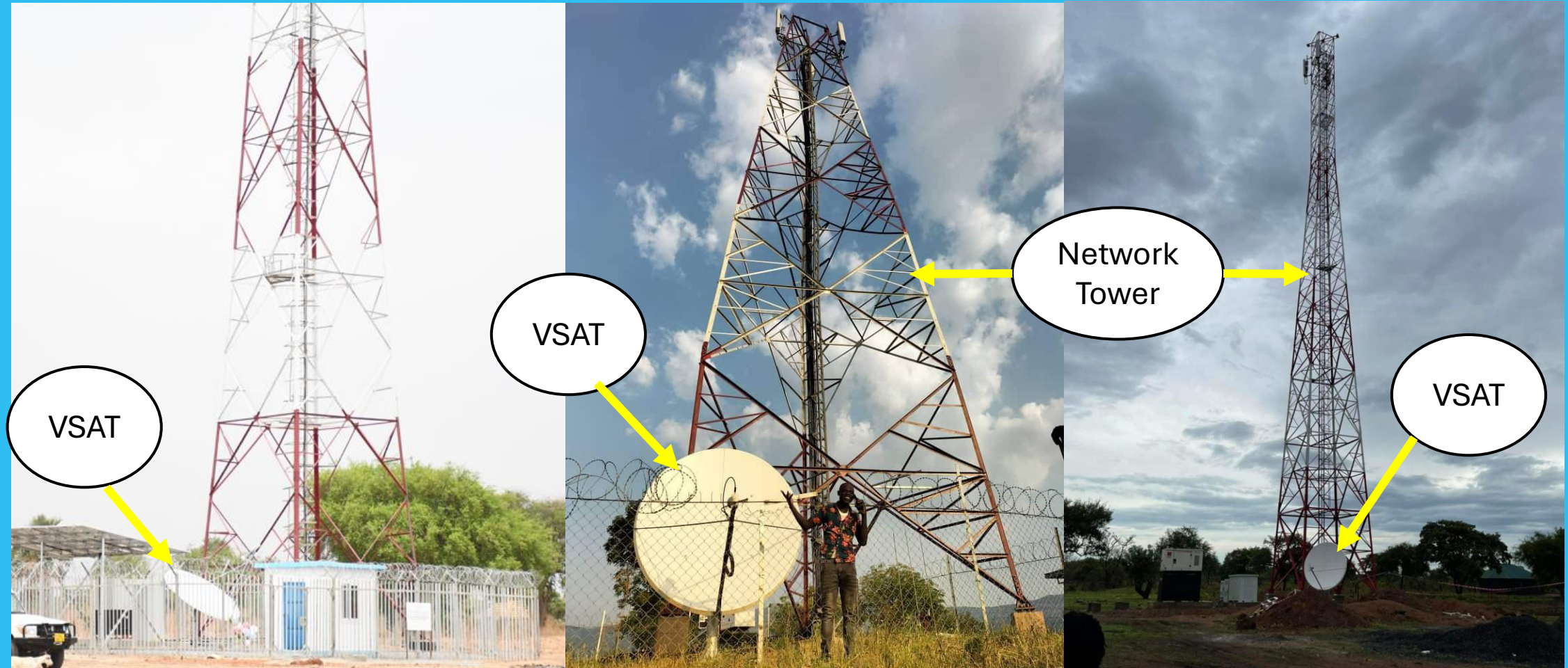


## VSATs

- Only option for fixed broadband outside the capital
- Main technology for rural connectivity
- Impressive uptake of StarLink services



