



Easy-to-start and local skills to increase income of youth coffee farmers in Uganda.

Learning Manual

20

Local Income Solutions



COFFEE PROJECT

SUPPORTED BY

FONDAZIONE GIUSEPPE E PERICLE LAVAZZA ONLUS

IMPLEMENTED BY

sawaworld solutions from within

About the Manual

Are you happy with the income you make as a youth farmer? Do you dream of having more money to achieve your dreams? This learning manual provides a solution.

This manual provides 20 easy-to-start and locally-created income skills for youth coffee farmers in Uganda. Each skill profile has four distinct learning features:

- The inspirational story of an Ugandan youth that founded the skill,
- businesses tips in Income Facts, Sales Tips and Challenges,
- a learning video on the skill, and
- a learning poster with images of the step-by-step skill process.

The local income skills have six unique elements (see below) that allow youth to rapidly start small-scale businesses and with little startup costs. This provides additional revenue from their farming activities and motivates them to stay in the agricultural sector.

The manual is part of the Ujana Coffee Project, a partnership between the Lavazza Foundation in Italy and Sawa World in Uganda. Ujana means youth in Swahili. The goal of the project is to diversify the income and provide large-scale access to locally-created business skills for youth coffee farmers around the world.



Uniqueness of Income Solutions



1-2 day
to learn local
income solutions



1 month
to start business



< 50 (USD)
Startup capital



**locally sourced
& eco friendly**
Startup materials



27-31 (USD)
monthly income



**increased
livelihood**

Using the Manual

What local income skills do you want to learn? Click on any of the 20 local business solutions

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1

Local Income Solution



**MUSHROOM
GARDENS**



Ronald Onyangai

SOLUTION ENTREPRENEUR

MALE • 27 YEARS • NAMAYUMBA, UGANDA

Ronald grew up in a rural community of Uganda. His parents were farmers and grew cassava, maize and beans. The income from the farm was not enough to continue paying his school fee. At the age of 11, Ronald had lost all hope of completing his education and becoming a doctor. Luckily, his relatives paid for his schooling. He was not admitted into the medicine program but he completed his university degree in biological agriculture.

Ronald loves people and always had a passion to help vulnerable people in farming communities given his own background. In university, he did an internship with the National Union of Coffee Agribusinesses and Farm Enterprises (NUCAFE), an organization working with a million coffee farmers in Uganda. He noticed the struggles of women and youth to earn a living from coffee farming. With four other interns, they started the organization Dynamic Agrilink with the goal to increase the income levels through using coffee husk to grow mushrooms. In the last three years, they have trained 1,000 women and youth farmers in Waskiso, Kamuli and Lira Districts.

HIS FAVOURITE QUOTE

“A journey of 1000 miles starts with one step.



INCOME FACTS

- Startup cost: 150,000 UGX (35 Euros)
- Selling price: 1kg for 6,000 UGX (1.5 Euros)
- Income potential (monthly): 450,000 UGX (59 Euros)



SALE TIPS

- Have a positive attitude towards working in agriculture
- Have people on your team with integrity
- Don't fear anything, believe in your dreams



POTENTIAL CHALLENGES

- Avoid touching the mushrooms while growing; this contaminates them
- It can be costly to dry or cool the mushrooms after they are harvested
- Transportation cost could be high if you have a large network of farmers

5-YEAR VISION

A leader of mushroom products in East Africa.



LEARNING VIDEO

Click the video and learn how to do this income solution.



10 Steps TO MUSHROOM GARDENS

INGREDIENTS

Small plastic bags	50 pcs
Ethanol	1/2 L
PV tubes cut in small rings	1, size 3
Watering can	1
Mushroom spawn (seeds)	5 kg
Strings	5 rolls
Water	20 L
Empty rice sack	1
Metallic drum	1
Water basin	1
A pair of scissors	1
Small dark room (or kitchen)	12 by 15 ft

SUBSTRATE

The following materials can make 50 oyster mushroom gardens

Cottonseed hulls ...	1 bag
Coffee husks	1 bag

FACTS

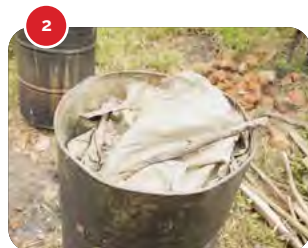
In Uganda, the spawn is UGX 3,000 per bottle from the National Agricultural Research Organization in Kawanda. For those located outside Uganda, a local supplier can provide the spawn.

Benefits

- Rich in vitamins (B, C, D)
- Boosts immune system



Dry mushroom substrate in sunlight to reduce the moisture and contamination from the field.¹

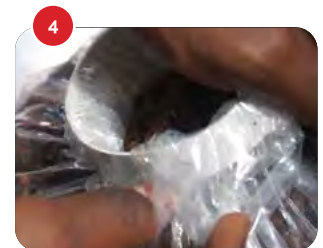


Take substrate through a two-step sterilization process.

Step 1 - Wet sterilization: Mix the substrate with water in a basin until it is wet but not soaked.²
Step 2 - Steam sterilization: Pour 20 liters of water in the drum and place a rice sack with substrate in the water. Heat the water to allow steam to pass through the substrate in the garden sack. Steam for 3-4 hours and let cool for 1-2 hours.



Start the inoculation, adding spawn (seeds) to substrate.³ Mix the 100g of spawn with 2 kg of substrate to make 1 garden. Ensure to disseminate the spawn fully in the substrate. 100g is roughly a handful.



Place the mixture in a small plastic bag, tie it with the small PV tube rings and then cover the top of the bag with paper.^{4,5}



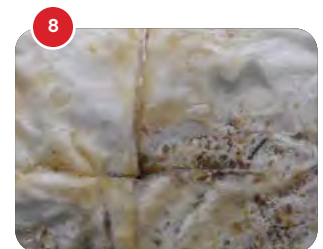
Poke small holes around the bag to allow aeration into the gardens.



Place the gardens in a dark room for 14 days to allow full colonisation of the spawn with the mixed substrate.



After 14 days, hang the mushroom gardens on a string in the dark room with temperatures above 32 degrees.⁶



Cut vertical slits around the garden and remove the paper to irrigate.⁷



Water the mushrooms bags in the morning and evening (1 cup each time). Do not soak the gardens. Just leave them moist.



The mushrooms start sprawling 3 to 5 days after hanging and will be ready for harvest. You can dry and package the mushrooms or sell them fresh.

TIPS

1. The mushroom substrate is a mixture of coffee husks and cottonseed hulls. The cottonseed hulls can be bought at a local ginnery at UGX 30,000 a sack. Sifting helps to aerate the flour and give the cake a great texture.
2. This process eliminates microorganisms.
3. Before you start, disinfect your hands and materials with ethanol.
4. These tube rings allow the flow of water during irrigation
5. The paper prevents infections and contamination while in the dark room.
6. The gardens have colonized when the garden turns white.
7. The slits make the irrigation process easier.



2

Local Income Solution



COFFEE
CUP CAKES



Irene Acio

SOLUTION ENTREPRENEUR

FEMALE • 28 YEARS • KAMPALA, UGANDA

Irene was born in Kampala and moved to Gulu District in Northern Uganda. Her father passed away when she was younger. She was raised by her mother who sadly passed away when Irene was in her early 20's. Soon, Irene became a single mother of her son Asher. Life was not easy.

Irene had always dreamed of starting a business and had a passion for cooking. She shared her vision with her sister who worked with smallholder coffee farmers. Together, they invented the concept of coffee flavoured cakes. The cakes quickly became popular and Irene moved to the city of Kampala to expand her business.

Irene is now able to pay for the needed living expenses for her small family. She saves 50% of her income to buy new equipment such as an oven. She has trained 10 youth to also start a cake baking enterprise.

HER FAVOURITE QUOTE

“Set the example you want others to follow and be kind.”

5-YEAR VISION

CEO of a large confectionary company.



INCOME FACTS

- Startup cost: 50,000 UGX (12 Euros)
- Income potential (monthly): 600,000 (143 Euros)



SALE TIPS

- Have a deep passion for your business
- Have a proper business plan before you start
- Know your numbers (cash flow, profit & losses)



POTENTIAL CHALLENGES

- Keeping the cakes fresh (needs fridge)
- Transport cakes quickly to customers
- Many orders can be overwhelming



LEARNING VIDEO

Click the video and learn how to do this income solution.



10 Steps TO MAKE COFFEE CUP CAKES

INGREDIENTS

Serves 5-6 cup cakes

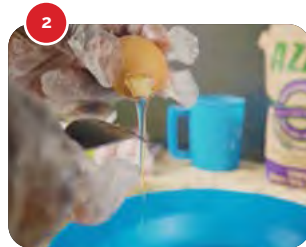
Baking flour	500g/2 cups
Vegetable oil	100ml
Eggs	2
Stevia/diabetic sugar	2 full tbsp or honey
Coffee	6-8 full tbsp
	4g/1 cup/2 bags

MATERIALS

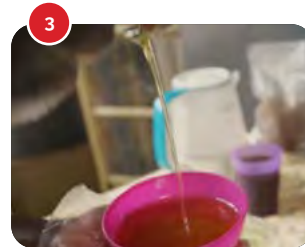
Food grade gloves	1 pair
Baking tray	1
Plastic cup	1
Metalic strainer	1
Plate	1
Clean bowl	1
Fork or whisker	1
Cup cake papers	1 packet
Saucepans	2
local oven/charcoal stoves	1



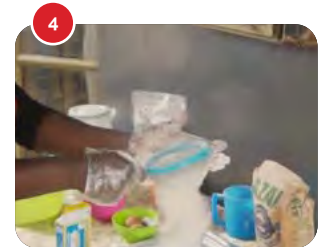
1 Wash hands thoroughly with soap and water. Put on food-grade gloves.



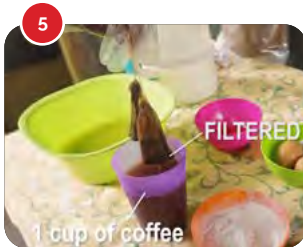
2 Break 2 eggs and separate the egg yolk from the egg white. Place the egg white on a clean plate and add 1 tablespoon of stevia/diabetic sugar. Whisk with a fork until it forms into a white paste.¹



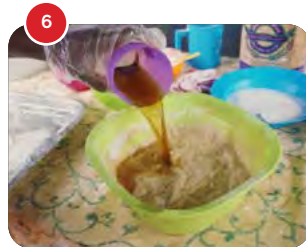
3 Get a clean bowl and pour 100ml of vegetable oil. Add the egg yolk (yellow part) to the oil and mix well.



4 Measure 2 cups of flour and sift it using a strainer. Add the sifted flour to the bowl with the oil mixture.²



5 Soak 2 coffee bags in one cup of hot water and leave to brew for about 2-5 minutes. Add 1 tablespoon of stevia sweetener to the brewed coffee.³



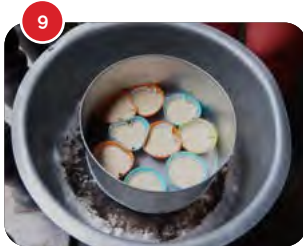
6 Slowly mix the coffee liquid in small batches on the mixture. Keep stirring the added coffee.



7 Lastly, slowly add the egg white paste in the bowl mixture.



8 Using a tablespoon, put the dough mixture in cupcake paper or silicone moulds.



9 Bake cupcakes in a traditional oven for 30-40 minutes.⁴



10 Pierce the back of a knife in the cupcake. If no dough sticks to it, the cakes are done.

TIPS

1. Stevia sugar is a natural sweetener.
2. Sifting helps to aerate the flour and give the cake a great texture.
3. Brewed coffee brings out the coffee aroma.
4. The traditional stove is made with a small charcoal stove. Place a large saucepan with three stones at the bottom. Place smaller pan on the stoves and cover with a lid. Place hot charcoal on the lid and cover with another pot upside down.



3

Local Income Solution



**BIOCHAR
FERTILIZER**



John Lutaya

SOLUTION ENTREPRENEUR

MALE • 25 YEARS • NAMAYUMBA, UGANDA

John is a friendly and happy farmer. He intercroops coffee with maize on two acres of land. At a young age, he lost his mom and had to be raised by his aunt. Unfortunately, she did not have enough money to pay for his education, so he started working with his aunt on the farm to help him get income, but it was never enough.

He had a dream of becoming a mechanical engineer and soon started learning how to repair bicycle and motorcycle parts. He took on the skill and started earning some pocket money from it. He also joined the Kisasira Youth Group in his community to learn different employment skills. Together with his group members, they learned how to make biochar fertilizer (from coffee husks) from the Wakiso District Farmers Association (WADFA) and started a business in the eco-friendly fertilizer.

Now, John, together with his group members, regularly make biochar and have trained 35 other youth in surrounding villages. He is widely respected in his community for his business venture.

HIS FAVOURITE QUOTE

“*Hard work pays off.*”



INCOME FACTS

- Startup cost: 40,000 UGX (9.21 Euros)
- Selling price: 1 kg for 2,500 UGX (0.60 Euros)
- Income potential (monthly): 150,000 UGX (34.51 Euros)



SALE TIPS

- Believe in your idea
- Believe in yourself
- Be willing to establish a successful business



POTENTIAL CHALLENGES

- Making biochar fertilizer manually is physically intensive
- Biochar may not contain all the nutrients required
- May be difficult to transport materials to customers

5-YEAR VISION

Owning several real estate properties.



LEARNING VIDEO

Click the video and learn how to do this income solution.



