URBAN WATER PARTNERS

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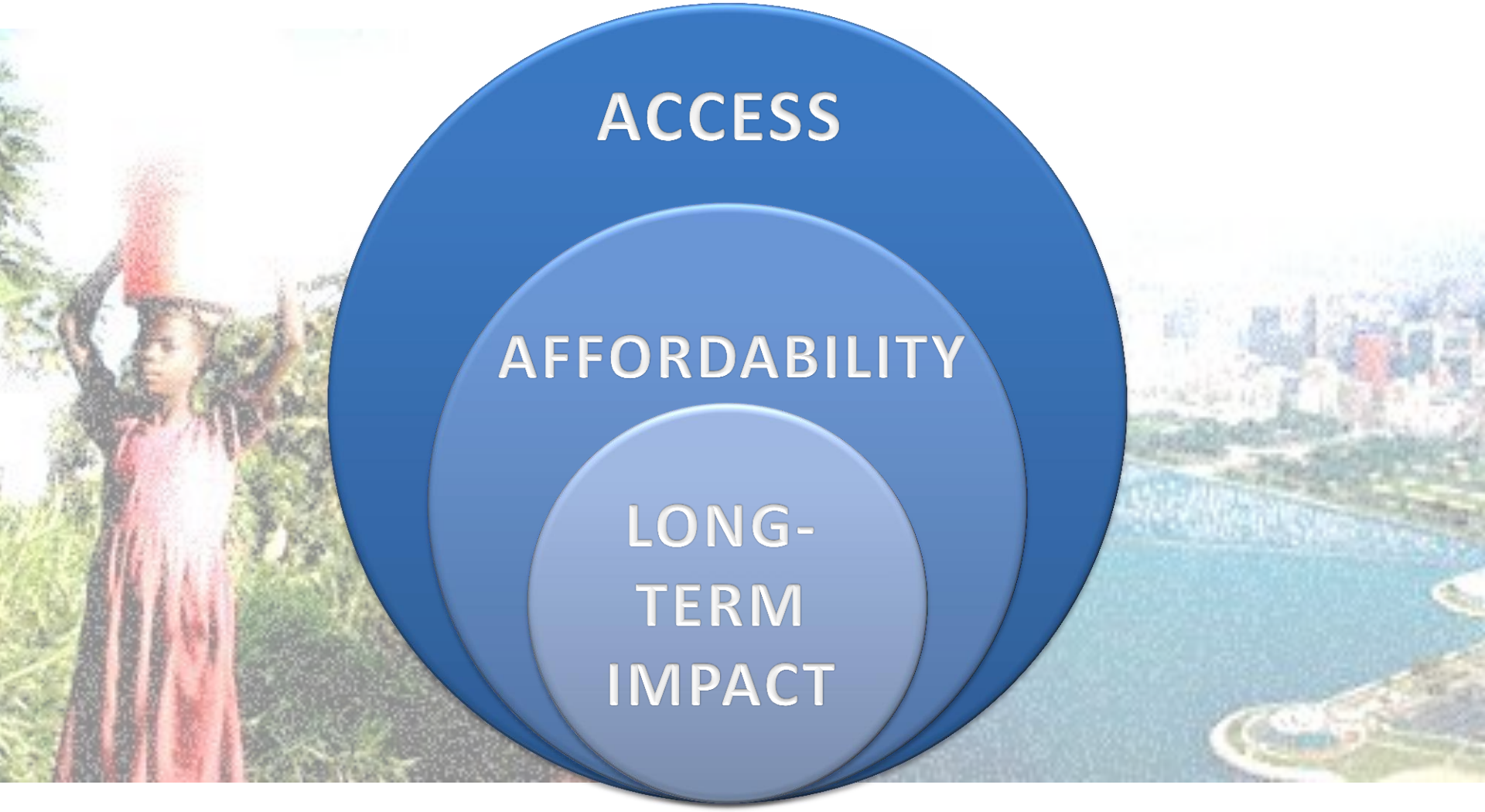
U
UMAR
W
What We Do
Analysis
Tanzania Strategy
P
PARTNERS
Risks

URBAN WATER PARTNERS



URBAN WATER PARTNERS

$200,000 investment
for a 20% equity stake in UWP

YIELD

3 year return = 2.55X = 155%
5 year return = 9.77X = 877%
7 year return = 20.63X = 1,963%