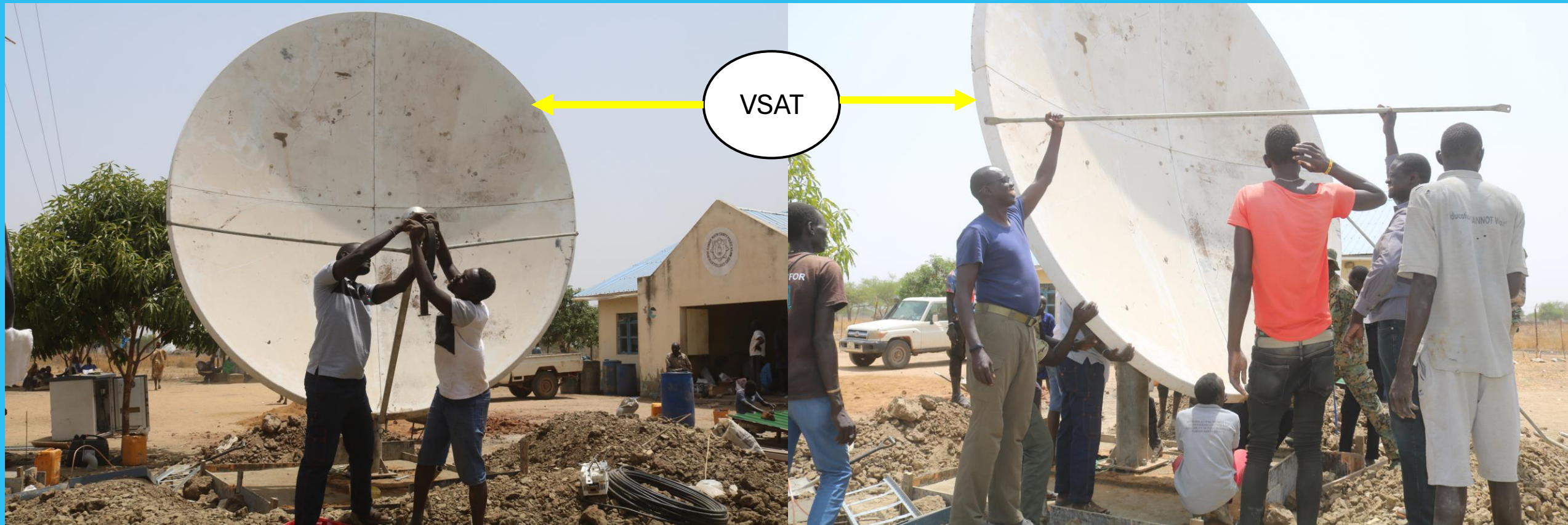
# VSATs Utilization for Mobile Network Connectivity



- The structures are financed by the government through the Fund
- The radio network and subsequent operations are financed by the operators



# VSATs Utilization for Internet Connectivity



- VSATs are installed in rural locations to provide access to internet
- Most public facilities and offices in rural areas get internet through VSATs
- Humanitarian agencies and enterprises rely on VSATs for internet access



# Social Impact of Space Technologies – Empowerment



- Local communities gathering to witness the launch of network sites
- The network sites serve as landmarks, community business centers



# Social Impact of Space Technologies – Communication



- Community members making their inaugural cell phone calls
- First opportunity to have access to digital services
- Majority of the unconnected are in rural and hard to reach areas

# Economic Impact of Space Technologies



- Emerging small businesses such as SIM-Card and airtime venders
- Enhancement of financial inclusion through Mobile money services
- Ease of doing business, access to information and coordination



# Future Plans



Incentivizing Investment in Space Technologies – Landing rights granted to StarLink, OneWeb



Internet access for public institutions (Schools, hospitals, government offices etc) by VSATs



Training and capacity building – Space Academy Initiative by University of Juba



Strategic partnerships for collaboration in space projects as well as for access to space data.



Development of a National Space Framework, Policy and subsequent Space Law as prerequisites for establishing a National Space Agency.



# End!

**Source: National Communication Authority**

**Questions?**

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# About the Presenter

Zamba Leonel is the Assistant Director for Space Services at South Sudan's National Communication Authority, where he established the department in 2023. Previously, as Assistant Director for Radiofrequency Spectrum Planning, he helped develop South Sudan's first National Frequency Allocation Table and secured two geostationary orbital slots with the International Telecommunication Union. Mr. Zamba holds a B.Sc. in Electrical Engineering from Makerere University and is pursuing a Master's degree in Space Systems Engineering at Kyushu Institute of Technology, Japan. His research focuses on satellite power systems and nano-satellite technologies, and he has actively contributed to international discussions on space services spectrum allocation for over seven years.