7 Steps TO MAKE BIOCHAR FERTILIZER

MATERIALS

This can make up to 50 kg of biochar fertilizer

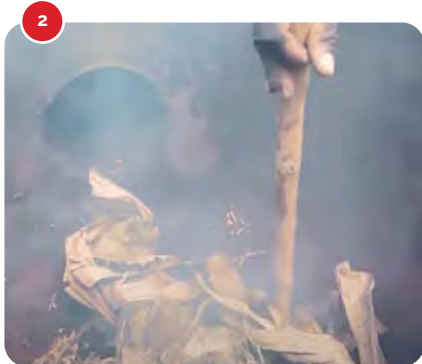
Coffee husks or maize husks, bean husks	1 bag
Gardening bags	5
Chicken droppings or cow dung, pig droppings	1 bag
Banana peelings or Irish potato peelings	1 bag
Metallic drum	1
Fine mesh strainer (for sieving).....	1
Stick (steering the organic waste).....	1
Jerry can/water (to put fire out).....	1
Maize cobs	1
Tree branches	1

Benefits

- Increases soil fertility thus better yield
- Helps conserve the environment



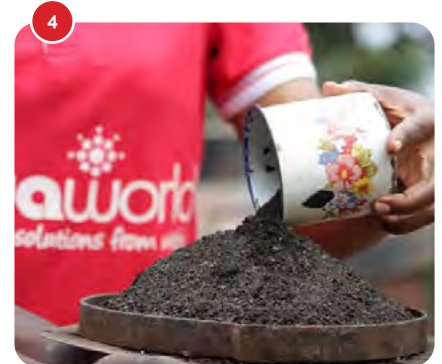
Dry the organic waste. These include coffee husks, animal droppings, banana peelings and others.¹



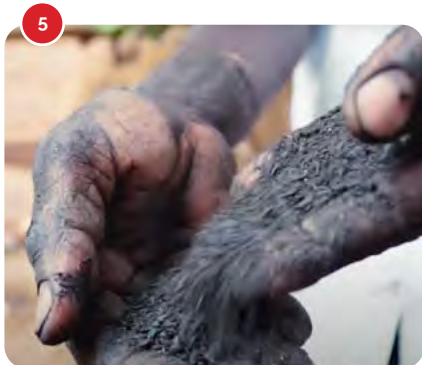
Start burning the dry organic waste (start with dry grass) in a metallic drum. Light with hot charcoal or a match. Add any other organic waste that can quickly light then add chicken or cow droppings.²



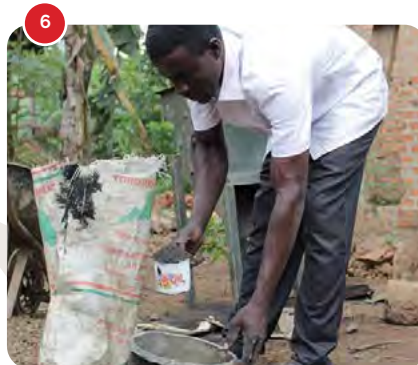
Continue burning the organic waste to make a charcoal-like carbon-based material. Keep mixing all the waste to ensure that it all burns.³



Remove the carbon-like material and sieve it using a mesh strainer. Fine particles can be separated from the residues.



Place the residue in a gardening bag and use a stick to crush it further into fine particles. After crushing, sieve the material again with a net for fine particles to get biochar fertilizer.



Pack the biochar fertilizer into gardening bags.



This is now ready to be taken into the garden to increase soil fertility.

TIPS

1. Do not use wet organic waste since it will not burn.
2. While burning, ensure that a flame is not created as it will cause the waste to burn into ash.
3. Cool carbon-like material by sprinkling little amounts of water.



4

Local Income Solution



ECO-FUEL
BRIQUETTES



Deogratius Nsubuga

SOLUTION ENTREPRENEUR

MALE • 37 YEARS • NAMAYUMBA, UGANDA

Deogratius is a coffee farmer and has grown coffee for seven years. He grew up from a coffee-growing background and eventually started growing it himself. His mother passed away at a young age and later he lost his father when he was in high school. His guardians could not support his school tuition and he did casual work on nearby farms.

Most recently, he joined the Wakiso District Farmers Association (WADFA) as one of the exemplary youth coffee farmers. He got an opportunity to learn different skills in the coffee value chain such as eco-fuel briquettes from coffee husks. The briquettes are an alternative source of cooking fuel and are made from organic waste materials such as banana peels and dry leaves.

Together with five other youth, Deogratius saved money and started making the briquettes. The briquettes have provided an additional source of income that buys basic needs such as school fees, rent, and medical expenses.

HIS FAVOURITE QUOTE

“Your mindset determines your success in life.”



INCOME FACTS

- Startup cost: 70,000 UGX (16.03 Euros)
- Selling price: 8 blocks of briquettes for 1,000 UGX (0.23 Euros)
- Income potential (monthly): 400,000 UGX (91.58 Euros)



SALE TIPS

- Embrace opportunities in the agricultural sector
- Be willing to influence customers to buy your products
- Be patient in your business



POTENTIAL CHALLENGES

- Changing the customer's mindsets to buy the briquettes
- May be difficult to transport materials to make the product
- Making many products requires a machine

5-YEAR VISION

Owner of eco-fuel briquettes company.



LEARNING VIDEO

Click the video and learn how to do this income solution.



11 Steps TO MAKE ECO-FUEL BRIQUETTES

MATERIALS

These materials can make up to 500-700 eco-fuel briquettes

Coffee husks	2 bags
Coffee/dry leaves.....	½ bag
Maize cobs and stems	½ bag
Dry banana peelings/potato peelings	½ bag
Metallic Drum/retort/kiln/carbonizer.....	1
Water	30 litres
Pan/basin.....	2
Stick (to steer).....	1
Cassava flour.....	5 kg
Sieve made of mesh or other material	1
Mortar and pestle/ crusher.....	1
Plastic bags.....	1
Mould.....	1
Small stove.....	1
Clay soil or ant hill soil.....	1 bucket



Collect and dry all the organic waste such as coffee husks, small branches, cutoffs after trimming coffee, dry leaves and small stems. You may also add maize cobs and stems, banana peelings, potato peelings and other organic waste.¹



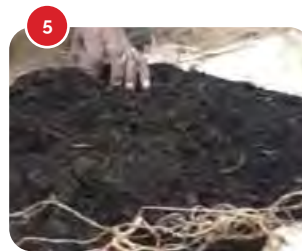
Place your drum in a spacious area and start putting the lighter materials like small branches and dry leaves into the drum.



Light the dry materials with hot charcoal or a match to start burning the dry organic waste into black char. Keep adding more dry waste like coffee husks, maize cobs and dry banana peelings.^{2,3,4,5}



After adding all your waste and it has burned into black char, pour little amounts of water into the drum to put out the fire.



Get the carbonized material from the drum and put it on clean surface for cooling.



Use a stone and crush them until they become fine dust. You can use a sieve made of mesh. The small parts should fall through and the large parts will remain on top. Use the small parts that are sieved.



Boil water (25 litres) and place it in a basin. Add cassava flour (5kg) to the water to make it like porridge.⁶



Add clay soil into the water and cassava mixture to form a thick paste.⁷



Then add your mixture of carbonized material.⁸



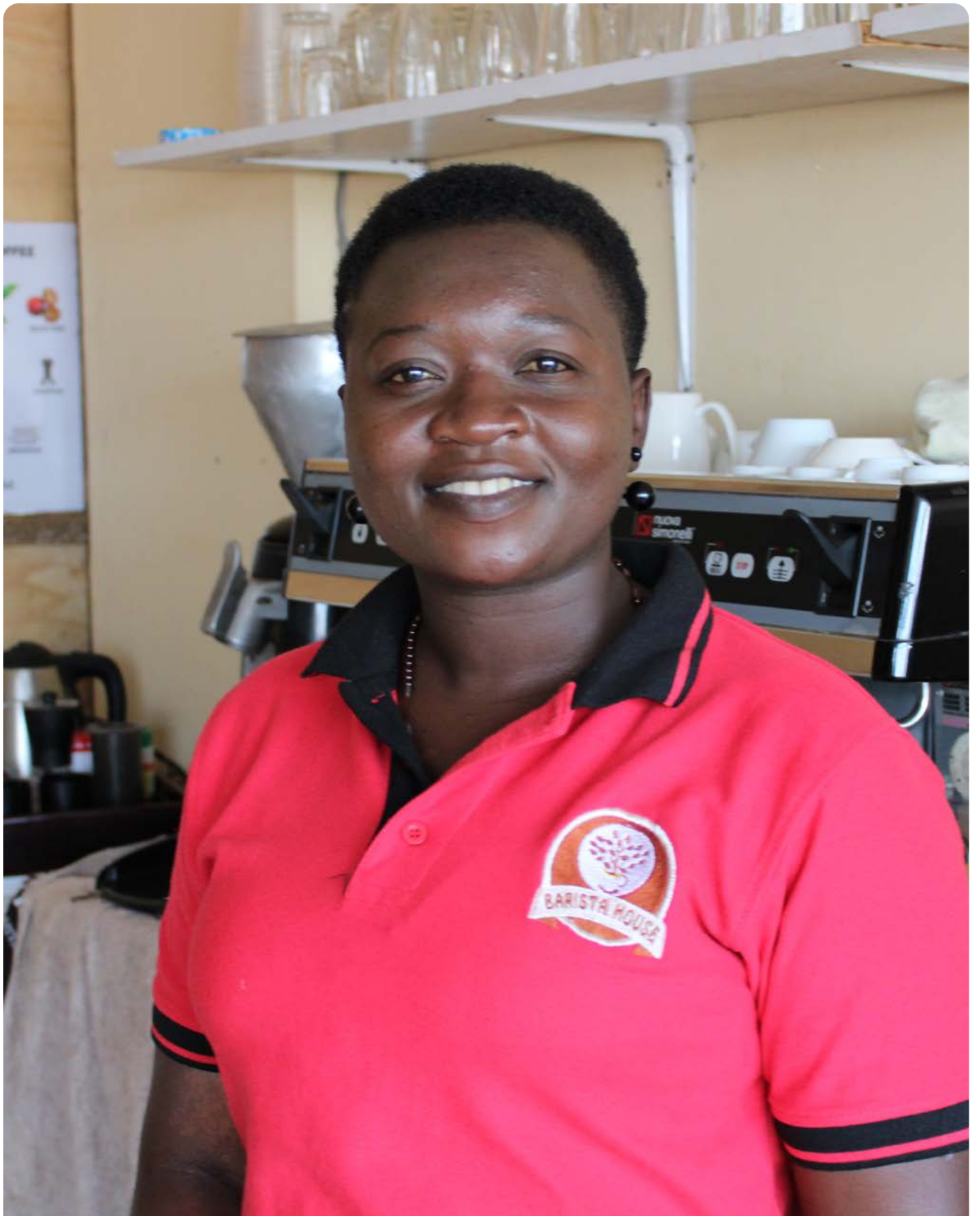
Smear a little of the cassava solution that was set aside into the mould and place the carbonized material into the mould to form briquettes.⁹



After drying in the shade, place the briquettes in direct sunshine for another 1 to 2 days. They are ready for use.

TIPS

- Sort materials to remove impurities such as plastics and stones. This makes it easier to light.
- While burning, ensure that a flame is not created but rather it burns with smoke.
- Do not use wet organic waste since it will not light up.
- Place coffee husks, maize cobs, dry banana peelings interchangeably into the drum until it gets full.
- Turn the materials as they burn to ensure that all the materials has been carbonized.
- Keep aside about 5 litres of the mixture. It will be used to line the mould to make briquettes come out easily.
- Stir continuously until everything is mixed evenly. This will make the briquettes heavier and last longer.
- Knead the solution until it is firm or until you can form balls in your hands.
- Put the wet briquettes in a dry place without direct sunshine to harden. They can take 3-4 days to harden.



5

Local Income Solution



COFFEE
KIOSKS



Annet Nyakaisiki

SOLUTION ENTREPRENEUR

FEMALE • 34 YEARS • BULENGA, UGANDA

Annet is a coffee farmer and one of the few female baristas in Uganda. She is the founder and owner of Barista House Uganda, a company that promotes specialty coffee right from crop to cup for local consumption. She grew up in Fort Portal and was raised by a single mother. Her dream was to become a nurse with a vision of supporting the sick but she was not able to achieve it because she couldn't complete school.

She travelled to Kampala in search of greener pastures and luckily she was offered an opportunity to work at one of the well-known cafes in Kampala where she learned a range of barista skills. She mastered the skill further and took part in one of the coffee barista competitions organized by the Ugandan Coffee Development Authority (UCDA). She emerged as the first female ever to win their best-barista award. This inspired her to start her own business in coffee roasting to produce coffee drinks for local consumption and now she owns a barista house.

Annet is selfless and loves helping other people. So far, she has shared her skill with over 150 farmers around the different regions in Uganda. She is also passionate about creating affordable coffee-making technology for rural farmers and starting a coffee testing laboratory.

HER FAVOURITE QUOTE

“ *Never lose hope.* ”



INCOME FACTS

- Startup cost: 150,000 UGX (34.34 Euros)
- Selling price: 1 cup for 4,000 UGX (1.09 Euros)
- Income potential (monthly): 300,000 UGX (81.40 Euros)



SALE TIPS

- Have passion and love to start a business
- Never give up
- Don't fear challenges and find solutions



POTENTIAL CHALLENGES

- May experience gender resistance as a female barista
- It can be hard to serve many customers at the same time
- Equipment to expand can be expensive to purchase

5-YEAR VISION

A popular & successful female coffee entrepreneur.