SOLUTION OVERVIEW

Provide Clean Water through existing channels

Utilize Slow-Sand Filter & mobile banking technology

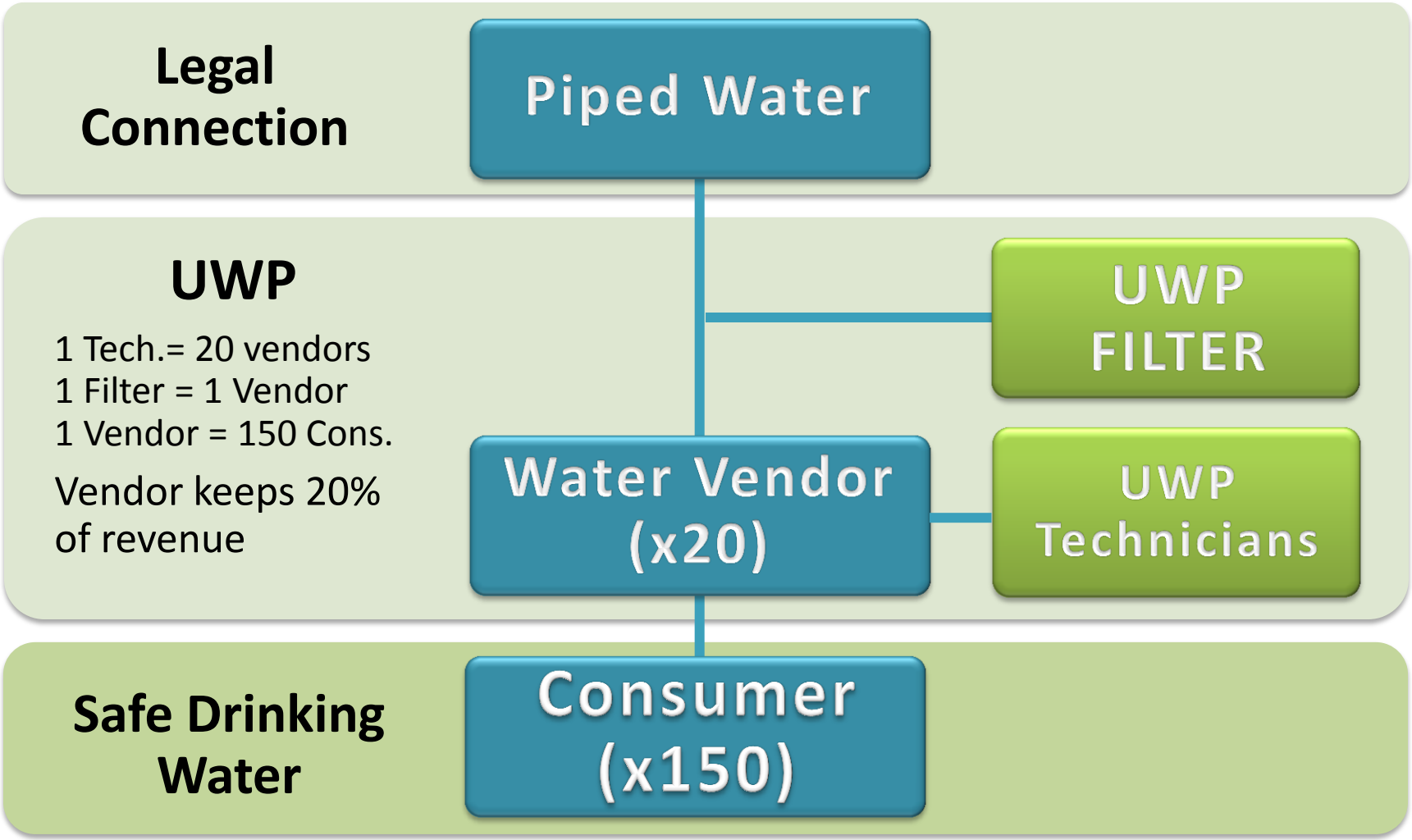
Expand UWP to more urban cities

Enrich public health while growing & sustaining a profitable business

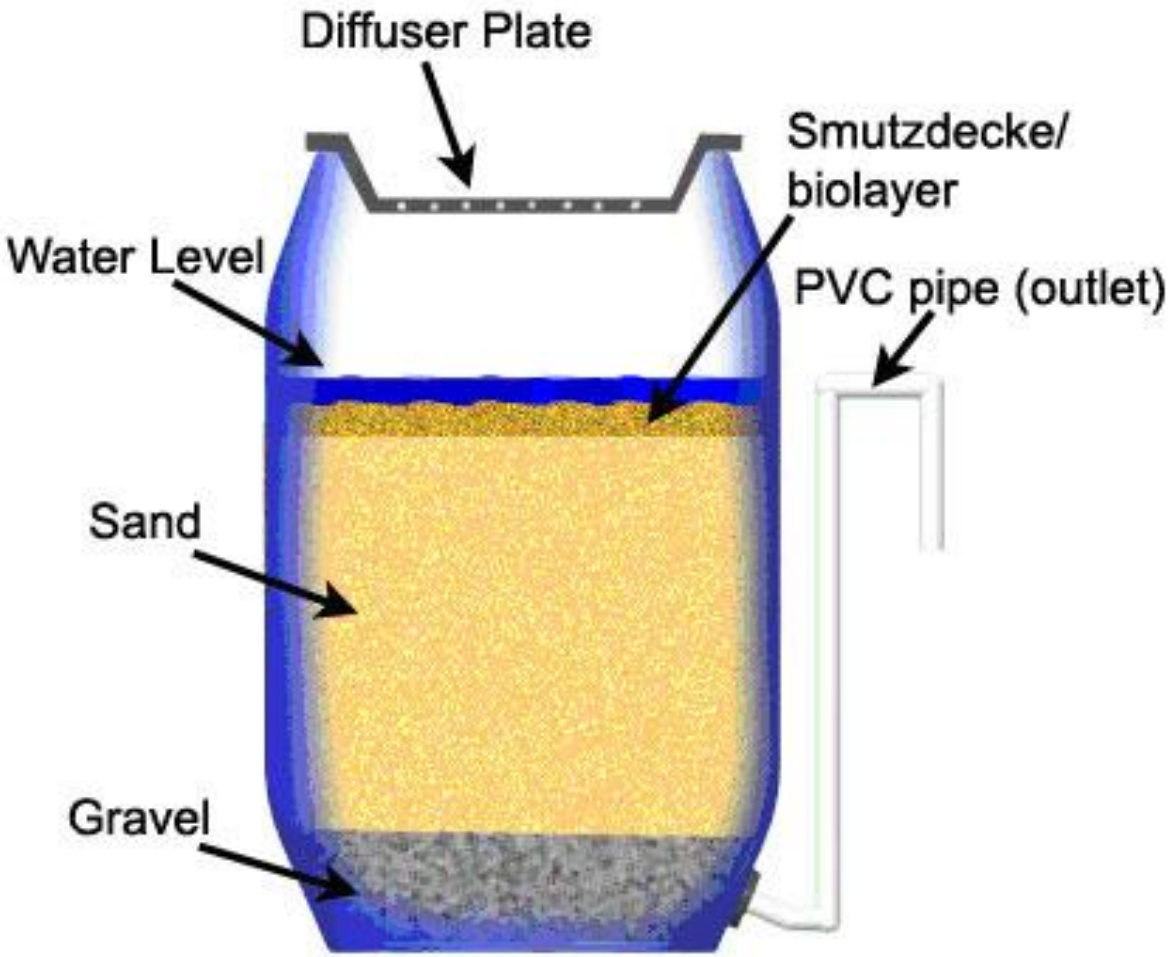
TANZANIA

- Dar es Salaam Population: 2.8 million
- Positive attitude towards FDI
- 90% can't access tap water
- Waterborne pathogens cause ~1.7 million deaths/year

UWP MODEL


Legal Connection
Piped Water
UWP
1 Tech.= 20 vendors
1 Filter = 1 Vendor
1 Vendor = 150 Cons.
Vendor keeps 20% of revenue
UWP FILTER
Water Vendor (x20)
UWP Technicians
Safe Drinking Water
Consumer (x150)

SLOW SAND FILTRATION



SLOW SAND FILTRATION

ADVANTAGES

- Simple design, no power, little maintenance
- Recognized as the **superior surface water filtration** system
- Removes **over 99%** harmful bacteria & viruses from water.

DISADVANTAGES

- Slower filtration rate than some other methods
