SWEET POTATO STARCH AND DERIVATIVES PRODUCTION COMPANY FEASIBILITY STUDY

Section I Description of the Project

This project aims to establish a sweet potato starch and derivatives production company in Kano State, Nigeria. The venture will extract native starch from locally grown sweet potatoes and convert it into value-added products (e.g., food-grade starch, sweet syrup, cold-water-soluble starch, industrial adhesives and Animal feeds) for both domestic and regional markets. The proposal addresses the abundant sweet potato supply in Kano State and fills gaps in local manufacturing. It is envisioned as a university-affiliated pilot operation (to be registered later as a private company) that will create jobs, support farmers, and capture unmet demand in textiles, laundry, food, and packaging industries. Over a one-year period (January–December 2026), the project will scale from pilot production toward full capacity based on market response.

General Information

Mission: To leverage Kano's abundant sweet potato resources to produce high-quality native starch and derivatives for industrial and consumer use, thereby boosting local agribusiness value and meeting growing market demand.

Vision: To become a leading Nigerian agro-industrial enterprise pioneering the sustainable, commercial scale processing of sweet potato into value-added starch derivatives, including cold-water-soluble starch, concentrated sweet syrups, corrugated board adhesives, and animal feed serving both consumer and agro-allied markets, reducing national dependence on imported starches, and promoting inclusive agricultural-industrial development across the value chain.

Objectives: Key goals include:

(1) Extracting and processing sweet potato starch into at least five marketable products (e.g., native starch, cold-water-soluble starch, corrugation adhesive, Sweet syrup and Animal feeds.

(2) Achieving daily production capacity consistent with profitability targets (see financials);

(3) Establishing supply chains from local farmers;

(4) Creating skilled jobs (project team plus factory staff); and

(5) Ensuring a 25% profit margin on products (i.e., selling each product at ~25% above its production cost).

Organization & Team: The project team comprises academic and industry experts: a Professor of Food Science (specializing in starch technology) as technical lead, a food security expert, an industrial biochemist, several engineers (mechanical and chemical), a business development specialist, and experienced technologists. These members will form a steering committee. As operations scale up, a full management team will be added, including production managers, quality control officers, marketing managers, and support staff in line with industry norms.

Location: The facility will be based in Kano State, Nigeria, a region with extensive sweet potato cultivation. Kano is among Nigeria's major sweet potato producers (286.5 metric tons produced in 2013 [1] and has the country's largest population (~15.5 million in 2022 [2]. Kano city alone has ~4 million residents [3]. Historically, Kano has been the commercial hub of Northern Nigeria (dubbed the "Centre of Commerce" [4,5], with large wholesale markets (e.g., Kurmi, Sabon Gari) attracting traders from across the Sahel region. These factors provide ready access to raw materials (sweet potatoes from surrounding farmlands) and consumer/industrial markets for starch products.

Duration: The core project timeline is one year (January–December 2026) for plant setup, pilot production, and market entry, after which production will ramp up to full capacity. Scaling is expected beyond 2026 as the business achieves sustainability and secures additional investment.

Major Activities: Key business activities include procuring raw materials (sweet potatoes from local farmers), logistics (transport of tubers and products), production processes (washing, extraction, chemical modification, drying, packaging), labor management (hiring and payroll), and regulatory compliance (taxes, standards certification). The sales process involves packaging products and distributing to dealers, retailers, and end-users.

Section II – Market Feasibility

Industry Description

Scope: The business will produce five starch-based products: (1) Native sweet potato starch for food and laundry use, (2) Cold-water-soluble (instant) starch for dry cleaners and cap washers, (3) Corrugated-board adhesive starch, (4) Textile-sized starch, and (5) Animal Feeds

Market Size: Nigeria's starch market is large and expanding. A market analysis estimates the cassava starch segment alone at USD 126.65 million in 2022, projected to reach USD 163.07 million by 2030 (CAGR ~3.2%)[7]. This includes food and industrial applications. Our products aim at portions of this market: e.g., industrial starch for adhesives/textiles and consumer starch for laundry/cooking. Kano's population (~15 million) and its trade center status mean robust local demand, supplemented by sales to other Northern states and neighboring countries. Kano State is Nigeria's most populous state[2] and historically a hub for regional trade (the Emirate of Kano was "the greatest emporium of Central Africa"[5]).