LEARNING VIDEO

Click the video and learn how to do this income solution.



11 Steps TO MAKE COFFEE KIOSKS

MATERIALS

Dried coffee beans	500 grams
Charcoal stove	1
Saucepan	1
Mingling stick.....	1
Tray (or basket).....	1
Bucket	1
Mortar	1
Pestle	1
Sieve	1
Charcoal stove	1
Packaging tins	5
Water	1.5 litres

FOR BREWING

This can make up to 40 to 50 cups of coffee.

Medium ground coffee	
Jug	2
Tablespoon	1
Sieve	1
Cups	10
Kettle	1



ROASTING

Roast 500 grams of dried coffee beans in a saucepan on high heat for 10 to 30 minutes. Don't roast all the 500 grams at once, you can roast 100 to 200 grams each time. Continue roasting using a mingling stick to mix the coffee beans.



After roasting, sort the roasted beans and remove those that are burnt.



Place the roasted coffee beans onto a dry surface (make sure the surface is not plastic as it could easily burn). Leave the roasted beans for 12 hours.



Place the roasted and dried coffee beans into a mortar. Grind the coffee beans using a pestle and mortar to form medium-fine particles.



Remove the medium-fine particles and sieve to remove any of the uncrushed residue.



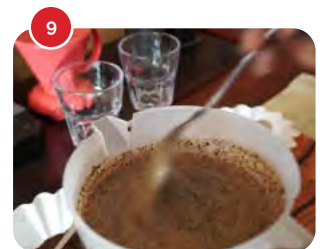
BREWING
Measure 10 to 11 tablespoons of ground coffee (equivalent to 60g) and place it into a jug.



Boil 1.5 litres of hot water in a kettle and pour it into the jug. While pouring into the jug, ensure that the water dilutes all the ground coffee.



Leave it to steep for three to five minutes.



Stir the upper surface.



Sieve to separate the coffee drink from the residues. The clean coffee drink can be poured into a separate clean jug.



This leaves a clean jug of coffee ready to serve. While serving, for those who don't drink strong coffee, you can pour half a cup of coffee and add hot water to fill it up.

TIPS

1. Don't roast all the coffee beans. Roast 100 grams at a time. The best beans are brown in colour.
2. Don't grind the beans too fine or it will become stale too quickly.
3. While serving, you could add some snacks to spice up the coffee drink.
4. Create a strong brand name and materials for your business. Use stickers and packaging such as tins or silver bags.



6

Local Income Solution



**POULTRY
FARMING**



**COFFEE
PROJECT**

SUPPORTED BY

FONDAZIONE
GIUSEPPE E PEPICILE LAVAZZA ONLUS

IMPLEMENTED BY

sawaworld
solutions from within



Paul Kabwama

SOLUTION ENTREPRENEUR

MALE • 37 YEARS • MUKONO, UGANDA

Paul believes in solving problems, and this belief has greatly helped him maintain his poultry farm successfully for the past ten years. He is a coffee farmer with seven acres of coffee trees in Mukono District and integrates it with poultry farming. He also rears 370 free-range local breed chickens at his settlement in Mukono District. One of his biggest successes was when he earned UGX 3,250,000 (747.64 Euros) from a supply of 130 chickens in a day.

He grew up in a family with 12 siblings. His father worked hard to cover the education fees of all his children. Unfortunately, he passed away when Paul was in university. Paul's life was never the same. He had to stop school and start farming to enable him to pay for his school fees. At some point, he was inspired to start rearing free-range local chicken to supplement his income from farming. From the success of his poultry farming business, he further diversified his income and bought his own motorcycle and opened a shop that sells solar panels and bulbs.

Paul feels inspired to continue with his business and encourage other youth farmers to embrace this integrated mode of farming.

HIS FAVOURITE QUOTE

💡 ***Hard work pays off.***



INCOME FACTS

- Startup cost: 120,000 UGX (27.61 Euros)
- Selling price: 1 Chicken for 30,000 UGX (6.90 Euros), 1 tray of eggs for 20,000 UGX (4.60 Euros)
- Income potential (monthly): 800,000 UGX (184.03 Euros)



SALE TIPS

- Always keep records to know your income/ expenditures
- Be innovative, embrace new changes
- Research to get new ideas



POTENTIAL CHALLENGES

- Diseases may cause chicken to die
- Requires good structures to keep chicken safe
- Requires capital as you expand the business

5-YEAR VISION

Have an economically stable poultry business.



LEARNING VIDEO

Click the video and learn how to do this income solution.



6 Steps TO POULTRY FARMING

MATERIALS

These materials are used for 10 chicken

Chicken drinking bottles.....	2
Chicken feeders.....	2
Coffee husks.....	4 bags
Small pot.....	1
Charcoal or fuel briquette.....	½ bag
Stove.....	1
Glucose.....	1 packet
Glucovit vitamin.....	1 packet
Chicken coop (12 by 15 ft).....	1
Chicken starter.....	15 kg
Ash.....	½ bag
Newcastle disease vaccine.....	1 bottle



Place the 5 to 10 chicks in a dry and enclosed chicken coop with good ventilation. Get a small pot, add hot charcoal or eco-fuel briquettes and ash. Place this small pot in the chicken coop to keep the chicks warm as they develop feathers in the absence of a mother hen.¹



Start giving the chicks the starter feed. This develops their digestive tract and builds a healthy immune system and growth.²



Fill the ground with coffee husks on the second day of brooding the chicks. This acts as litter or beddings in the chicken coop.³



Give the chicks glucose and the glucovit vitamin mixed with water for the first three days. This is done as you give the chicks the starter feeds.



After the three weeks, give the chicks about 500g of chicken feed everyday. You can also give them glucovit vitamins in water at least three days a week. This is repeated for the next three months until they mature.



The chicks take three months to grow into chicken that are ready for sale.

TIPS

1. Warming the chicks with a small stove and charcoal takes two weeks. This helps to give the chicks the warmth they need as they grow their own feathers.
2. It's important to immunize the chicks on the first and third days with a Newcastle Disease vaccine. This helps prevent chicken from being exposed to Newcastle disease
3. Coffee husks should not be used on the first day because the chicks can easily feed on them and die.



7

Local Income Solution



NOTEBOOKS



Swabula Nakiyemba

SOLUTION ENTREPRENEUR

FEMALE • 26 YEARS • SEMBABULE, UGANDA

Swabula comes from a coffee farming family. She grew up with a single father and four siblings. Her dad did not have enough funds to pay for her education. She started working on the farm to help get more income but it was never enough and only provided income three months in a year.

At the age of 18, she learned how to do hairdressing and started working in a local salon. She only earned 60,000 UGX (13.70 Euros) a month and sometimes she did not get paid. She left her job and went back to farming. Three years ago, she learned a range of locally-created and easy-to-start income skills from Sawa World. She took on the skill of making notebooks. She used 80,000 UGX (18.27 Euros) from her village savings fund to make her first books. She was proud when she sold her first books to a local leader that was worth 30,000 UGX (6.85 Euros). And, there was one day where she sold 120 books and earned 300,000 UGX (68.52 Euros). This motivated her to invest more in her business. Swabula has trained 10 other girls in her community on how to make books. From the success of her book business, she has further diversified her income by opening her own hair salon and buying a few goats. The income from her businesses supports her family. She feels happy and confident that she was able to lift herself out of poverty.

HER FAVOURITE QUOTE

“Patience pays. All things require patience”



INCOME FACTS

- Startup cost: 80,000 UGX (18.42 Euros)
- Selling price: 1 book for 2,500 UGX (0.85 Euros)
- Income potential (monthly): 400,000 UGX (92 Euros)



SALE TIPS

- Always look for new customers
- Have extraordinary quality of your books
- Use standard bookkeeping of your business



POTENTIAL CHALLENGES

- Price fluctuation for materials
- Some materials are only sourced in urban centres
- Low demand during school closures

5-YEAR VISION

Having a wholesale business in notebooks & training other youth the skill.



LEARNING VIDEO

Click the video and learn how to do this income solution.



10 Steps TO MAKE NOTEBOOKS

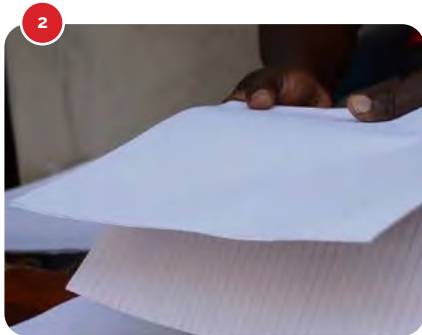
MATERIALS

Makes 20 books of 2-quires (48 sheets of paper)

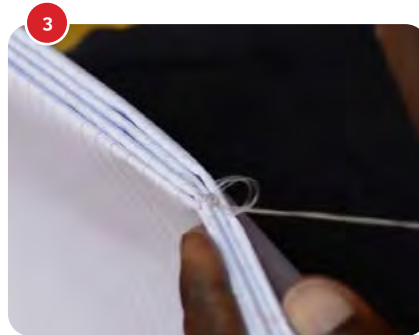
Paper (A3)	1 ream
Boards (book covers)	1 packet
Marbles (book cover design)	1 packet
Binding cloth	1 metre
Binding glue or cassava flour	1 kg
Threads	1 roll
Needle	1 packet
Brush	1



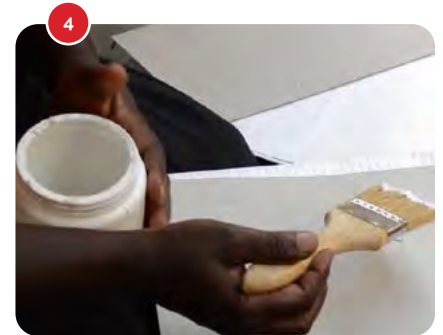
Gather the materials needed for a 2-quire book. Neatly stack 6 sheets to make 1 quire, then fold in half. Repeat 4 times and begin sewing the first quire. Count 6 lines along the folded spine of the first quire and then pierce the spine. Next thread the needle through the next 5 lines and repeat this until you get to the top.



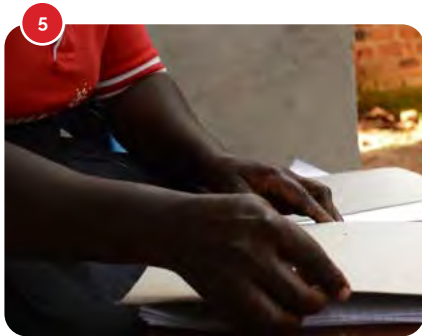
Attach and sew the first quire the same way as the 1st and also do this for the remaining two quires.



Attach and knot all the quires together, tie a knot tightly.



Glue or paint the cassava evenly onto the front page of the book.



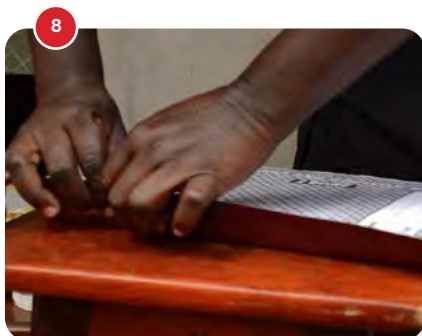
Glue the boards to the book. Carefully smooth the first board on top, ensuring there are no wrinkles. Repeat on the back page.



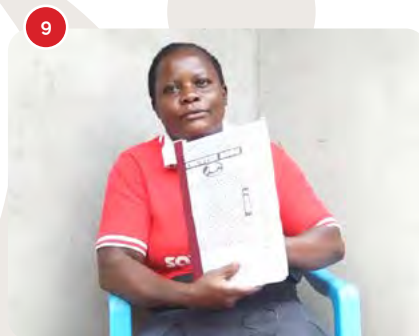
Glue marble cover designs on the front and back.



Put binding glue on one side of the binding cloth. Smooth into the spine evenly.