- Necessary to perform "wet harrowing" and maintain the Smutzdecke

FILTER MANUFACTURING

PRESENT

Working with Blue Future for manufacturing ($445)

FUTURE

Open a manufacturing plant in the Temeke District of Dar es Salaam

Hire locals and maintain Blue Future support

Price per filter drops to $295

ALTERNATIVE FILTRATION METHODS

	Fast Sand Filtration	Boiling	Distillation	UV Irradiation	Reverse Osmosis	Slow Sand Filtration
Cost						
Power						
Maintenance						
Effectiveness						
Filtration Speed						

 = Poor

 = Fair

 = Excellent

MOBILE BANKING – Tanzanian Market

Strong User Base

- **9.2 million** registered mobile payment users
- Only **12%** of population has a formal bank account

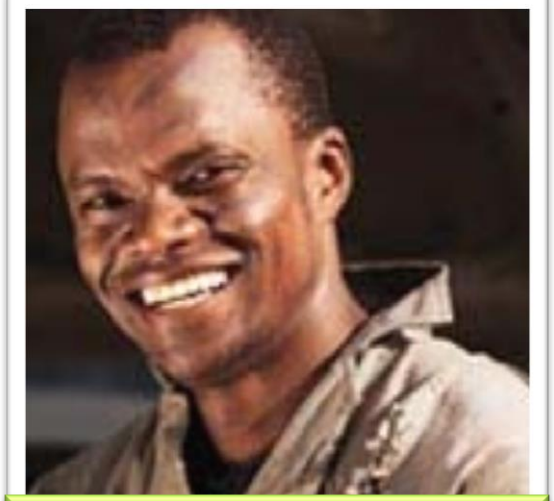
High Value Proposition

- Minimum risk in comparison to holding cash

Growth Opportunity

- **97%** of population has access to mobile device

MOBILE BANKING – How It Works



CONSUMER

VENDOR

Acc. Balance:

