

ADAPTIVE TOOLS

CREATING HUMAN POWERED SYSTEMS AND PROMOTING DESIGN INNOVATION FOR DISABILITIES



PROJECT GOAL:

TO CREATE ENTREPRENEURIAL OPPORTUNITIES FOR EMPLOYMENT BY DESIGNING A SYSTEM WITH THE POTENTIAL FOR A COLLECTION OF TOOLS ADAPTED TO THE HAND PEDALLED TRICYCLES IN KASESE.

DESIGN INNOVATION FOR DISABILITY AN INTERSECTION OF CULTURE AND COLLABORATION



In the rural district of Kasese, Uganda, persons with disabilities (PWD) use tricycle wheelchairs as a mobility aid. It is possible for these tricycles to extend beyond mobility and be used to power other tools and/or devices.

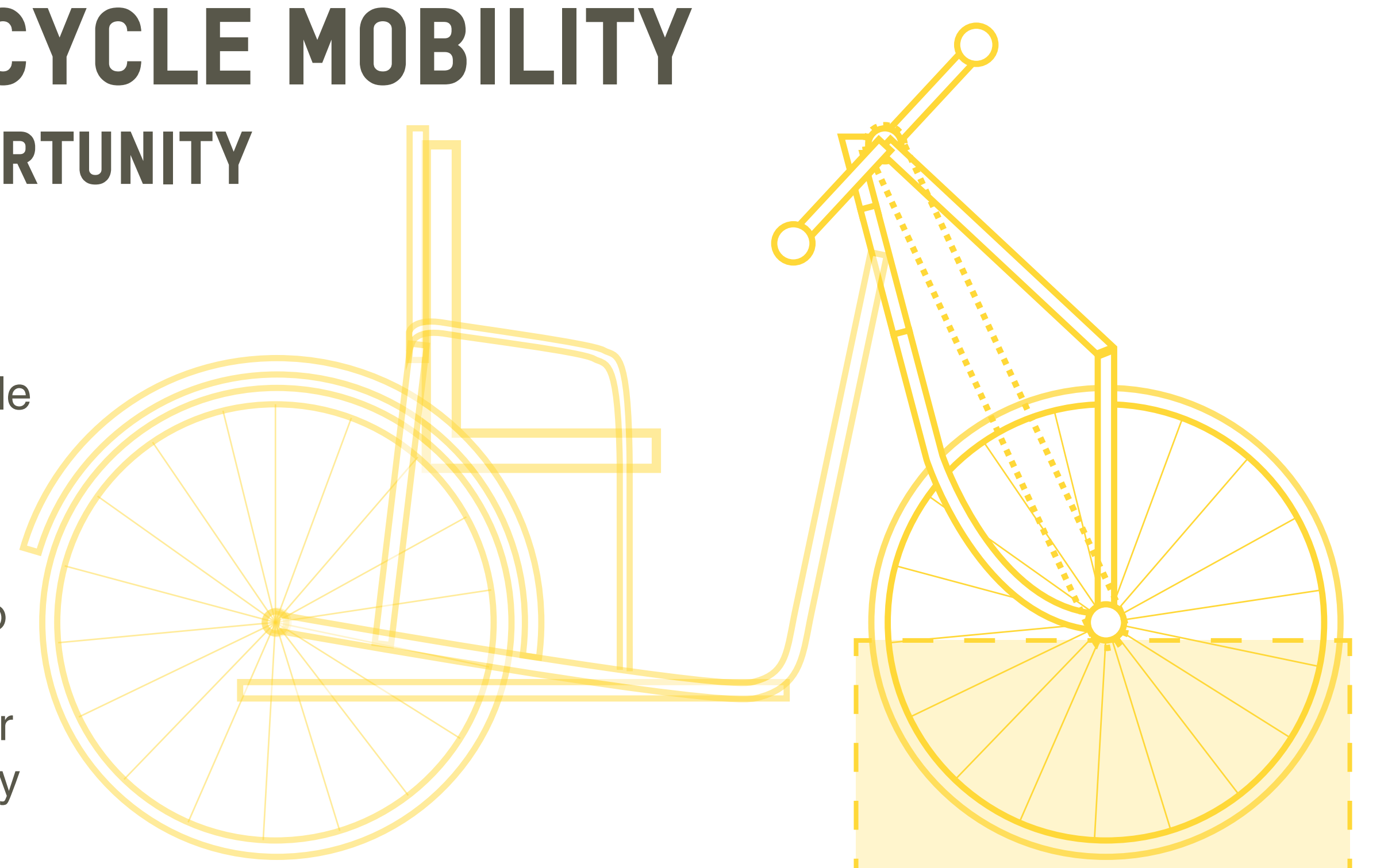
'Working together' instead of working for the disabled is a key element in the design process. Creating an open discussion, we learn the use of appropriate technologies and gain a better understanding of local context and culture.