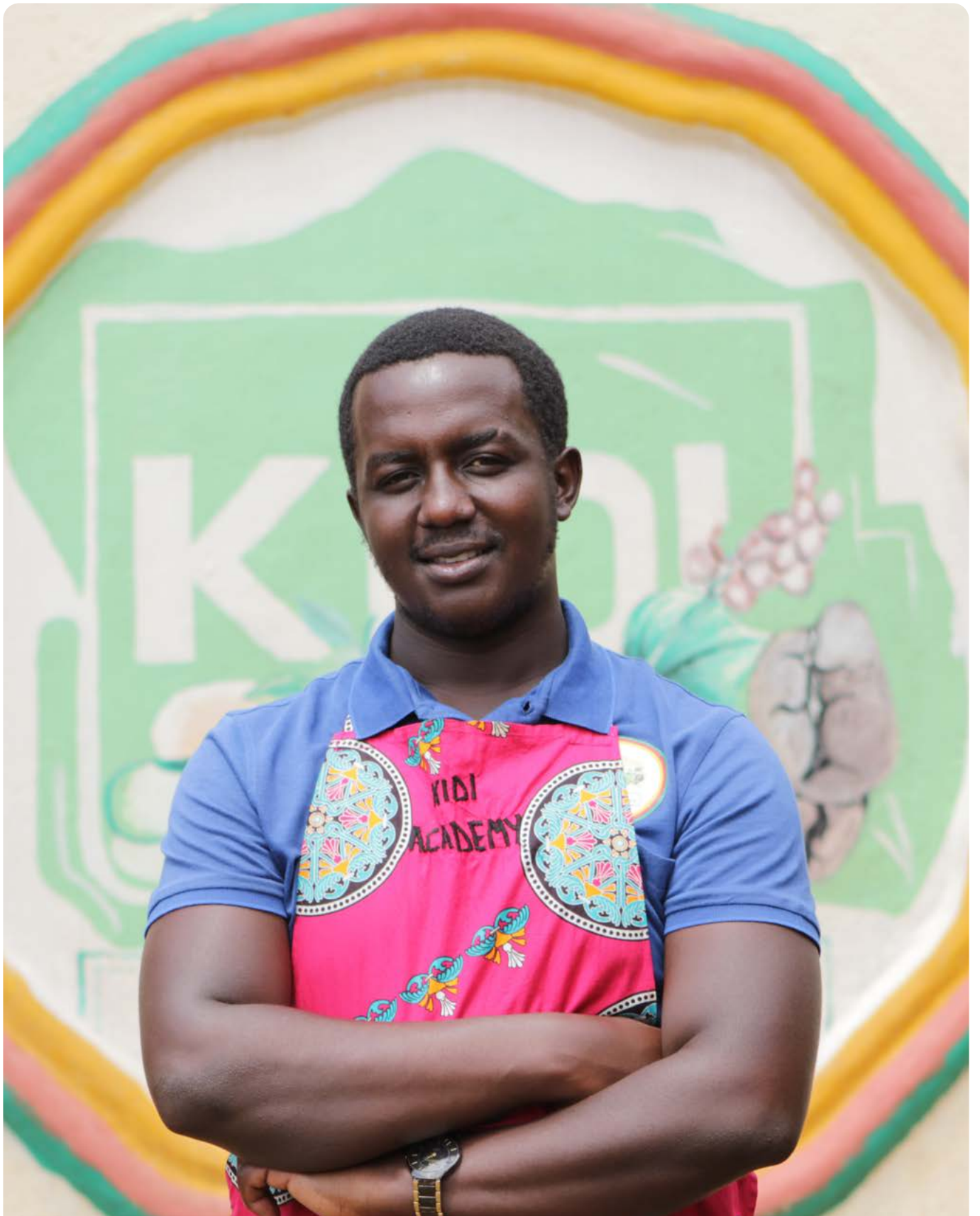
Apply the binding cloth to the spine of the paper.



Dry the completed book in the shade for two days. Too much heat or sun will cause the book to warp. Make sure the book dries completely.



Trim the book, you can take the completed books for trimming at a nearby trimming machine.



8

Local Income Solution



FRUIT
JUICE



Pius Kisala

SOLUTION ENTREPRENEUR

MALE • 25 YEARS • MBUYA, UGANDA

Pius is an inventor and owner of a brand called Kidi Coffee & Juices, a company that makes fruit juice infused with coffee, also referred to as a mocktail (non-alcoholic cocktail).

Pius is a coffee farmer and grows coffee on half an acre of land in Wakiso District. He grew up in a family of eight siblings. His parents paid for his education, but sadly he was not able to complete this when both of his parents passed away. This was the most challenging point in his life and lost all hope for the future. Fortunately, he met a friend who connected him to work as a barista at one of the coffee cafes in Kampala. He discovered that he loved making coffee and started his innovation of making fruit juices mixed with coffee. The first time he made fruit juice (mixed with coffee), he made UGX 30,000 (6.91 Euros). He now makes up to UGX 300,000 (69.09 Euros) per month from his business.

He is passionate about impacting the lives of young farmers and established a training centre. He has taught the skill of coffee fruit juice to 200 youth so far.

HIS FAVOURITE QUOTE

💡 *Hard work pays off.*



INCOME FACTS

- Startup cost: 50,000 UGX (11.51 Euros)
- Selling price: 1 juice cup for 2,000 UGX (0.46 Euros)
- Income potential (monthly): 300,000 UGX (69.09 Euros)



SALE TIPS

- Be determined
- Research and outsource for additional knowledge
- Invest in new ideas and opportunities



POTENTIAL CHALLENGES

- Need to raise awareness on new product
- Prices of the fruits in the market keep changing
- Need additional capital to grow the business

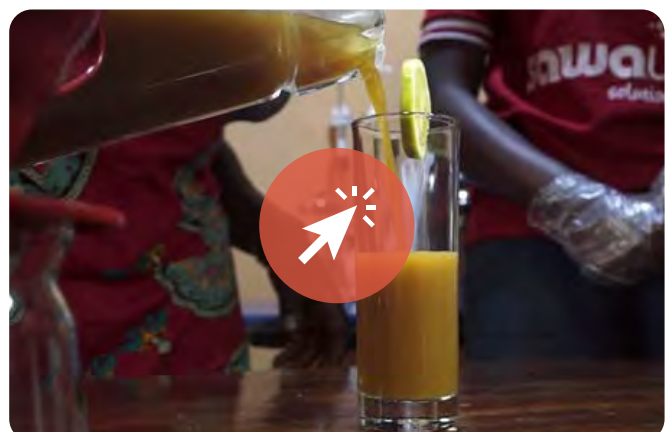
5-YEAR VISION

A striving company in the coffee value chain.



LEARNING VIDEO

Click the video and learn how to do this income solution.



12 Steps TO MAKE FRUIT JUICE

INGREDIENTS

This can make up to 5 litres of juice

Sieve	1
Measuring cup	1
Ground coffee	100 g
Tablespoon	1
Mangoes	5
Passion fruits	10
Jug	2
Oranges	7
Wooden muddler	1
Medium size bucket	1
Boiled water	5 litres
Sugar	¼ kg
Small cup	1
Juice glasses (or cups)	20
1 litre jerry can	1



Prepare and arrange all the materials and equipment. Wash your hands and wash all the fruits with clean water and maintain a clean working environment.



Cut off the outermost layer of the passion fruits and remove the middle part of the fruit. Place it in a clean measuring cup.



Squeeze out the juice from the oranges. Sieve the juice into a jug.



Pour 100 grams of ground coffee into a small cup and add 1 cup of hot water to brew for 2 to 5 minutes. Pour the brewed coffee into a one-liter jerry can.¹



Cut the mango pulps into a bucket and use a wooden muddler to squeeze the juice. Add 2 to 3 cups of boiled water at room temperature.



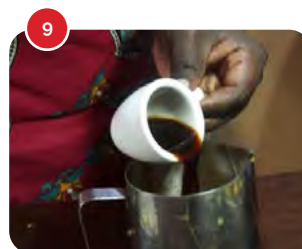
Pour the passion pulp into the fruit mixture of the mangoes and mix well.



Pour the orange juice into the mixture.



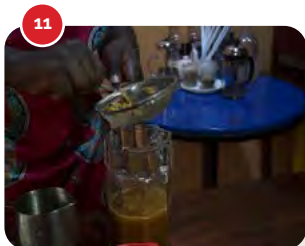
Add two to three tablespoons of sugar and mix well. Pour 2 cups of the boiled water to the fruit mixture.



Add the brewed coffee and mix well with the fruit mixture.



Add 2 cups of boiled water into the coffee fruit juice and mix well.



Sieve the mixture into a separate clean jug. Use a table spoon to squeeze out the remaining juice on the sieve.



The coffee fruit juice is now ready.

TIPS

1. Don't leave the coffee to brew too long because it will taste bitter.



9

Local Income Solution

 **AFRICAN SANDALS**



Paul Mugisha

SOLUTION ENTREPRENEUR

MALE • 25 YEARS • NAMUGONGO, UGANDA

Paul lives by his favourite motto *'a candle loses nothing by lighting another candle'*. He is a coffee farmer and intercroops coffee with plantain on five acres of land in Mukono District. He also has a small settlement in the outskirts of Kampala where he lives with his wife. In the city, he established a small shop to make and sell his African sandals made from recycled tires and jeans. He proudly named the business Maliba Concepts. Maliba means genuine leather in Luganda.

Paul was raised by a single mother that worked hard to cover the educational fees for him and his sister but it often wasn't enough. Paul wanted to help and used this creative talent to make crafts for people in the community. He even taught himself how to make sandals. He started the first craft designs from his dorm room at university. Soon, he started selling his products to students and the sandals quickly became popular and grew a large customer base.

He has trained over 200 other young people in his community. Paul believes by sharing his skills with the youth he is building a labour force that can work together.

HIS FAVOURITE QUOTE

“ *Work until your idols become rivals* ”



INCOME FACTS

- Startup cost: 100,000 UGX (23 Euros)
- Selling price: 1 pair for 20,000 UGX (4.67 Euros)
- Income potential (monthly): 400,000 UGX (93.43 Euros)



SALE TIPS

- Be creative and follow market trends
- Maintain a high quality of the product
- Continue exploring new design techniques



POTENTIAL CHALLENGES

- Many orders can be overwhelming without enough equipment
- You may require additional labour
- Requires additional funds to produce large quantity

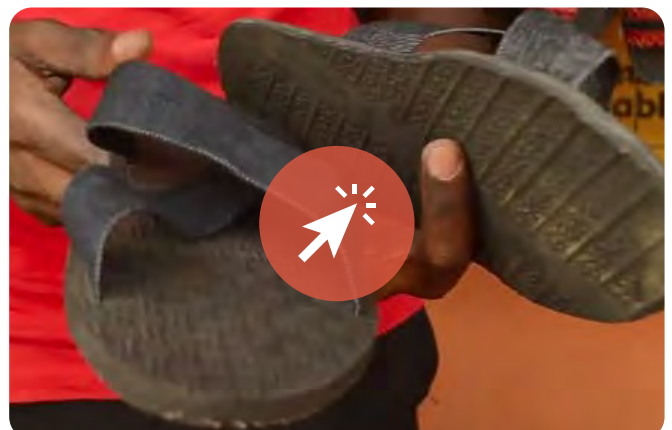
5-YEAR VISION

Produce 100 pairs of African sandals per day.



LEARNING VIDEO

Click the video and learn how to do this income solution.



14 Steps TO MAKE AFRICAN SANDALS

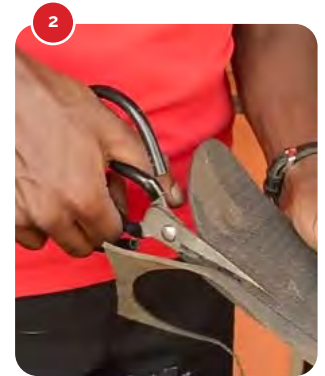
MATERIALS

Makes 20 sandals.

Car tire inner tread or rubber piece	8 pieces
Cow mat layer or rubber sole	1 sheet
Recycled jean fabric or straw ribbons	2m
Glue	1 bottle
Scissors	1 pair
Sandpaper	1m
Cutter blade	1
Hammer	1
Pen	1
Ruler	1
Brush	1
Tracing/foot size patterns	1 pair



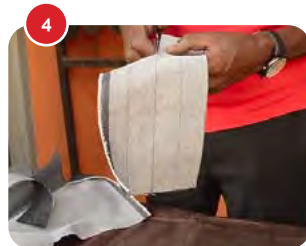
Place the foot size patterns on the cow-mat layer (or rubber piece) and trace with a pen.



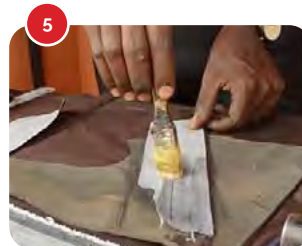
Carefully trim off the excess layer following the line of the pen. Do the same for the car tyre inner tread material (or rubber piece).



Measure 30 cm by 6 cm and draw out lines on the recycled jean fabric 4 times.



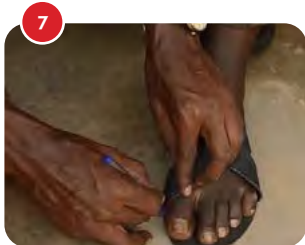
Cut the fabric following the lines to get the 4 straps.



Carefully apply glue on the edges and on the middle line of the fabric.



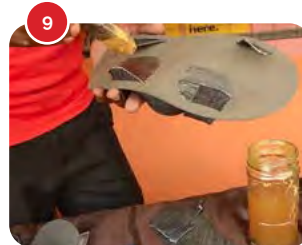
For each of the 4 straps, fold the right and left edge to meet the middle line.



Measure the jeans fabric straps on your sandal model to determine the space needed for the foot. Using a pen, mark where the fabric meets the sandals.



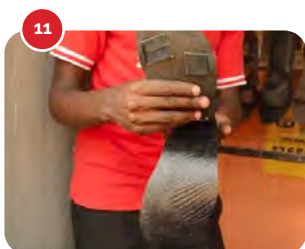
Use a cutter blade to create openings where the marked points are.



Insert the jean fabric in the holes and apply glue and press down on the cow mat. later.



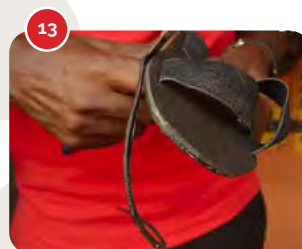
Use sandpaper to smoothen the surface. Use the sand paper also to remove dirt on the car tire inner tread material



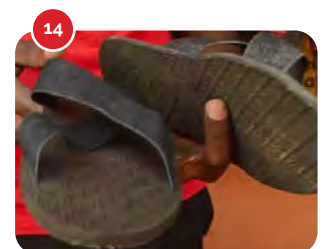
Apply glue on both the cow mat layer and car tire inner tread material and attach tire material and layer together carefully.



