G.O. Bamigboye, A.N. Ede (PhD), J. Ogundeji, J. Jolayemi, (2015). "Safety and Economic Factors of Steel Reinforcing Bars for Nigerian Sustainable Infrastructural Development: Case Study of Kwara State", Proceeding, International Conference on African Development Issues (CU-ICADI) 2015: Material Technology Track, ALDC, Covenant University, Ota-Nigeria, 11-13 May 2015, pp. 170-174.

***Abstract*— The quality and reliability of construction materials is key to sustainability and structural integrity of constructed facilities for national development. The size, strength and cost of reinforcing steel bars are three basic parameters for safe, durable and sustainable reinforced concrete structures. The mechanical properties of steel reinforcement bars used in reinforced concrete structures in Kwara State, Nigeria and their cost implications in sustainable infrastructure delivery are assessed. This study conducted laboratory tests and field survey. The laboratory tests include corrosion assessment and tensile tests on local and imported high yield 12 mm and 16 mm steel bars immersed in Hydrochloric acid (HCL) and distilled water and flexural tests of on 130 days-cured reinforced concrete beams meant to simulate long-term behavior after hydration. Compression tests on concrete cubes of 28 days and above old were carried out to evaluate the durability behavior. A four-year market survey/pricing and statistical evaluation of size distribution of the sampled steel rebar were conducted. The size distribution survey conducted revealed coefficient of variation of 0.55 % for imported sample and 1.03 % for the local. The market survey revealed about 30 % increase in price for the imported sample. The tensile tests of the local steel rebars showed about 24 % more elongation while the tensile strength of the local steel samples immersed in corrosive environment showed higher deterioration. The maximum deflection prior to failure of the Nigerian steel sample was 13% higher. in It can be concluded from the study that the reduction in the price of Nigerian rebar does not justify the low strength, higher size uncertainty, lower stiffness and elevate vulnerability to deterioration under corrosive environment as this propulsion to weakness and defects establish the facts that the use of Nigerian steel in its present state is harmful to sustainable national development and contributes to the poor building facilities and infrastructures that abound in the nation.**

***Index Terms*— Reinforcing Steel Bars, Reinforced Concrete, Tensile Strength, Durability, Corrosion Resistance, Cost Implications.**