Case Study

RADWIN 2000E
Point-to-Point (PtP) External Links Transform Kenya Forest Network

About the Project

Kenya Forest Service (KFS) oversees forest management across Kenya's vast landscapes, safeguarding critical ecosystems vulnerable to forest fires and environmental challenges.

To enhance forest fire management and ecological protection, Tyllium, a leading integrator, designed and fully implemented an advanced communication network. Sponsored by the French Treasury, the project deployed 45 RADWIN 2000E Point-to-Point (PTP) links, ensuring reliable and high-performance connectivity for mission-critical operations. This network enhances real-time monitoring and response capabilities, strengthening efforts to safeguard Kenya's vulnerable ecosystems.

Project Challenges

1. **Accurate Network Planning:** The project initially utilized RADWIN's R-Planner for planning a RADWIN 2000 D+ network but was later re-evaluated with the release of RADWIN 2000E.
2. **Remote Coverage:** Covering dense and expansive forest areas, such as Mt. Kenya, Aberdare, and Mau Forests.
3. **Infrastructure Limitations:** Implementing a robust network in areas with minimal existing infrastructure.
4. **Reduce Power Consumption:** The project is powered through solar panels, necessitating efficient energy use. The RADWIN 2000E's power consumption was optimized to less than 24W, enabling sustainable operations.
5. **Complicated/Harsh Topological Environment & Conditions:** Deploying the network in rugged and challenging terrain required advanced planning and reliable technology to overcome interference and harsh weather conditions.

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Deployment

Using RADWIN WINPlan, the project transitioned from the initial R-Planner-based design to a refined plan optimized for RADWIN 2000E. The deployment included:

- **45 RADWIN 2000E PTP Links:** Ensuring high-capacity and low-latency communication.
- **Seamless Integration:** Leveraging advanced beamforming and high interference mitigation capabilities to provide stable connectivity.
- **Integrated GPS for TDD Sync:** Allowing synchronized operations for enhanced efficiency.
- **Solar-Powered, Green Solution:** The network operates entirely on solar energy, emphasizing environmental sustainability.
- **Scalable Design:** Enabling future expansion of the network.

Benefits:

1. **Enhanced Connectivity:** Stable and reliable communication for fire detection and suppression coordination.
2. **Improved Performance:** High throughput and reduced latency, supporting real-time video surveillance and data transmission.
3. **Cost Efficiency:** Leveraging license-free bands, eliminating recurring spectrum fees.
4. **Eco-Friendly Approach:** Minimal environmental footprint due to limited physical infrastructure.
5. **Better Technology and Capacity:** Superior long-distance performance with advanced features such as the Smart WEG GUI.

Highlights:

- **Technology Utilized:** RADWIN 2000E with ultra-high throughput and exceptional interference mitigation thanks to its very low side lobe level and RADWIN's field proven air interface.
- **Coverage Areas:** Extending across Mt. Kenya, Aberdare, and Mau forests.
- **Planning Tools:** R-Planner and WINPlan for precise network design.
- **Fast Deployment:** Network completed and operational in under six months.
- **Sponsor and Implementation:** The project was sponsored and fully implemented by Tyllium.

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Partner Involvement:

Tyllium collaborated with RADWIN's professional services team to ensure the successful planning, installation, and operation of the network.

Conclusion:

The Kenya Forest Network deployment is a testament to RADWIN's ability to provide cutting-edge wireless solutions tailored to unique challenges. By leveraging RADWIN 2000E technology and advanced planning tools, KFS enhanced its capacity to safeguard critical ecosystems, demonstrating the transformative power of reliable communication networks.

RADWIN's 2000E solutions transformed our communication capabilities, enabling us to protect Kenya's forests more effectively. The seamless connectivity supports critical operations, ensuring the safety and preservation of our invaluable ecosystems.

Thierry Picard,
Project Director, Tyllium