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# **Nigerian Journal of Technological Development**

**Volume 23, Issue 1, March 2026.**

(Scopus, AJOL, Google Scholar, DOAJ, HINARI, EBSCOhost)

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## ACKNOWLEDGEMENT(S)

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### **A DESCRIPTION OF VOL. 23, ISSUE 1, March 2026**

VOL 23 ISSUE 1 MARCH 2026 presents thirty-two (32) technical papers spanning sustainable materials, energy systems, environmental modeling, smart agriculture, telecommunications, and socio-technical design. Key material innovations include sisal fibre-reinforced self-compacting mortar with glass powder, ceramic nanoparticle-enhanced PMMA denture bases, recycled polypropylene in asphalt and concrete, and a waste-derived CaO/metakaolinite/Fe<sub>3</sub>O<sub>4</sub> nanocomposite for biodiesel from neem oil. Energy and power studies optimize a hybrid PV–wind–BESS microgrid, employ PV-D-STATCOM for Nigerian distribution feeder power quality, and apply Golden Jackal optimization for DC motor control. Thermal-fluid dynamics are investigated via helical tube radiators with ethanol coolant and an elliptic cross-section rotating pipe. Environmental and hydrological works include Oyan River dam break analysis using HEC-RAS, ionospheric foF2 forecasting with Facebook

Prophet, a hybrid Chain Ladder–XGBoost IBNR framework, and CO<sub>2</sub>-vehicle emission relationships for sustainable campus transport.

The issue also discusses how smart irrigation integrates an indigenous multilingual mobile application. Ward-level environmental exposure and health vulnerability are analyzed for Nigeria's FCT, alongside phased community participation in flood-prone resettlement and optimization of outdoor educational landscapes in public primary schools. A dynamical bovine mastitis model with nonlinear incidence is presented. Telecommunications research compares path-loss models in African terrain, reviews AI for 6G physical layer security, examines MIMO multipath effects, and optimizes 5G coverage predictions. Geometric deep learning for assistive emotional detection is reviewed. Theatrical lighting systems are technically analyzed in *Saro the Musical* and *Death and the King's Horseman*. Engineering ethics compliance in Nigeria is examined, and annealing/doping effects on sol-gel CuO nanopowders are reported. Collectively, these articles emphasize optimization, simulation, and experimental validation, bridging local applied challenges with fundamental scientific rigor.

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