BEYOND TRICYCLE MOBILITY A BUSINESS OPPORTUNITY

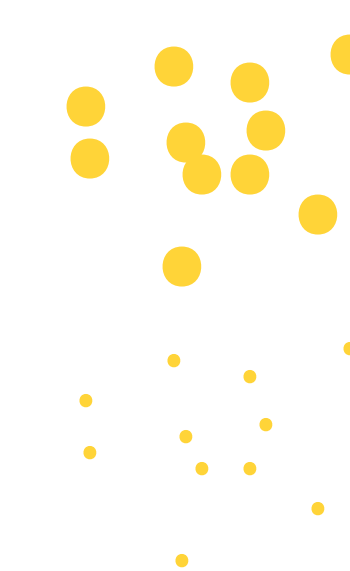
BACKGROUND

Nuts and grains are a staple part of the Ugandan diet. However, in order to grind nuts or other grains to eat, individuals have to travel to urban areas to use an electric mill or use a mortar and pestle which is not only strenuous but takes time.



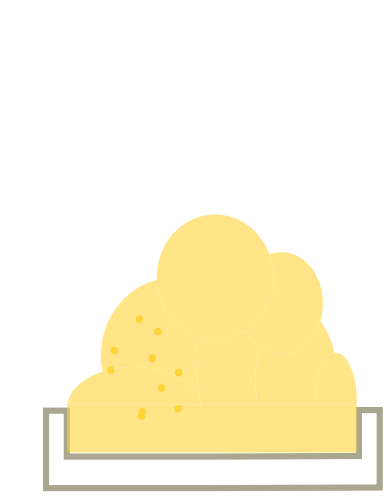
SUPPORT

With the tricycle, business is portable and can travel to other nearby villages



MARKET PRICE

Generally, nuts are purchased for 3000 UGS/kg and can be ground and sold for 4000 UGS/kg*