100 TZS

(56.78 TZS)

43.22 TZS

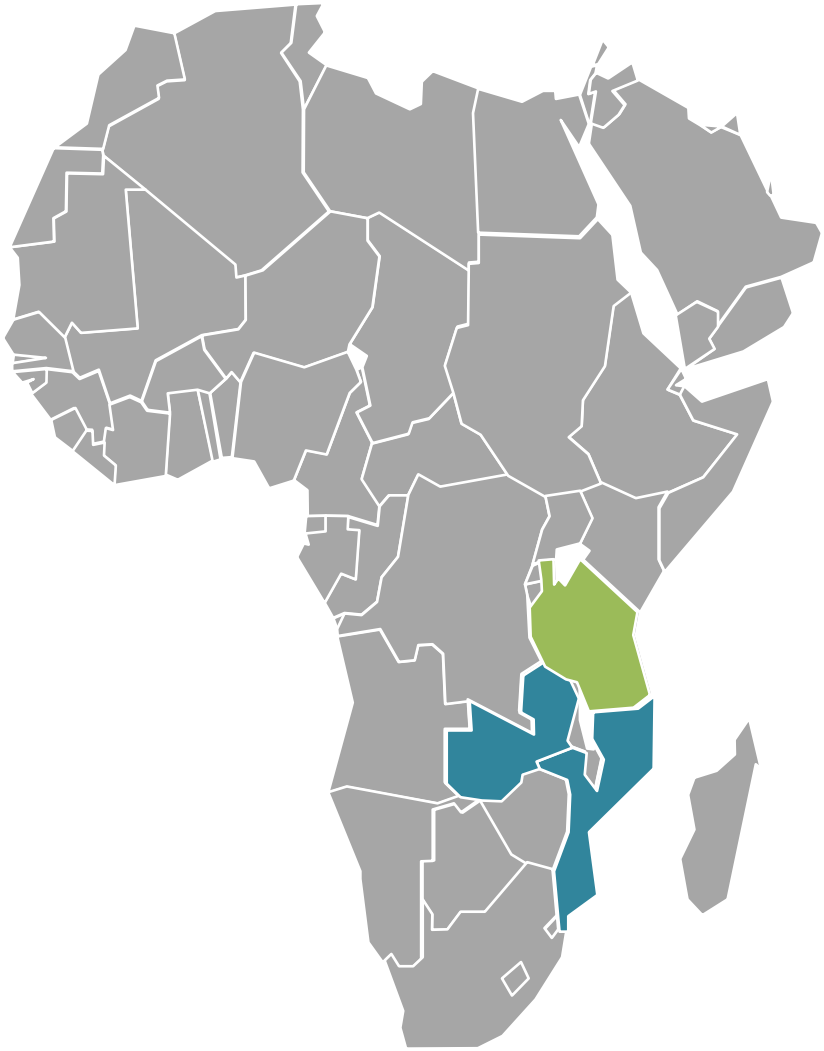
Acc. Balance:

50 TZS

56.78 TZS

106.78 TZS

EXPANSION



CITY ANALYSIS

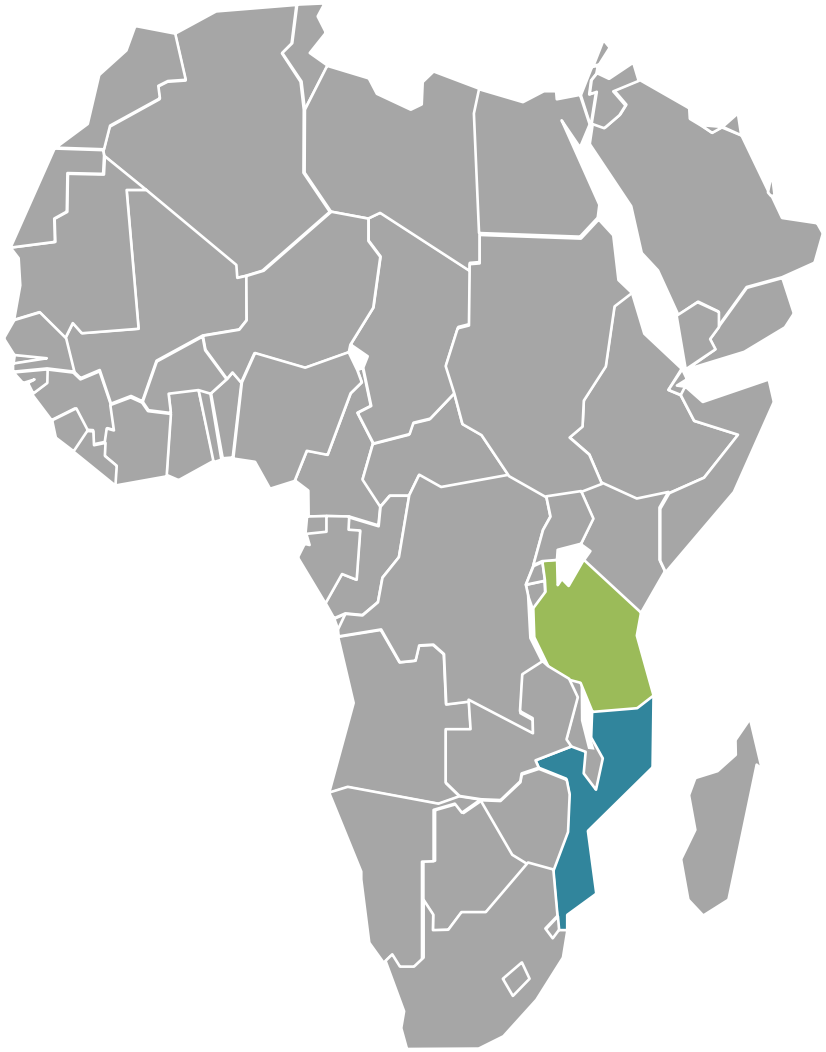
	Stability	Need for Purification System	Population	Water Connections	Vendor Access	Mobile Banking	TOTAL
Lusaka	5	3	3	5	3	5	**24**
Maputo	3	3	3	5	4	4	**22**
Accra	4	5	4	2	3	2	**20**
Nairobi	5	5	4	2	1	3	**20**
Kampala	1	5	3	4	3	3	**19**
Kinshasa	1	5	4	3	3	1	**17**
Maseru	4	1	1	4	5	1	**16**
Kaduna	3	3	2	3	3	2	**16**
Johannesburg	5	3	1	1	1	3	**14**