Use a hammer to strengthen the attachment of the two layers.



Trim off the excess rubber from the sandal using the blade. Use sandpaper to gently smooth out the edges.



Your homemade sandals are now ready for sale.



10

Local Income Solution



PAPER BAGS



Dixon Aine

SOLUTION ENTREPRENEUR

MALE • 37 YEARS • MPERERWE, UGANDA

Dixon has a strong belief in persistence. He attributes it to starting his organization, Sustainable Youth Development Foundation (SYDF), an organization that empowers youth with hands-on skills such as making paper bags, reusable sanitary pads, and tailoring.

Dixon was raised by his aunt as both of his parents passed away. His dream was to become a doctor but instead he pursued studies in business administration. In one of his first jobs he learned how to make a range of easy-to-start income skills including paper bags and reusable sanitary pads. Soon after, he started SYDF with the aim to train many youth in these skills.

Dixon has trained over 500 youth in paper bags, reusable pads and other skills over the past seven years.

HIS FAVOURITE QUOTE

“*Life is what you make it.*”



INCOME FACTS

- Startup cost: UGX 70,000 (16.03 Euros)
- Selling price: 1 paper bag (A4 size) for 100 UGX (0.027 Euros)
- Income potential (monthly): 300,000 UGX (68.68 Euros)



SALE TIPS

- Make paper bag sizes that are marketable
- Don't sell the paper bag, sell the value of it
- Know your customers and their needs



POTENTIAL CHALLENGES

- Requires making in large quantities to be profitable
- Need to be careful when cutting to avoid paper wastage
- May require some efforts to find customers

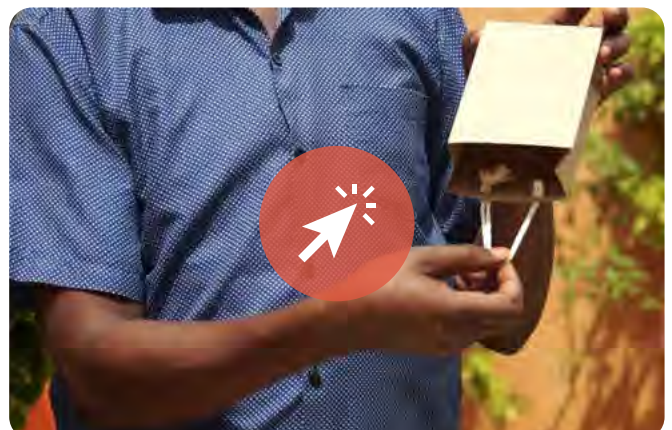
5-YEAR VISION

A large scale production of the paper bags.



LEARNING VIDEO

Click the video and learn how to do this income solution.

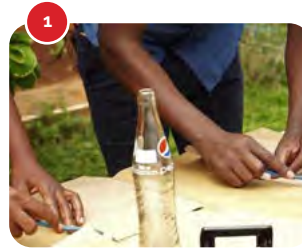


13 Steps TO MAKE PAPER BAGS

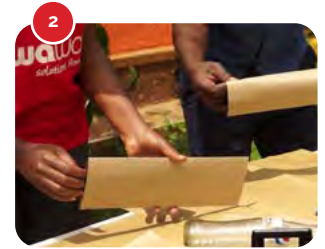
MATERIALS

These materials can make up to 125 paper bags of A2 size and 375 paper bags of A4 size

- Book binding glue (or cassava flour porridge)..... 1 jar
- Scissors 1 pair
- Clean brush..... 1
- Empty glass bottle 1
- Paper (or recycled paper/purchased craft papers)..... ½ ream
- Punching machine 1
- String 1 roll
- Ruler 1



Take an A4 size-paper (height 29.7cm and width 21cm) and fold the paper $\frac{3}{4}$ way, leaving a small strip. Put glue on the remaining $\frac{1}{4}$ small strip using a brush and stick it to the top part of the folded paper. Press the folds to make two folded lines



Line up the two folded lines against one another and press the paper in gently to create two more folds.



After pressing gently, you're able to make four sides.



Put your index fingers at the center of the middle part of the "box" shape and press while using the thumb to press the two other flat sides together.



Prepare the bottom of the paper bag with one of the open ends pointing towards you. Fold the bag 4cm up from the bottom.



Press the folds firmly using a glass bottle to create sharp lines.



Open the folded part back. Fold the left hand side to make a right angle triangle and do the same for the right side. Open the folded triangles to get back to the starting point of this step.



Use the outermost edges of the triangle as a guide and fold each of the edges inwards to make a square-shaped bottom with triangles.



Taking the outer point, pull the bag outward to create a flat bottom with triangles on the left and right sides.



Glue the sides of the inner triangle but not at the tip and attach it to the flat bottom. Also, glue the sides of the outer triangle up to the tip and press gently on the flat bottom to complete the paper bag.



Fold the top open end of the paper bag inwards and glue it in position.



Add holes for the strings using a punching machine



Add the strings on both opposite sides. Your paper bag is now complete.

TIPS

1. If you don't have glue, you can use cassava flour porridge.
2. The pair of scissors can be used to cut the paper to the different sizes.
3. Experiment making different kinds of paper bags sizes.



11

Local Income Solution



AFRICAN
EARRINGS



COFFEE
PROJECT

SUPPORTED BY

FONDAZIONE
GIUSEPPE E PERICLE LAVAZZA ONLUS

IMPLEMENTED BY

sawaworld
solutions from within



Jacky Kassujja

SOLUTION ENTREPRENEUR

FEMALE • 29 YEARS • KAMPALA, UGANDA

Jacky was raised by a single mother and often helped her grandmother with the coffee farm. Since she was a child, Jacky had a passion for making creative products from second-hand. She would experiment with making different products and this led her to finish a diploma in fashion and design.

During her studies, she grew the confidence to make African earrings and bags from fabric but only made it for her personal use. People started complimenting on her beautiful jewellery and crafts. It motivated her to present them at a national exhibition where she made her first sale of 10,000 UGX (2.30 Euros). In 2013, she registered her company SEMA Designers and has showcased her earrings and other crafts (table mats, necklaces) at fashion shows across Uganda and even one in Germany.

Jacky inspires young women to start a skill. She has trained over 1,000 girls and they started their innovations from fabric material.

HER FAVOURITE QUOTE

👉 *Winners never quit*

5-YEAR VISION

100 steady clients for the African earrings.



INCOME FACTS

- Startup cost: 50,000 UGX (13.53 Euros)
- Selling price: 1 pair for 5,000 UGX (1.35 Euros)
- Income potential (monthly): 300,000 UGX (81.19 Euros)



SALE TIPS

- Love your business
- Give the business your best
- Be creative, learn new ideas



POTENTIAL CHALLENGES

- Price fluctuation for materials such as fabric
- Income may not be generated daily
- Some customers may not always be genuine



LEARNING VIDEO

Click the video and learn how to do this income solution.



11 Steps TO MAKE AFRICAN EARRINGS

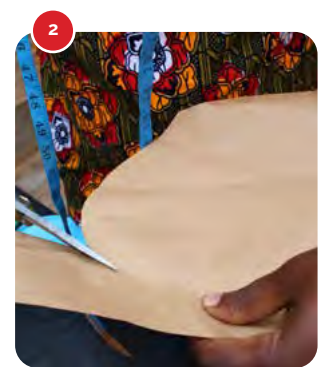
MATERIALS

Makes 20 pairs of African earrings

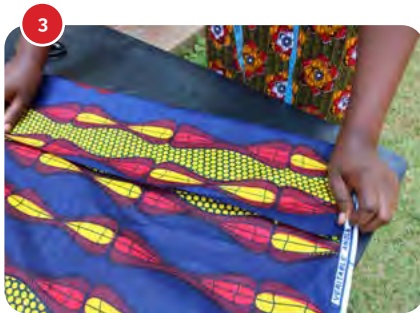
African fabric material	1m
Beads	1 packet
Metal flower beads	1 packet
Pins	1 packet
Needles	1 packet
Earring holders	1 packet
Plier.....	1 pair
Paper (A4 size)	1
Compass	1
Pencil	1
Thread	1



1 Get a paper and use your compass and a pencil to draw the size of the circle you want your earring to be.



2 After drawing the circle, cut out the circle with scissors or a razorblade.



3 Fold your African fabric into two and place the paper circle onto the folded material. This is done in order to get two pieces.



4 Get pins and pierce them through the paper and the fabric material to hold them together. Cut out the same circle from the fabric material using scissors. These make two circles.



5 With a needle and thread, sew the pieces together. Fold slightly at the edges to get a rounded shape. Continue sowing the fabric material until you reach the starting point.



6 Get the thread from where you started and pull both ends. Tie a knot to hold it firm. Cut off the remaining thread.



7 Next is to make a holder for the earring. Get a pin and position at the base of the fabric circle and push it through the edges.



8 Add a small metal flower and then beads at the base of the pin. Put another small metal flower on the last bead.



9 Cut off the remaining part of the pin. With pliers, slightly bend the edge of the pin leaving enough space for the holder to pass. Don't close the loop all the way yet.



10 Add the earring holder and close the metal loop so that it doesn't go out.



11 The earring is now complete.



12

Local Income Solution



REUSABLE
SANITARY PADS



Sharon Kyarisiima

SOLUTION ENTREPRENEUR

FEMALE • 27 YEARS • MPERERWE, UGANDA

Sharon has a heart of gold and a deep passion for helping vulnerable people. She was born in a faraway village in Western Uganda in Kabale District. Tragically, she lost both of her parents at the age of four. Her aunt raised her and her brother and supported her to complete her education. Sharon even went on and completed a Bachelor's Degree in Social Sciences.

Immediately after university she got married and had two children. It was a struggle getting by, Sharon was unemployed and her husband was not earning enough from his job. But, Sharon was motivated to get employment and found a sales position with the organization Sustainable Youth Development Link (SYDF) in Kampala. The youth organization was founded by Dixon Aine and offers workshops on livelihood skills such as reusable sanitary pads and menstrual hygiene practices.

Dixon noticed the motivation of Sharon and promoted her as one of the SYDF program managers. She started teaching youth how to make reusable sanitary pads among other skills. Sharon enjoys teaching other teen girls how to make and sell the pads and has trained 340 of them. She also uses the pads personally and promotes it as an empowerment tool for young females.

HER FAVOURITE QUOTE

“ *Life is what you make it* ”



INCOME FACTS

- Startup cost: 85,000 UGX (23.00 Euros)
- Selling price: 1 pad for 3,500 UGX (0.95 Euros)
- Income potential (monthly) : 200,000 UGX (54.13 Euros)



SALE TIPS

- Know your product
- Use materials you can get locally
- Have consistent products supply without shortages



POTENTIAL CHALLENGES

- Polythene materials is not eco-friendly
- Price fluctuation of materials
- Stigma of reusable pads

5-YEAR VISION

Produce 20,000 pads and teach vulnerable women with the skill.



LEARNING VIDEO

Click the video and learn how to do this income solution.



12 Steps TO MAKE REUSABLE SANITARY PADS

INGREDIENTS

Makes 30 reusable sanitary pads

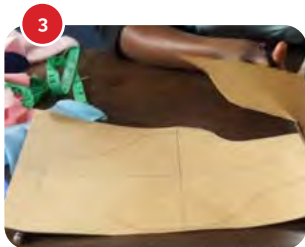
Fleece cloth or baby blanket material.....	4m
Polyester viscose (PV) fabric or uniform material.....	2m
Baby mat or clinical polythene	2m
Needle	1
Thread	1 roll
Scissors	1 pair
Buttons	1 packet
Tape measure or ruler.....	1
Paper (A4 size).....	1
Pencil.....	1
Pins (used for holding the pieces).....	1 packet



Using a tape measure, measure a height of 11 inches on a piece of paper and draw a perpendicular line through the measurement (using a ruler and pencil). Then draw a horizontal line in the middle of 5.5 inches.



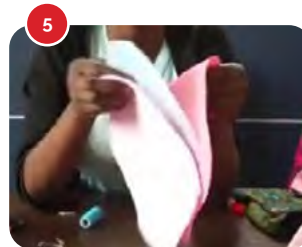
To draw the shape of the pad, measure and mark 4 inches from the centre of the horizontal line on each side. At each of these points draw a 2 inch perpendicular line. Next, draw a 2 inch line at the top and bottom of the 11 inch perpendicular line (drawn in Step 1).



Draw a sketch to run through the tips marked out from the measurements. This sketch has to be similar to the shape of a normal sanitary pad. Cut out the shape using a pair of scissors following the edges of the sketch.



After cutting out the shape, put it on the fleece cloth and use pins to hold it in place. Cut off the shape.



After the fleece cloth has been cut, remove the paper. Use the same paper and cut out the same shape on the PV fabric and baby mat material.



To get the liner for the pad, measure 9 inches high and 3 inches wide and cut out from the fleece material. This is placed in the middle of the three fabrics.



Place the liner in the middle of fleece material cut out. Sew them together.



After sewing the middle liner, turn it on the other side and put the PV fabric followed by the baby mat material cut-outs.



Pin the three materials and sew the edges of the pad. While sewing, leave 2 to 3 inches at the top to enable the reusable sanitary pad to turn inside out.



Unfold the pad inside out and sew the open part. When unfolding, the baby mats should be in between the fleece cloth and PV fabric.



Get a button and sew it on one end of the pad. On the other end, measure the hole for the button, cut and stitch it well.



Your pad is finished.

