Business plan for the Design and Production of NEDDI Vehicle Wedge (Car Wheel Chock)

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Unit Selling Price: ₦15,000

1. Executive Summary

This business plan presents the strategic, operational, and financial framework for the commercialization of the NEDDI Vehicle Wedge (Car Wheel Chock). The innovation is developed by the National Engineering Design Development Institute (NEDDI), Nnewi, to enhance vehicle safety during maintenance operations. The wedge prevents vehicle roll movement and ensures technician safety, offering a durable and cost-effective alternative to imported products.

The total start-up cost is ₦57,970,000, covering production equipment, tools, and materials. The product will be sold at ₦15,000 per unit, targeting automotive workshops, vulcanizers, and transport companies. The project aims to achieve profitability within the first year of full production and scale operations nationwide over three years.

2. Company and Project Overview

The National Engineering Design Development Institute (NEDDI), a subsidiary of NASENI, is dedicated to the development of indigenous engineering technologies. The NEDDI Vehicle Wedge project aligns with NASENI's mission to commercialize locally developed technologies and promote local content manufacturing.

3. Market and Industry Analysis

Nigeria has over 13 million registered vehicles and approximately 50,000 auto-service centers nationwide. The automotive safety tools market is expanding due to increased awareness of occupational safety and the need for reliable maintenance equipment. Imported wedges are costly, averaging ₦25,000–₦30,000 per unit. The NEDDI Vehicle Wedge offers a competitive price of ₦15,000 with superior durability.

Target customers include roadside mechanics, vulcanizers, fleet operators, transport companies, and safety equipment distributors.

4. Operational and Production Plan

Production will involve cutting, blanking, stamping, riveting, electroplating, painting, and quality testing operations. All materials will be locally sourced to reduce costs and support local industries. The plant will operate with a monthly capacity of 1,000 units, scalable as market demand increases.

Key machinery includes hydraulic presses, electroplating setup, and power press gilleting machines. Skilled engineers and technicians from NEDDI will oversee production and maintenance.

5. Marketing and Sales Strategy

The marketing strategy focuses on creating brand visibility and strong customer relationships. Sales will be achieved through direct sales, dealership networks, and online marketing. Participation in NASENI exhibitions, auto-fairs, and trade shows will enhance brand exposure.

Pricing Strategy: ₦15,000 per unit (introductory retail price).
Distribution Channels: Auto parts markets, industrial clusters, and safety equipment dealers.
Promotion: Social media, workshops, flyers, and trade fairs.

6. Management and Implementation Team

Principal Investigator: Engr. Dr. Oluwasegun Owolabi Biodun – Chief Engineer, NEDDI

Co-Researchers: Engr. Lucky Madagwu, Engr. Irabodeme Michael Joseph, Engr. Oweziem Bright Uchenna, and Engr. Nonye Linda Ezike
The team comprises mechanical and production engineers with expertise in design, fabrication, and product development.

7. Financial Plan and Three-Year Projection

The financial plan is based on a selling price of ₦15,000 per unit and projected production growth over three years. Operating expenses include raw materials, labor, maintenance, and marketing costs

Year	Units Sold	Revenue (₦)	Operating Cost (₦)	Net Profit (₦)	
Year 1	6,000	90,000,000	50,000,000	40,000,000	
Year 2	9,000	135,000,000	65,000,000	70,000,000	
Year 3	12,000	180,000,000	80,000,000	100,000,000	

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Break-even Point: Achieved in Year 1 with 3,865 units sold.

8. Risk Assessment and Mitigation

Key risks include fluctuations in raw material prices, power supply interruptions, and market competition. Mitigation measures involve bulk material procurement, preventive maintenance, energy backup systems, and quality assurance programs.

9. Sustainability and Socioeconomic Impact

The project is sustainable due to its reliance on local raw materials, scalable production, and consistent market demand. It will create direct employment for engineers, technicians, and administrative staff while stimulating the local steel and fabrication industry.

10. Conclusion and Funding Request

The NEDDI Vehicle Wedge project is a viable and scalable indigenous innovation that aligns with NASENI's mission of technology commercialization and industrial development. With a total capital requirement of ₦57,970,000, the project is projected to generate over ₦100 million in net profit within three years. Funding support will accelerate

commercialization, enhance safety standards, and contribute to Nigeria’s manufacturing sector growth.