Weakest Fit 1 → 5 Strongest Fit

MAPUTO, MOZAMBIQUE

- Located close to Tanzania
- 43% population have access to water

- CPI : 2.7
- Ease of Business : 126
  Steady Improvement
- Mobile Banking :
  Top 3 mobile banking carriers located in country

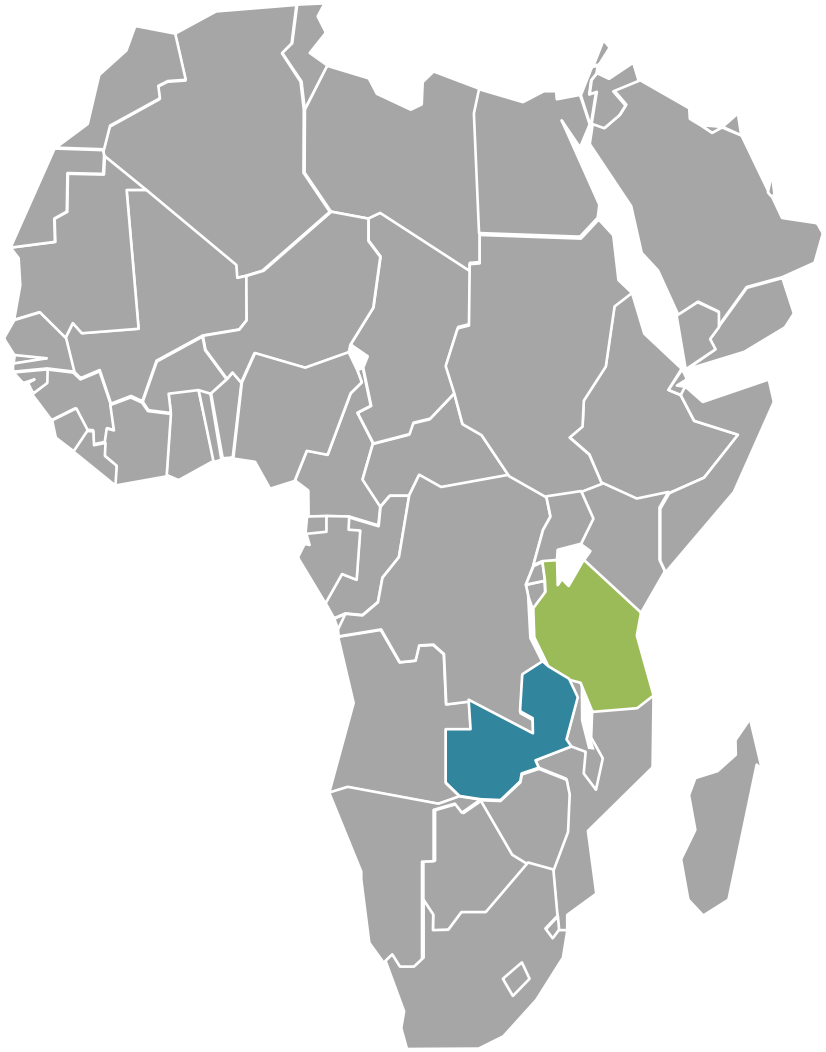