TIPS

1. Put your pads in a package (polythene/paper bags) and have it ready for sale.
2. How to wear: Place the pad in the middle of the underwear, with the polythene side facing down.
3. To wash: Put powder soap in a basin of water and soak the pad for some time. Wash it by hand, but not very hard because the polythene will get torn. Dry the washed pad in the shade.



13

Local Income Solution



FUEL
SAVING STOVE



John Paul Nkemba

SOLUTION ENTREPRENEUR

MALE • 27 YEARS • KYEBANDO, UGANDA

John Paul uses his creativity and innovation to make fuel saving stoves, a skill he learned from his mother (Prossy) who is considered a leader in constructing eco-fuel saving stoves in Uganda. She was inspired to make them because they produce little smoke, are cost-efficient and energy-saving. In 2004, she developed a civil society organization, Promoters of Efficient Technologies for Sustainable Development (PETSD) with the main aim of empowering vulnerable people in Uganda to learn the skill and generate additional income.

John Paul became passionate about the fuel saving stoves and has been making them for the past seven years to generate additional income. The profits from his business allowed him to pay the tuition for a university degree and also general living expenses.

John Paul aspires to obtain a master's degree in renewable energy with the goal to get more knowledge on making new products in this sector.

HIS FAVOURITE QUOTE

“ *The earth is our mother source, we need to preserve it.* ”



INCOME FACTS

- Startup cost: 70,000 UGX (16.03 Euros)
- Selling price: 1 stove for 15,000 UGX (3.43 Euros)
- Income potential (monthly): 150,000 UGX (34.34 Euros)



SALE TIPS

- Always consider the effect your business has on the environment
- Pay attention to the customer's unique interests and deliver accordingly
- Always think about the future of the business and ensure it remains stable



POTENTIAL CHALLENGES

- Income generated from the stoves may be seasonal
- Many orders may be overwhelming without equipment
- Transport of the stove is challenging due to the weight and clay material.

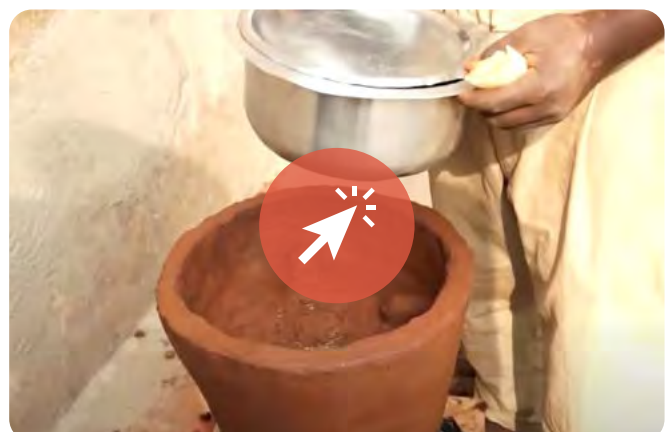
5-YEAR VISION

Produce 1,000 stoves a year.



LEARNING VIDEO

Click the video and learn how to do this income solution.



20 Steps TO MAKE FUEL SAVING STOVES

MATERIALS

These materials can make up to five fuel stoves.

Saucepan (measuring the size of the stove)	1
Hoe	1
Panga.....	1
Knife.....	1
Spade	1
Wheelbarrow (for carrying soil to the workspace).....	1
Jerry can (for storing water).....	1
Measuring tape.....	1
Plastic bag/basin	1
Banana stem.....	3
Water	40 litres
Clay soil (from an anthill).....	2 bags/6 basins
Dry grass	1 bag
Basket (for measuring the soil).....	1



1 Get clay soil and break it into small pieces. Use clay soil from an anthill.



2 Add the dry grass onto the clay soil. Mix evenly using a hoe.

Note: In every 3 baskets of clay soil, add one basket of dry grass.



3 Pour water over the soil and grass mixture. Use a hoe to mix until it becomes thick.¹



4 Then use your feet to stamp the mixture until it is smooth and moldable.

Note: To check if the soil mixture is ready, we use our hands and add it together. It should be able to stick.



5 We mold the top of the stove basing on the size of a sauce pan. Select a saucepan and measure its inside width in centimeters using a measuring tape. For this example, we used a saucepan that was 21cm wide.²



6 Use half of the measurement from saucepan width (20.5cm) to measure the banana stem width.



7 Use 25cm for the height of the banana stem and then cut it out. You will need two pieces of this height.

Note: The banana stem helps us make the entrance for the firewood and air inlet.



8 Select one piece of the banana stem and cut it into two pieces, one piece being slightly larger (2/3), and another piece being (1/3). The larger piece will create the firewood inlet and the other piece the air inlet. Leave the second stem uncut. This will be the main heating chamber for the stove.



9 On a flat surface, mold a stove base determined by the saucepan size. At the base is where we put our strength because it is the foundation of our stove **Note:** Use recycled polythene bag to lay on the wood before starting to add soil so that it does not stick to the surface.



10 Get the banana stem cuttings for the air inlet (smallest cut part) and for the main stove chamber (uncut banana stem) and place it on the base. Start molding the clay soil mixture around the banana stems.

20 Steps TO MAKE FUEL SAVING STOVES



Put third stem (larger cut stem) on the side of the main stove chamber stem (uncut banana stem). It will act as the fire chamber and the air inlet.



Mold the fire chamber around the stem cutting.



Mold the stove body to the height of the stove fire chamber with space in between it.



Mold the shield on the stove body that helps to protect the fire around the saucepan when cooking.



Seal (at the top) the space in between the fire chamber and the body.



Mold the seating area for the saucepan. This helps give the saucepan a reasonable height above the stove body and to allow proper heating.



Using a scraper to make the stove neat and keep it under a shed (in the shade) to leave it to dry.



Smoothen the seating area for the saucepan and shape three pot holders.



Place your saucepan on the stove to see if it fits. Space should be left between the saucepan and the stove body of 1cm on either side.



After two weeks, remove the banana stems and allow it to dry for 14 days. The stove will be ready for use when it has properly dried depending on the weather or season of the place at that time.

TIPS

1. Add water in small quantities. Too much water will make it slippery.
2. You can use any size of pot but the larger the pot, the larger the stove. Start small and experiment.



14

Local Income Solution

 LIQUID SOAP



Ephrance Nambuuzza

SOLUTION ENTREPRENEUR

FEMALE • 29 YEARS • KANYANYA, UGANDA

Ephrance is married with two children. She grew up in Mukono District in Central Uganda with nine other siblings. Her parents are coffee farmers and also grow other food crops such as maize and plantain. She stopped school in senior four because her parents did not have enough money. She later studied to become a nurse and found a job at a pharmacy in Kampala District.

She wanted to do more besides her career in the health sector. She had a deep passion for inspiring youth in the slum areas of Kampala District. She joined a youth group called Lufula Youth Development Group and learned how to make soap, sandals and a range of other skills. She soon became the secretary of the group and helped them grow their sales of the products.

HER FAVOURITE QUOTE

“*Today's effort is tomorrow's success.*”

5-YEAR VISION

Helping people with income skills.



INCOME FACTS

- Startup cost: 30,000 UGX (6.91 Euros)
- Selling price: 20 litres for 35,000 UGX (8.06 Euros)
- Income potential (monthly): 300,000 UGX (69.08 Euros)



LEARNING VIDEO

Click the video and learn how to do this income solution.



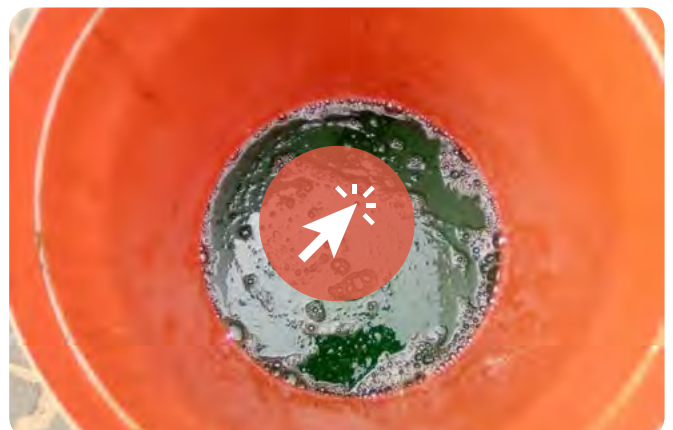
SALE TIPS

- Have good marketing skills
- Ensure that you have good quality products
- Get a brand for your products



POTENTIAL CHALLENGES

- May find competition with other sellers
- Price fluctuation of the materials
- Some of the ingredients may cause skin irritation



14 Steps TO MAKE LIQUID SOAP

INGREDIENTS

Eco-friendly foaming agent..... 1 kg
 Salt..... 1 kg
 Sulphonic acid..... ½ kg
 Sodium carboxymethyl cellulose (CMC)..... ¼ kg
 Urea..... ½ kg
 Caustic soda..... ½ kg
 Water..... 20 litres

Optional

Color (use vegetable dye)..... 1 packet
 Fragrance (use essential oils)..... 1 bottle

MATERIALS

Makes up to 20 liters of liquid soap

Plastic basin or large bucket 1 bucket
 Large bowl/plastic basin..... 1
 Wooden mingling stick..... 1
 Gloves..... 1 pair
 Face mask 1 pair
 Tablespoon (for measurements) 1
 Jerry can 20 litres



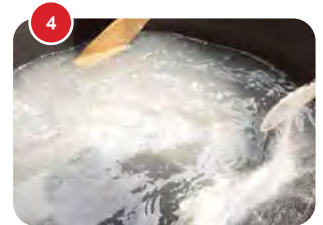
1 Start by putting gloves and a mask on.¹



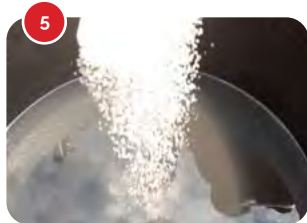
2 In a plastic basin, add 5 litres of water and 1 kg of salt.²



3 Stir thoroughly using a wooden mingling stick until the salt completely disappears.



4 While stirring vigorously, add three spoons of sodium carboxymethyl cellulose (CMC).



5 When the CMC has dissolved, add in the 2 teaspoon spoons of caustic soda and stir thoroughly.



6 After stirring in the caustic soda, add three spoons of urea and stir.



7 When urea dissolves add 1kg of eco-friendly foaming agent.



8 Stir vigorously, until bubbles appear and foam is formed.



9 Once foam is formed, add in ½ kg of sulphonic acid and stir to dissolve.



10 While stirring, add remaining 15 liters of water.



11 Optional: add in color (vegetable-based) of choice and mix gently.



12 Optional: add 1 bottle cap full of essential oils such as mint for fragrance.



13 Allow the mixture to settle for 6 to 7 hours, until all the foam disappears.



14 Pack the soap in the jerry can or container. Your soap is now ready for sale or use.³

TIPS

1. For safety, always wear gloves and a mask to prevent the chemicals from getting into contact with the eyes or skin.
2. Ensure to mix the soap in a safe place and away from children.
3. Store the soap in an airtight container to prevent the fragrance from evaporating.



15

Local Income Solution



ORGANIC SKIN
OINTMENT



Oliver Namukasa

SOLUTION ENTREPRENEUR

FEMALE • 39 YEARS • RAKAI, UGANDA

Oliver is a coffee farmer and creative entrepreneur who is passionate about transforming the lives of young people and women in her community. It is through this passion that she was able to start the Sniff Model Farm and Cottage Training Center in Rakai. The center conducts free training services in mushroom growing, fuel briquette making, rabbit rearing, poultry farming, and making organic skin ointment.

She had a difficult childhood while growing up and the situation became worse when she lost her mother at the age of 18. She had to give up her dreams of studying law and took a more affordable course in teaching.

After teaching for seven years, Oliver lost her job in Kampala and decided to move back to her hometown in Rakai where she started developing new skills to help her earn income. She learned how to make the organic ointment through online and local sources. She has impacted individuals, organized groups, and schools in her community with her ointment products and looks forward to expanding her business around the country.

HIS FAVOURITE QUOTE

“ *Start small but now.* ”



INCOME FACTS

- Startup cost: 100,000 UGX (25.32 Euros)
- Selling price: 50g for 2,500 UGX (0.63 Euros)
- Income potential (monthly): 200,000 UGX (50.65 Euros)



SALE TIPS

- Maintain discipline while managing the business.
- Ensure a good quality product, it increases customers.
- Teamwork is key.



POTENTIAL CHALLENGES

- Acquiring a trademark from the authorities is difficult. This limits supply of the product.
- Consumers prefer imported rather than locally made products.
- To produce larger quantities requires machinery which can be costly.

5-YEAR VISION

To expand her market across Uganda and to purchase land with a production house.



LEARNING VIDEO

Click the video and learn how to do this income solution.



11 Steps TO MAKE ORGANIC SKIN OINTMENT

MATERIALS

Beeswax.....(1kg)	Saucepan.....(1)	Container.....(1)
Citronella leaves.....(1 handful)	Packaging container.....(10)	*Essential oils.....(1 teaspoon)
*White flower oil.....(1 1/2 litres)	Mingling stick.....(1)	
Turmeric powder.....(1/4 teaspoon)	Tablespoon.....(1)	* Optional
Charcoal stove.....(1)	Sieve.....(1)	



Light a charcoal stove and place a medium sized saucepan on it.



Allow the pan to dry with the heat so that there is no water left in it.



Put the wax in the pan and let it melt completely.



After the beeswax has fully melted, add the citronella leaves and heat for 4-5 minutes.



Let the mixture cool for 2-3 minutes and then sieve it.