POTENTIAL CUSTOMERS

Customers who purchase stock pre-ground nuts
Price: 4000 UGS



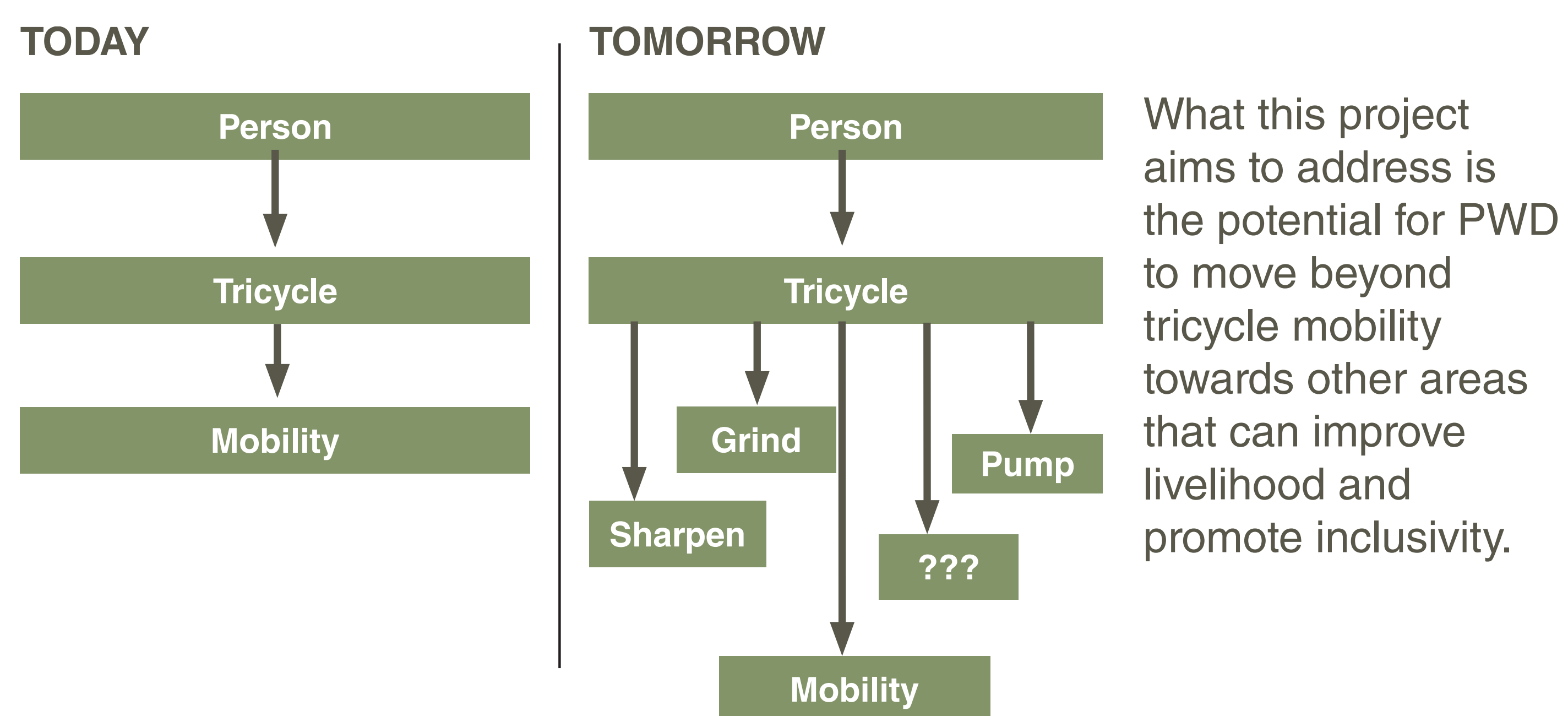
Customers who bring their own supply of nuts to grind
Price: 1000 UGS