CPI: Corruption Perception Index

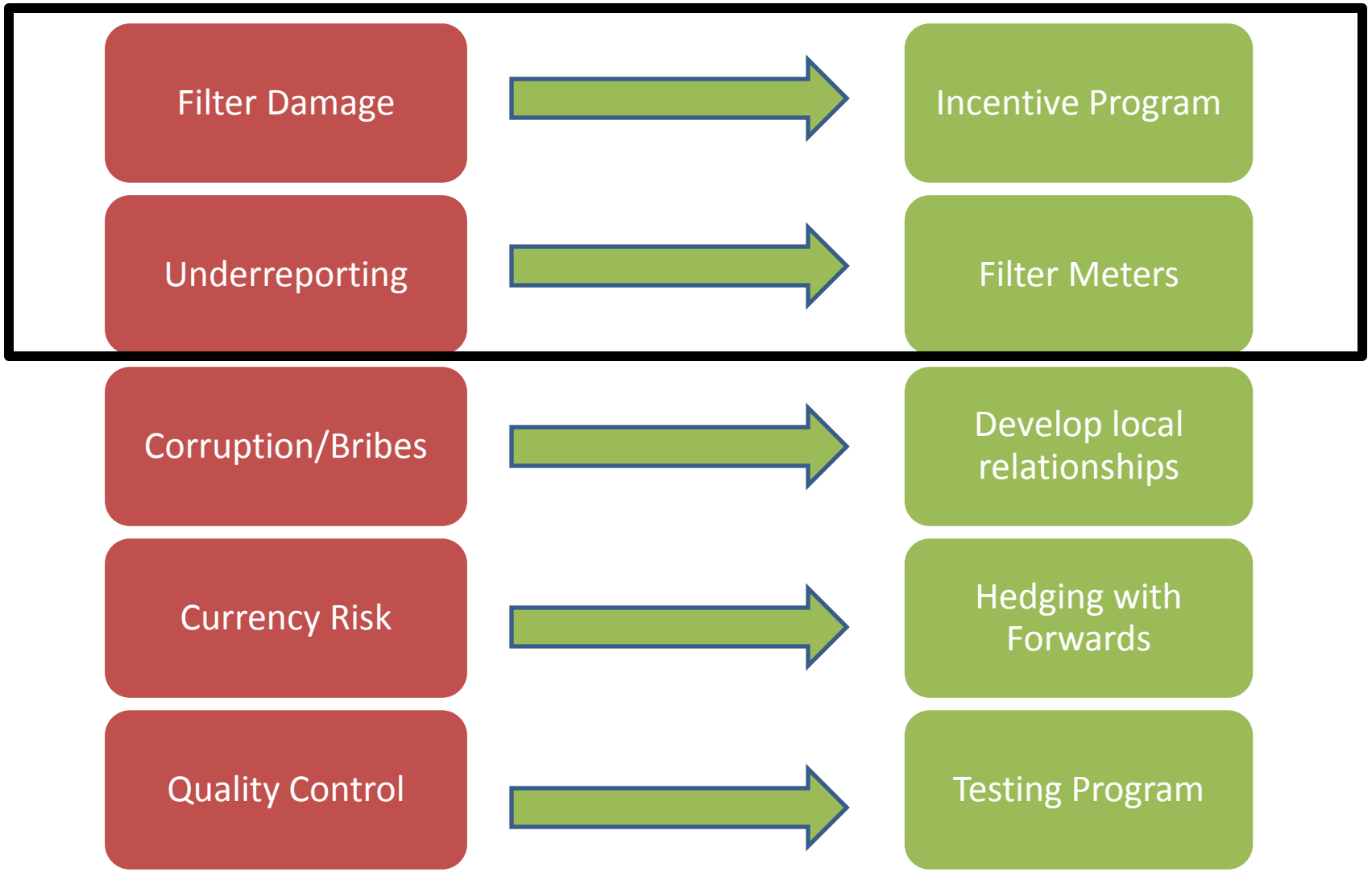
LUSAKA, ZAMBIA

- Located close to Tanzania
- Efficient train route from Tanzania

- CPI : 3
- Ease of Business : 76
  Rapidly Improving
- Mobile Banking :
  Largest cellular use in country