Industry Competitiveness

Industry Analysis: Domestic starch/adhesive supply is still insufficient: "the demand for starch/adhesive is very high and far from being satisfied"[8]. Nigeria imports significant amounts of adhesive and specialty starches.

Major Competitors: Existing starch producers in Nigeria mainly process cassava (not sweet potato). Notable firms include GreenTech Industries (processing cassava, corn, and sweet potato into food/pharma starch[9]) and Ebedebiri Starch (Bayelsa), which at full capacity processes 240 MT cassava for 60 MT starch daily[10]. These firms compete on generic starch supply, but none is located in Kano or focused on cold-water starch or starch adhesives for northern markets. Local laundries currently rely on imported instant starch and diluted cassava starch. In the cap-starch market, artisanal starch (cassava or maize) is common but inconvenient. By contrast, our product is regionally manufactured and tailored to local needs.

SWOT Analysis:

Strengths: Abundant raw material supply in Kano and Kano Market prospects

Weaknesses: New venture with initially limited production capacity;

Opportunities: Expanding markets for starch-based adhesives and bio-materials; potential to collaborate with government agricultural programs; export potential to neighboring states/countries.

Threats: Price fluctuations or crop failure affecting sweet potato supply; competition from cheap imports (especially in adhesives); currency volatility raising cost of imported equipment or chemicals.

Price Competitiveness: We will set our product prices significantly lower than imported alternatives.

Market Risks: Key risks include underinvestment (lack of financing could slow expansion), raw material shortages (mitigated by contracting farmers), and regulatory changes (e.g. new import duties affecting cost of inputs). We will monitor these and adapt (e.g. maintaining buffer inventory).

Sustaining Competitiveness: To stay competitive, we plan continuous R&D (improve yields, develop new starch grades), strict quality control (consistent product performance), and cost control (streamlining operations). We will also establish strategic partnerships (with laundry chains, textile mills, etc.) and engage in branding/education (promoting benefits of our starch over traditional alternatives).

Market Potential

Sales Channels: Products will be sold through multiple channels. We will supply wholesale dealers and traders in Kano's major markets (Kurmi, Sabon Gari, Singa) who then distribute to retailers nationwide. We will hire sales agents to reach retail outlets and industrial customers (textile mills, laundries, packaging plants). Online marketing (social media, Nigerian e-commerce) will raise consumer awareness. Direct business-to-business promotions will target large buyers (dry cleaners associations, garment factories, soap and glue manufacturers).

Demand Trends: Demand for starch-based products in Nigeria has been rising. Urban population growth means more laundry services and packaged

Segment Opportunities: We see particular growth potential in segments such as retail laundry starch (cap washers, housewives), dry-cleaning supplies (instant starch for cloth), and industrial adhesives (corrugated packaging adhesives at cardboard box manufacturers). For example, an emerging Nigerian entrepreneur notes "home owners use [cold-water starch] and businesses like laundry and dry cleaning"[11], signaling these as valuable outlets. (The cold-water starch market, though small now, has niche enthusiasts.)

Market Share: It is difficult to obtain exact numbers for total starch consumption, but as a guideline: if Nigeria's starch market is ~USD 160M (2022), capturing even a few percentage points would be lucrative. Our initial capacity is modest (profitably producing ~2–3 tons of starch per day), so we will target a small but growing share of the Kano and regional market. In quantitative terms, assuming daily sales ~₦1.2M (see Financials below), first-year sales could reach ~₦300–400M (~$300K–$400K) in revenue, from which a 25% margin yields ~₦75–100M profit. This represents a meaningful portion of local demand in our niche.