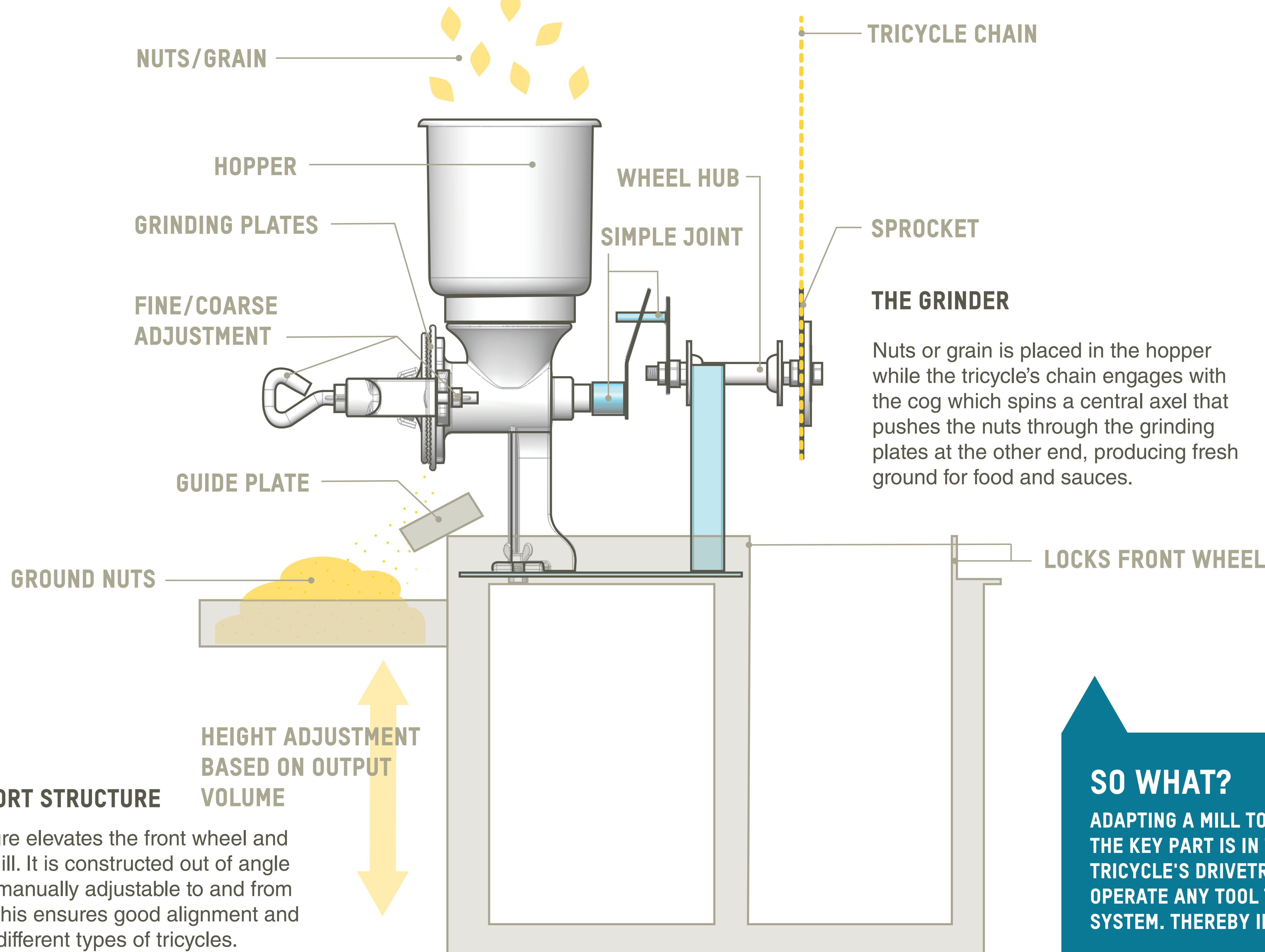
EARNINGS

Net profit: 1000 UGS/kg
Average sales: 5kg/day

*UGS = Uganda Shillings



CURRENT DESIGN: AN ADAPTIVE NUT GRINDER



SIMPLE MANUFACTURE

STRUCTURAL RIGIDITY

CULTURAL CONTEXT

USE CYCLE

ERGONOMICS

ECONOMIC OPPORTUNITY

OPEN DESIGN

THE SUPPORT STRUCTURE

This structure elevates the front wheel and holds the mill. It is constructed out of angle iron and is manually adjustable to and from the chain. This ensures good alignment and tension for different types of tricycles.

SO WHAT?

ADAPTING A MILL TO A TRICYCLE IS JUST THE BEGINNING. THE KEY PART IS IN THE JOINT THAT CONNECTS TO THE TRICYCLE'S DRIVETRAIN. THIS MAKES IT POSSIBLE TO OPERATE ANY TOOL THAT CAN BE ADAPTED TO A SIMILAR SYSTEM. THEREBY INCREASING SOCIAL MOBILITY.