RISKS INVOLVED



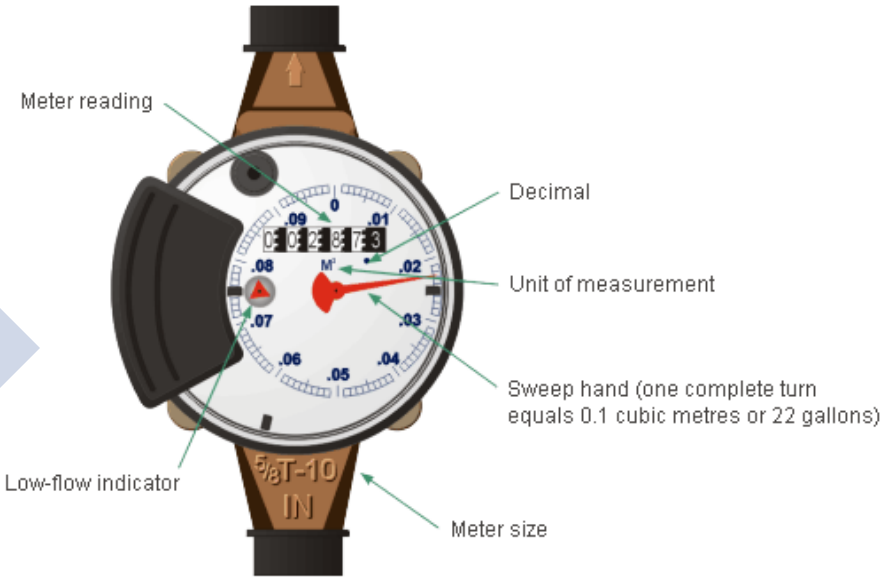
Avoiding Under-Reporting

Because of revenue sharing agreement, vendors may be tempted to under-report

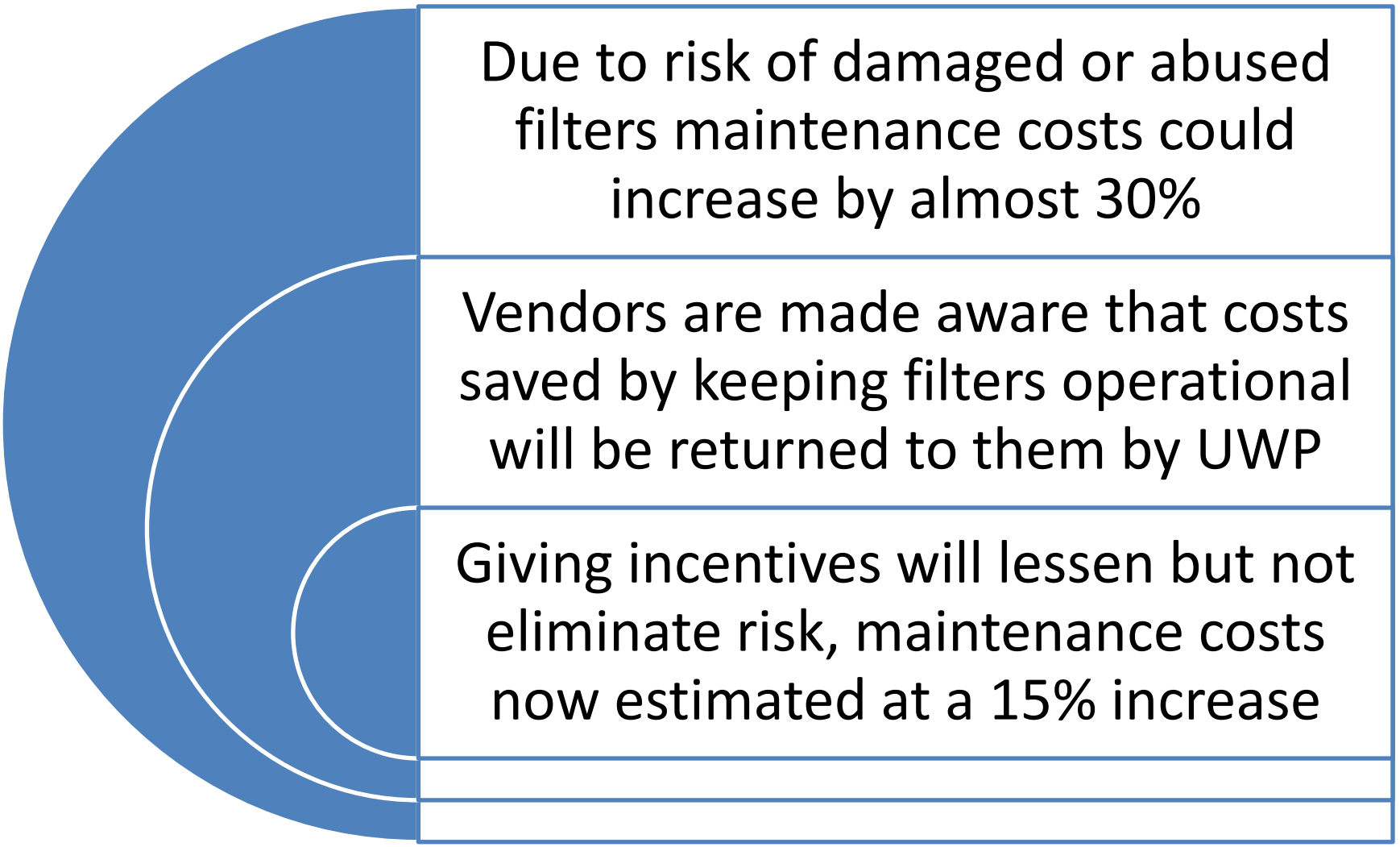
To prevent this meters will be installed on every filter to measure output