Sales Projection: We project steady growth: e.g., in Year 1 we achieve break-even production and modest profit; by Year 3, expanded operations double sales (with correspondingly higher profits). Specific projections will be refined as market data become available.

Demand and Sales Analysis

Demand Assumptions: We assume strong uptake of our products, driven by our competitive pricing and local availability.

Product Demand Estimates: Based on population and industry size, we estimate annual demand for each product (subject to market research): for native starch, perhaps several hundred tons per year locally;

Sales Projections: Under conservative estimates, first-year sales (at 6 days/week, 50 weeks) are: native starch ~2 tons/week, instant starch 0.5 ton/week, adhesives 500 liters/week, etc., with revenue totaling ~₦100M. With 25% growth in Years 2–3, sales reach ~₦120M and ~₦150M by Year 3. (These figures align with the assumed daily profit of ₦100k and 25% margin.)

Marketing Strategies: We will implement both traditional and modern marketing:

Buyer Identification: Distribution: Promotion: Pricing Tactics:

Section III – Technical Feasibility

Access to Resources: The Kano location offers excellent access to:

Raw Materials: Kano State and surrounding states (Kaduna, Jigawa) produce ample sweet potatoes[1], ensuring steady supply.

Markets: Proximity to Kano's large population and markets reduces distribution costs. Road infrastructure connects Kano to other northern states.

Labor: Kano is densely populated; skilled and semi-skilled labor (from local universities and polytechnics) is readily available. We will recruit process engineers and workers from local schools and markets.

Utilities: The TIC provides industrial electricity, though we will also invest in backup generators for reliability. Water and waste disposal meet regulatory standards.

Technology and Equipment

Equipment Suppliers: We will source machinery from reputable suppliers. Options include local

Technology Competitiveness: The chosen process (centrifuge extraction and drum drying) is proven and competitive globally.

Constraints: Potential constraints include the need for skilled operators (we will train staff), stable power supply (we budget for generators), and availability of modification chemicals. Space is limited (150 m^2), so layout optimization is critical. Also, equipment downtime can disrupt production; we will stock spare parts and schedule preventive maintenance to mitigate this.

Raw Materials

Quantity Needs: At design capacity, we estimate requiring about 0.5 metric tons of sweet potatoes per day. With an expected starch yield of ~25% by weight (typical root/tuber starch yield[10]), these yields ~0.25 tons of starch products daily. Other raw inputs include food-grade acids/chemicals for instant starch, alkali and resin ingredients for adhesives, packaging materials (paper bags, containers), and utilities (water, electricity).

Availability: Sweet potato is plentiful in Kano (36.16 ha yielding ~7.9 t/ha as of 2013[1]).

Quality and Cost: We will procure mature, unblemished tubers (high starch content) at fair farm-gate prices. Transport costs from farms to factory are low since Kano's farmlands are local. Packaging and chemicals will be costed into the production budget; we will negotiate bulk rates with suppliers. (For example, if sweet potatoes cost ₦10,000/ton, 10 tons/day costs ₦100,000/day.)

Alternative Materials: Should sweet potato supplies falter, minor substitutions exist: cassava and maize are common starch sources in Nigeria. However, our process and branding are optimized for sweet potato, which has the advantage of less competition and unique starch characteristics. We will keep these alternatives as contingency but maintain sweet potato as primary raw material to preserve product differentiation.

Section IV – Organizational Feasibility

Business Structure

Legal Form: The business has been set up as a Private Limited Liability Company (Ltd.) under Nigerian law, once financing is secured. Initially, it will begin as a project under a university/federal incubator program, but the intent is full private registration. This provides flexibility, limited liability, and credibility for partnerships.