Add 1 1/2 litres of white flower oil to the bee wax and stir. If you don't have white flower oil you can use avocado oil or coconut oil.



Add a quarter teaspoon of turmeric and mix well.



Add one tea spoon of scented essential oils and mix well.



Place the pan with the mixture on the stove and heat for 4-5 minutes.



Remove the mixture from the stove and allow it to cool for 5-10 minutes.



Pack the ointment while it's still warm but not hot and add a label with all the ingredients and instructions.

TIPS

1. Stir the wax using a mingling stick until it has melted.
2. Citronella acts as a mosquito repellent.
3. If you don't have white flower oil, you can use avocado oil or coconut oil.



16

Local Income Solution



DRIED SPICES
& HERBS



Freedom Organization Group

SOLUTION ENTREPRENEUR

FEMALE (20) AND MALE (5) • MASAHA, KALIIRO

The Freedom Organization Group is one of the most unique coffee farmer groups in Kalungu District. It focuses on empowering vulnerable women and youth in its community by encouraging them to use available resources like land and crops to earn income.

The group was formed in 2009 and has grown to 25 members, the majority are women (20), while five are men. Since its formation, there has been a reduction in domestic violence and women are able to better manage their farms. As a group, they grow maize, beans, and coffee. They also rear animals like cows, goats, and pigs.

With the guidance of their chairperson Edward, the group decided to start making dried herbs and spices as a way of adding value to their farm produce. Their fondest memory of the business is when they invested 700,000 UGX (176.80 Euros) in the business and got a profit of 1,700,000 UGX (429.38 Euros) within one month. This motivated them to expand. They purchased land as a group to widen their farming activities. Their longer-term goal is to build a skills training center.

HIS FAVOURITE QUOTE

“Patience, persistence, and hard work will lead you to succeed.”



INCOME FACTS

- Startup cost: 100,000 UGX (25.31 Euros)
- Selling price: 500 UGX - 3,000 UGX (0.13 – 0.72 Euros)
- Income potential (monthly): 300,000 UGX (75.94 Euros)



SALE TIPS

- Maintain very high levels of cleanliness.
- Exercise discipline in the business by proper financial management.
- Ensure the use of organic spices without adding artificial colors or flavors.



POTENTIAL CHALLENGES

- A wide market is required to maximize profits.
- Packing containers that are good quality yet affordable is hard to find.
- Invest in advertising the product which can be expensive.

5-YEAR VISION

To build a school for the orphans, to construct homes for the elderly, and set up a skills training center.



LEARNING VIDEO

Click the video and learn how to do this income solution.



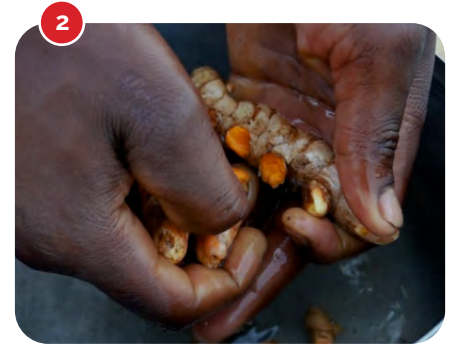
21 Steps TO MAKE DRIED SPICES AND HERBS

MATERIALS

Turmeric.....	(2 handfuls)
Ginger.....	(1 handful)
Coriander seeds.....	(1 handful)
Cinnamon leaves.....	(1 handful)
Garlic.....	(1 handful)
Maize seeds.....	(1kg)
Mortar and pestle.....	(1)
Charcoal stove.....	(1)
Mingling stick.....	(1)
Cup.....	(1)
Trays.....	(6)
Sieve.....	(1)



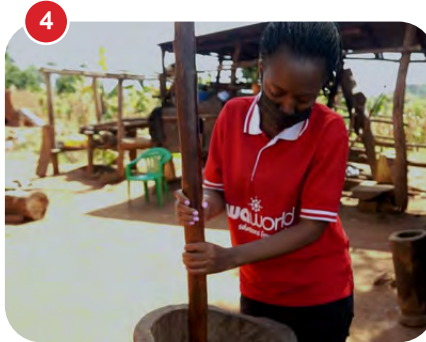
1 Wash your hands.



2 Wash the turmeric and ginger.



3 Steam the turmeric for one hour on top of banana leaves in a large pot on a stove.



4 After the turmeric has cooled, pound it using a mortar and pestle until it is evenly mashed.



5 Place it in the sun for 1-2 days to dry.



6 After the turmeric has dried, pound it again in the mortar and pestle until it is fine and thin.



7 Sieve the turmeric to separate the fine particles from the larger particles.



8 Pound the ginger and garlic together using a mortar and pestle until they are evenly mashed.



9 Place the mixture in the sun for 1-2 days to dry.



10 After the ginger-garlic mixture has dried, pound it again in the mortar and pestle until it is fine and thin.



11 Sieve the ginger-garlic mixture to separate the fine particles from the larger particles.



12



Fry the maize seeds in a dry pan until almost golden brown.

13



Pound the maize in the mortar and pestle until it is fine.

14



Sieve to separate the fine particles from the larger particles.

15



Pound the dry cinnamon leaves.

16



Sieve the cinnamon powder to separate the fine particles from the larger particles.

17



Fry the coriander seeds until they turn golden brown.

18



Pound the coriander seeds.

19



Sieve the coriander powder to separate the fine particles from the larger particles.

20



To mix the quantities of the herbs to create 1 kilogram of spices, measure;

- 1 cup the maize flour
- ½ cup of turmeric
- 2 teaspoons of garlic and ginger
- 2 teaspoons of cinnamon
- 2 teaspoons of coriander

21



Pack your spice and herb mixture in airtight containers that has a label showing the ingredients. The product will then be ready for sale!

TIPS

1. Steaming instead of boiling the turmeric helps preserve the color, flavor and nutrients of the turmeric.
2. Steaming also helps it be more brittle while drying which will enable it to easily turn into powder.
3. You can continue to pound the larger particles of each of the ingredients until they are all finely ground.



17

Local Income Solution



ORGANIC PESTICIDES

John Kennedy Kalubya

SOLUTION ENTREPRENEUR

MALE • 27 YEARS • MUKONO, UGANDA



Kennedy is an innovative youth coffee farmer who has the unique ability to develop and implement great ideas. One of his proudest moments is when he opened a shop to sell organic pesticides and with a coffee shop where locally brewed coffee is served to the community.

While growing up, his father was a farmer and they struggled to cover his basic needs. Kennedy was determined to grow the farm, maximize their yields and provide a better livelihood from the one he had experienced during his earlier childhood.

He received a degree in agribusiness and started working on an organic farm. He soon started his own business called Best Solutions Supplies, selling organic pesticides for local farmers. His businesses expanded to also include a coffee bar.

HIS FAVOURITE QUOTE

“*Make the next chapter your best chapter.*”



INCOME FACTS

- Startup cost: 150,000 UGX (32.22 Euros)
- Selling price: 5 liters for 18,000 UGX (4.47 Euros)
- Income potential (monthly): 400,000 UGX (99.23 Euros)



SALE TIPS

- Attain marketing skills to grow your business.
- Brand your product so that it's outstanding from other products.
- Be patient, especially in the beginning, a business requires time.



POTENTIAL CHALLENGES

- During the hotter seasons, less pesticides are required. This may reduce the market seasonally.
- The producers of organic pesticides are low. This reduces the chances of learning from other experts in the field.
- This product requires education among customers. Most farmers are familiar with chemicalized pesticides.

5-YEAR VISION

To expand his business into four districts and support youth with his skill.



LEARNING VIDEO

Click the video and learn how to do this income solution.



27 Steps TO MAKE ORGANIC PESTICIDES

MATERIALS

Mortar & pestle.....(1)	Knife.....(1)
Buckets.....(5)	Papaya leaves.....(1 basin)
5 litre basin.....(1)	*Tephrosia leaves.....(1 basin)
Wire mesh (2x2m).....(1 piece)	*Tithonia leaves.....(1 basin)
Water.....(5 litres)	African marigold leaves.....(1/2 basin)
Ginger.....(2 handfuls)	Mingling stick.....(1)
Garlic.....(2 handfuls)	5 litre jerry can.....(1)
Lemon.....(6)	Measuring cup.....(250mls) (1)
Chilli.....(half a handful)	
Ash.....(1 plate)	* Optional
Animal urine.....(1/2 litre)	



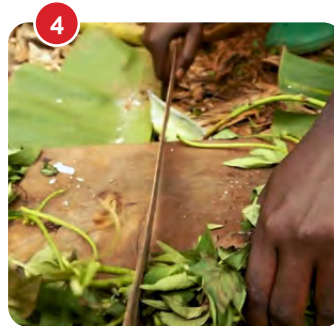
Break the garlic into small pieces.



Pound the garlic until it crushes into small particles.



Remove the pounded garlic and put it in a separate bucket/ container.



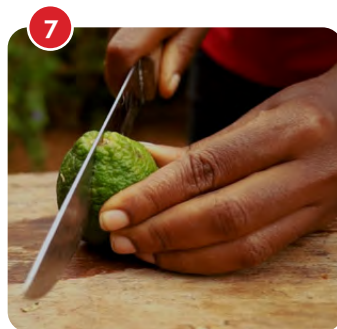
Add 1/4 litre of water into the mortar and store solution for one week in a cool dry place.



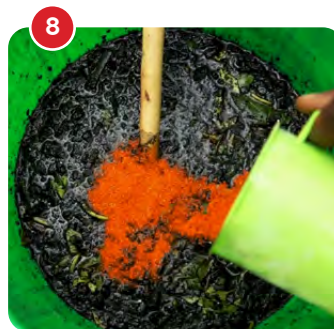
Break the ginger into small pieces.



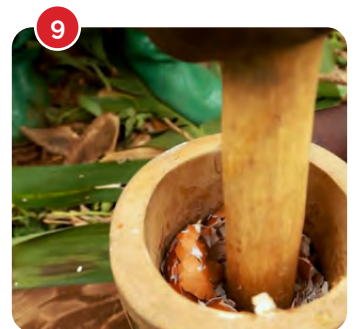
Pound the ginger until it crushes into small particles. Repeat step 3 and 4.



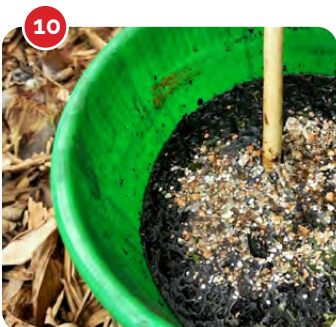
Cut the lemons into small pieces.



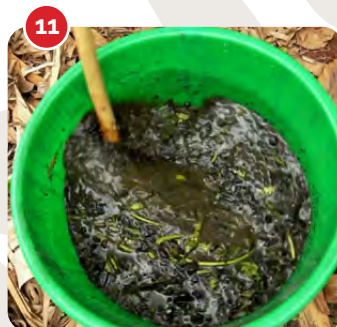
Pound the lemons until they crush into small particles. Repeat step 3 and 4.



Get half a handful of chilli.



Pound the chilli until it crushes into small particles. Repeat step 3 and 4.



Get one container of papaya leaves.



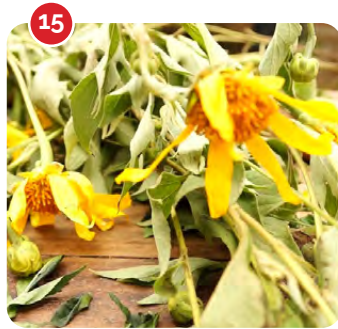
Pound the papaya leaves until they crush into small particles. Repeat step 3 and 4.



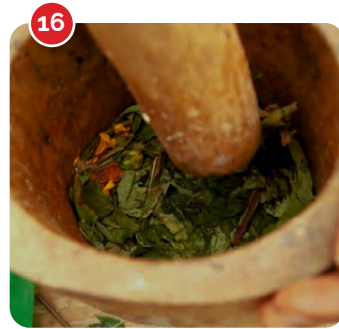
Get one container of tephrosia leaves. If you don't have tephrosia leaves you can use neem tree leaves.



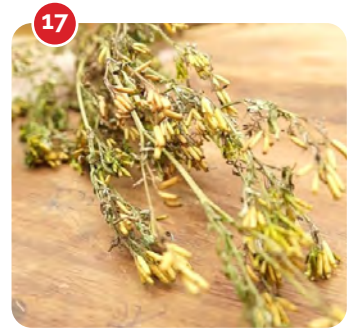
14 Pound the tephrosia leaves until they crush into small particles. Repeat step 3 and 4.



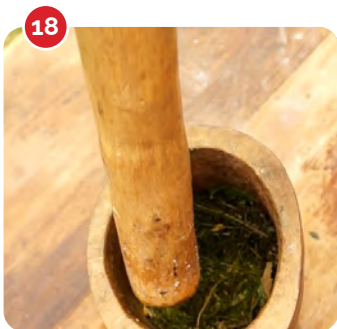
15 Get one container of tithonia leaves. If you don't have tithonia leaves you can use pumpkin leaves.



16 Pound the tithonia leaves until they crush into small particles. Repeat step 3 and 4.



17 Get one container of African marigold leaves.



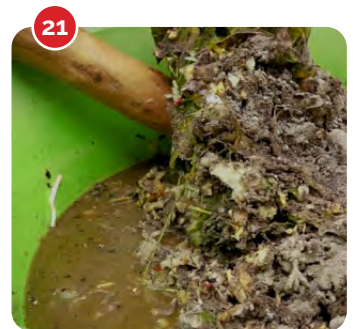
18 Pound the African marigold leaves until they crush into small particles. Repeat step 3 and 4.