Governance: Decision-making will be by a Board of Directors (including founding members and possibly investors)

Manpower Availability: Kano's large population and educational institutions mean talent is available. We will recruit from Kano universities and the polytechnic, hiring skilled, and unskilled workers as needed.

Decision Structure: The company will have clear lines: the MD reports to the Board. A hierarchy (staff organogram) ensures quick decisions: e.g. production manager -> production supervisor -> line operators. This clarity will speed up response to market or technical issues.

Staffing & Salaries: We will hire competitively but sustainably. Initially, staff numbers are small (10–15 total). For budgeting, assume: manager ~₦150k, supervisor ~₦100k, skilled operators ~₦70k, unskilled ~₦40k. These figures ensure total salary costs remain within our 25% margin plan. (Exact salaries will be refined in final staffing plan.)

Policies

Quality Standards: We will establish strict quality policies: adherence to Nigerian Industrial Standards (NIS) for starch and adhesives, routine lab testing of products, and ISO-like documentation. Raw materials are checked for quality before acceptance. Finished goods are sampled each batch. A recall or rework policy will be in place for any out-of-spec batch.

Safety Measures: A safety policy will include mandatory PPE for all workers (gloves, masks, boots), regular safety drills, and hazard signage. Chemical handling procedures (for acids/bases) will follow OSHA or NESREA guidelines. A small infirmary area and first-aid kits will be available. Insurance for workers (NHIS, workman's comp) will be arranged.

Operational Policies: A clear code of conduct will be issued: punctuality, hygiene, no tolerance for absenteeism. Disciplinary actions (warnings, suspension) for policy breaches will be documented. Operational manuals (for each major process) will be written and staff trained accordingly.

Section V – Financial Feasibility

Capital Requirements

Project Costs: We estimate the startup capital at around ₦ 40–50 million. This covers:

Facilities: ≈₦2M for the 150 m² factory (renovation)[13].

Machinery & Equipment: ≈₦20M–30M (mills, centrifuges, dryer, tanks, packaging line, lab equipment; quoted from suppliers).

Initial Working Capital: ≈₦10M (first 2 months of raw materials, utilities, and salaries).

Miscellaneous: ≈₦10M (installation, permits, initial marketing, contingency).

Income and Cost Projections

Key Assumptions:

- Daily production generates profit of ₦100,000 at a 25% margin. Thus, daily sales ~₦ 300,000.
- Operating ~250 days/year yields annual profit ~₦25M and revenue ~₦100M in Year 1.
- Raw material cost is assumed at 75% of sales (i.e., if 25% margin).
- Growth: Sales increase by 25% in Year 2 and another 20% in Year 3 (from expanded capacity and market).

Three (3) -Year Projections summary:

Year 1: Sales ~₦100M; Gross Profit (25%) ~₦25M; after fixed costs (salaries, overhead ~₦5M) = ~₦20M net profit (break-even may include depreciation/amortization).

Year 2: Sales ~₦175M; Gross Profit ~₦40M; net profit ~₦35M.

Year 3: Sales ~₦250M; Gross Profit ~₦60M; net profit ~₦55M.

Section VI – Study Conclusion

Based on the above analysis, the Sweet Potato Starch Production Project is feasible and promising. Kano State offers strategic advantages (ample raw materials, large market, agricultural tradition)[1][3]. The market analysis shows strong and growing demand for starch derivatives, with local supply currently inadequate[8][7]. Our competitive pricing (50% below imported products) and 25% profit margin targets ensure profitability under reasonable assumptions. Technical planning demonstrates that a compact facility (150 m²) can handle the required processing. Financial projections (₦100M+ revenue in Year 1) indicate break-even is reachable and ROI attractive.

Sources: Industry demand and market data were drawn from research on Nigeria's starch market[8][7]. Production yields and state agricultural stats were cited from Nigerian studies[1][10]. Kano State demographic and economic details were based on government and academic sources[3][2][4]. Construction cost data come from recent industry reports[13].

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