19 After one week, put the ingredients in one container.



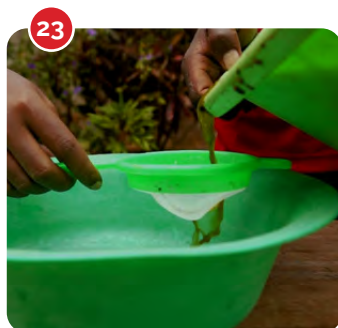
20 Add one plateful of ash.



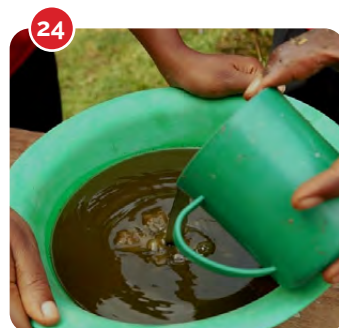
21 Stir the mixture and store the solution for one week in a cool dry place.



22 Sieve the residue using wire mesh.



23 Sieve the solution using a small sieve.



24 Add 1/2 litre of animal urine.



25 Pour 2 1/2 litres of the solution that is mixed with animal urine in a 5 litre jerry can.



26 Add 2 1/2 litres of water to fill the jerry can.



27 Add a label clearly indicating the ingredients and instructions. Your organic pesticide is now ready for sale.

TIPS

1. Use animal urine preferably from cows, pigs or rabbits.
2. Keep the animal urine in a container for one week before use.
3. If you don't have tephrosia leaves, you can use neem tree leaves.
4. If you don't have tithonia leaves, you can use pumpkin leaves.



18

Local Income Solution



**NUTRITIOUS
PORRIDGE FLOUR**



Emmanuel Kakooza

SOLUTION ENTREPRENEUR

MALE • 39 YEARS • MASAKA, UGANDA

As a certified nutritionist, Emmanuel has created a number of products that have improved the health of his community. He comes from a coffee farming family and is the founder of Kakooza Nutrition Solutions, a company that specializes in selling nutritious products like porridge and juices.

After his studies, he applied his knowledge to cover the gap in hospitals by offering nutrition plans to patients. He provides health intervention for different issues such as malnutrition, especially among children and breastfeeding mothers. He developed a nutritious porridge from a mixture of healthy grains such as soya beans and rice. This porridge has been proven beneficial as it is high in vitamin B, which boosts energy levels and brain function.

His greatest joy is when he receives testimonies from his clients on the improved health benefits that they experience. It has also motivated him to create a range of other products such as fresh bottled juice.



HIS FAVOURITE QUOTE

“*The success of people is not measured by money or land, but people they impact.*”



INCOME FACTS

- Startup cost: 200,000 UGX (50.65 Euros)
- Selling price: 1 kilogram at 6,000 UGX (1.52 Euros)
- Income potential (monthly): 363,000 UGX (91.89 Euros)



SALE TIPS

- Maintain good quality and hygiene of the product.
- Maintain discipline while managing the business.
- Always exercise patience and persistence.



POTENTIAL CHALLENGES

- The product requires enough working space, therefore an extra cost.
- There is a need for machinery for milling the grains.
- Identifying the right packaging material can be expensive.

5-YEAR VISION

Building his own production factory and exporting to the international market.



LEARNING VIDEO

Click the video and learn how to do this income solution.



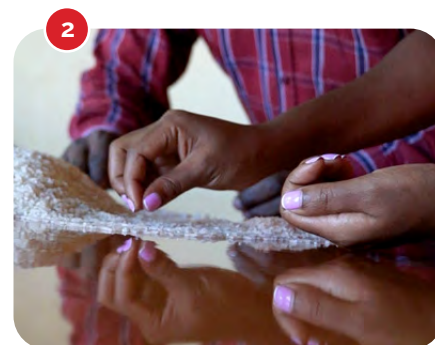
8 Steps TO MAKE NUTRITIOUS PORRIDGE FLOUR

MATERIALS

Soya beans.....(1kg)
 Rice grain.....(1kg)
 Paper bags.....(1)
 Label.....(1)
 Weighing scale.....(1)
 Spoon.....(1)
 Saucepan.....(1)
 Container.....(1)
 Charcoal stove.....(1)
 Mingling stick.....(1)
 Sieve.....(1)



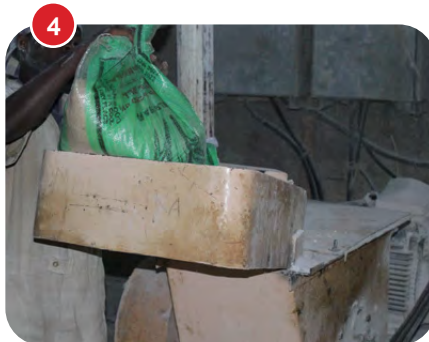
1 Identify the best source of good quality grains in your area.



2 After getting the soya beans and rice grains, clean them by removing unwanted items like stones, molds, old grains, etc



3 Deep roast the soya beans on moderate heat for 15 minutes. They are ready when they turn light brown. Be sure to retain the skin of the beans.



4 Take the soya beans and rice to a nearby miller to turn the grains into flour. Be sure to measure them before taking them for milling to know the weight for each.



5 After milling, be sure to sieve the flour to remove any unwanted particles.



6 Keeping the ratio of 1 to 1, add 1kg of soya to 1kg of rice flour and mix well.



7 Pack your nutritious porridge flour and label it accordingly for easy identification of the product.



8 Your porridge is now ready to be sold!

TIPS

1. Do not wash the grains as they need to be completely dry to be used. To test this, when you break the grain it makes a cracking sound.
2. Be sure to clearly indicate the date when the flour was milled and the best before date on the label.



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Local Income Solution



URBAN BEE
FARMING



COFFEE
PROJECT

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Kuteesa Moses Angel

SOLUTION ENTREPRENEUR

MALE • 39 YEARS • KAMPALA, UGANDA

Moses, a determined entrepreneur, is challenging bee farming misconceptions and changing lives. After an 11-year career in monitoring and evaluation, he founded Bee Farmers Crib in 2016. His journey began with buying honey from local farmers to supplement his income. Frustrated by low monthly wages, he formally registered his bee-farming business.

Moses is committed to transforming his community, empowering over 200 coffee farmers with beekeeping skills and setting up 25 beehives tailored to their needs. These colonies improve coffee bean pollination, uplift local farmers, and provide valuable honey-based products. Despite transportation and marketing challenges, his passion for bees drives him to foster trust and ensure quality. Moses is not just a bee farmer; he's a beekeeping advocate who's making a real impact on both his community and the industry.

HIS FAVOURITE QUOTE

“ Anyone who thinks they are too small to make a difference has never met a honey bee!



INCOME FACTS

- Startup cost: 200,000 UGX (48.82 Euros)
- Selling price: 1 liter of honey 10,000 UGX (2.44 Euros)
- Income potential: 100,000 UGX (24.41 Euros) monthly



SALE TIPS

- Overcome the fear of bees and realize that they can be domesticated.
- Create a daily routine of caring for your bees.
- Feed your bees for higher yields.



POTENTIAL CHALLENGES

- Transporting honey to distant markets can be expensive.
- Competition is high so marketing your product is important.
- A bee farmer needs to document their activities to increase exposure to their work but this is expensive to maintain.

5-YEAR VISION

To establish one of the best beekeeping companies in Uganda, rooted both in rural and urban centers.



LEARNING VIDEO

Click the video and learn how to do this income solution.



5 Steps TO PRACTICE URBAN BEE FARMING

MATERIALS

Bee suit.....	(1)
Bee brush.....	(1)
Hive tool.....	(1)
Rubber gloves.....	(1 pair)
Smoker.....	(1)
Bee fork.....	(1)
Food grade bucket.....	(1)
1 Kilogram packaging containers.....	(10)
Extractor.....	(1)
3-Inch nails.....	(1/2 kilogram)
Timber.....	(3m x 1m)

1



Acquire and assemble your beehive

Choosing between the Kenyan Top Bar design or a locally made hive (e.g., old tires or papyrus structure). Ensure safety by placing the hive at an elevated location to keep bees flying higher, reducing potential conflicts.

2



Attract bees into the hive

To lure bees, crush lemongrass or melt wax on the wooden top bar groove. The inviting scent draws bees within a month.

3



Maintain your bee hive

Do this through supplementary feeding on soya flour, cassava flour and sugar water. Ensure to do this at least once a week.

4



Harvest your honey every after 4-5 months

Either locally or using an extractor.

5



Store or package your honey in food grade containers

Properly brand and marketing your honey to ensure steady income.



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Local Income Solution



SOLAR DRYER
SYSTEMS



The Farmers Guide Uganda Limited

SOLUTION ENTREPRENEUR

MALE • MBALE, UGANDA

Established in 2018 by Oluka Geoffrey and Stephen Ekoom in Eastern Uganda's Mbale district, Farmers Guide Uganda Limited is a youth-led social enterprise dedicated to elevating local agriculture. Their core mission is empowering both small and large-scale farmers through sustainable post-harvest solutions, prominently solar dryers.

Over the past five years, they've distributed 500 modern solar dryers, benefiting 5,000 individuals across various Ugandan regions. These unique dryers efficiently dry crops using solar energy, reducing daily costs and being user-friendly for all farmers, which distinguishes them in the market.

Additionally, they've expanded into coffee farming, planting 200 coffee trees in Mbale District, and aiming to establish a coffee café. Their solar drying expertise enhances coffee quality, contributing to farmer livelihoods and environmental conservation by reducing food spoilage and pollution. Through Farmers Guide Uganda, jobs have been created, supporting sustainable agriculture, and aiding climate change.

FAVOURITE QUOTE

💡 *Farming means business*



INCOME FACTS

- Startup cost: 300,000 UGX (74.90 Euros)
- Selling price: 1 small size dryer is 400,000 UGX (99.87 Euros)
- Income potential: 1,500,000 UGX (374.51 Euros) monthly



SALE TIPS

- Make your solution innovative and flexible to meet the current needs of farmers.
- Make your product affordable and unique in the market
- Make your solution easy to access and manage.



POTENTIAL CHALLENGES

- The need for more awareness among farmers on the value of this product.
- Competition is high so marketing your product is important.
- Creating a large solar dryer requires a substantial amount of funding.

5-YEAR VISION

To scale the business to 10 branches and bring affordable solar solutions that will aid over 200,000 local farmers and benefit Africa's agricultural community.



LEARNING VIDEO

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9 Steps TO MAKE SOLAR DRYERS

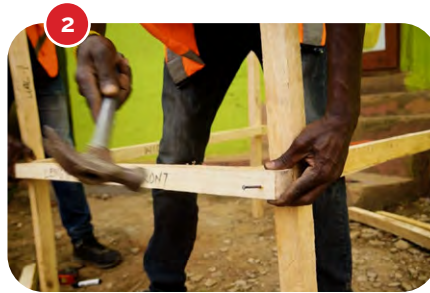
MATERIALS

Bow saw.....(1)	Scissors.....(1 pair)	UV Material.....(5mx2m)
Tape measure.....(1)	Marker.....(1)	Agricultural net.....(5mx2m)
Hammer.....(1)	1 1/2 inch nails.....(1/2 kilogram)	Black DPC polythene.....(2mx2m)
3-inch nails.....(1/2 kilogram)	Timber.....(5 pieces) (4mx2m)	



1 Create the frame for the solar dryer

Use timber of a height of 1.7m for the front and 1.5m for the back. This will make the front higher, allowing rainwater to slide off. Make two frames with these measurements. When attaching them, leave a 50cm gap at the lower end to keep rainwater out. Also, leave a 0.5cm space at the bottom for air circulation.



2 Connect the two frames together

Use 1.1m timber pieces to join the front and back sections at both the top and bottom ends of the frames. Strengthen the structure by attaching timber at the back, which will also serve as a tray holder. Maintain a one-foot (12 inches) gap between the trays.



3 Measure the door dimensions

The door is 1.1m wide and 1.3m tall, and it opens upward to keep water out. Strengthen the frame by adding a timber piece in the center.



4 Wrap the frame with a polycarbonate sheet

Trimming any extra parts. Be careful not to create holes and follow the instructions for proper placement (inside and outside). Seal the frame securely using small nails. Leave a 0.5m gap for air circulation.



5 Create a vent for air circulation

Use 1.1m timber pieces to join the front and back sections at both the top and bottom ends of the frames. Strengthen the structure by attaching timber at the back, which will also serve as a tray holder. Maintain a one-foot (12 inches) gap between the trays.



6 Create a door for the solar dryer

Cover the door frame with the polycarbonate sheet (UV plastic material).

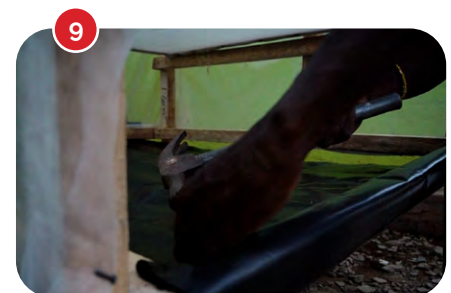


7 Create the drying trays

Use the remaining timber and attach the insect net. Each tray should measure 90 by 39 inches. The net allows air flow to dry the products. Place one tray higher and the other lower.



8 Connect the door to the dryer using door hinges.



9 Securely place the thick black polythene bag on the base.



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