Technicians will check meters on regular basis and meters can only be removed or reset by key

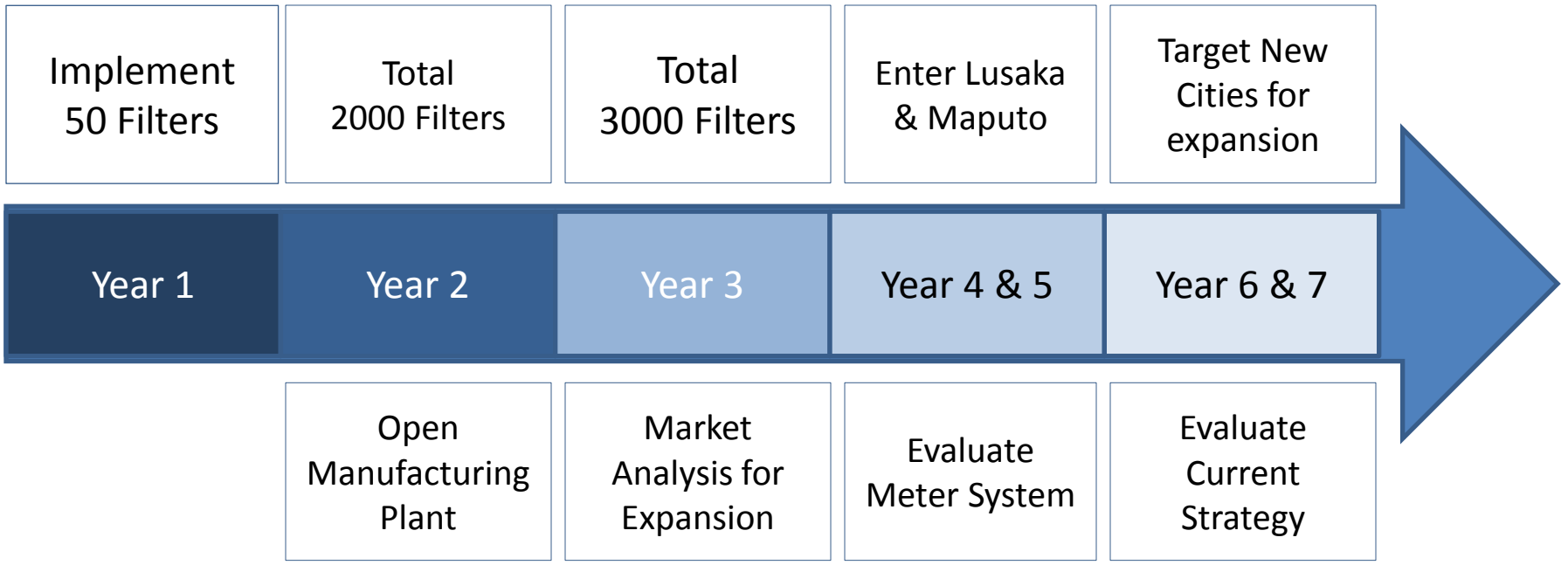
Vendors billed 80% of what meter reports



MITIGATING FILTER DAMAGE



TIMELINE


Implement 50 Filters
Total 2000 Filters
Total 3000 Filters
Enter Lusaka & Maputo
Target New Cities for expansion
Year 1
Year 2
Year 3
Year 4 & 5
Year 6 & 7
Open Manufacturing Plant
Market Analysis for Expansion
Evaluate Meter System
Evaluate Current Strategy

FINANCIALS – Key Assumptions

Cost Drivers

- $400k CapEx in year 2 for local manufacturing facility (15yr straight-line dep)
- 20% sales commission to vendors
- $45 added cost per filter for meters

Risk Factors

- **Underreporting** : 10% of gross revenue
- **Filter misuse** : 15% increase in base filter maintenance costs
- **Corruption** : 15% of gross revenue

Growth Rates

	Year 4	Year 5	Year 6	Year 7
Growth Rate	25%	50%	35%	15%

PRO FORMA - Income Statement

	Year 1	Year 2	Year 3
Gross Revenues	$ 219,000	$ 8,760,000	$ 13,140,000
Cost of Sales	$ (43,800)	$ (1,752,000)	$ (2,628,000)
Net Revenues	$ 175,200	$ 7,008,000	$ 10,512,000
Operating Expenses	$ (251,783)	$ (1,248,000)	$ (1,745,567)
Risk Related Costs	$ (55,500)	$ (2,220,000)	$ (3,330,000)
EBIT	$ (132,083)	$ 3,540,000	$ 5,436,433
Interest Expense	$ -	$ (100,000)	$ -
Profit Before Tax	$ (132,083)	$ 3,440,000	$ 5,436,433
Income Tax Expense	$ 39,625	$ (1,032,000)	$ (1,630,930)
Net Income	$ (92,458)	$ 2,408,000	$ 3,805,503

PRO FORMA – Cash Flow Statement

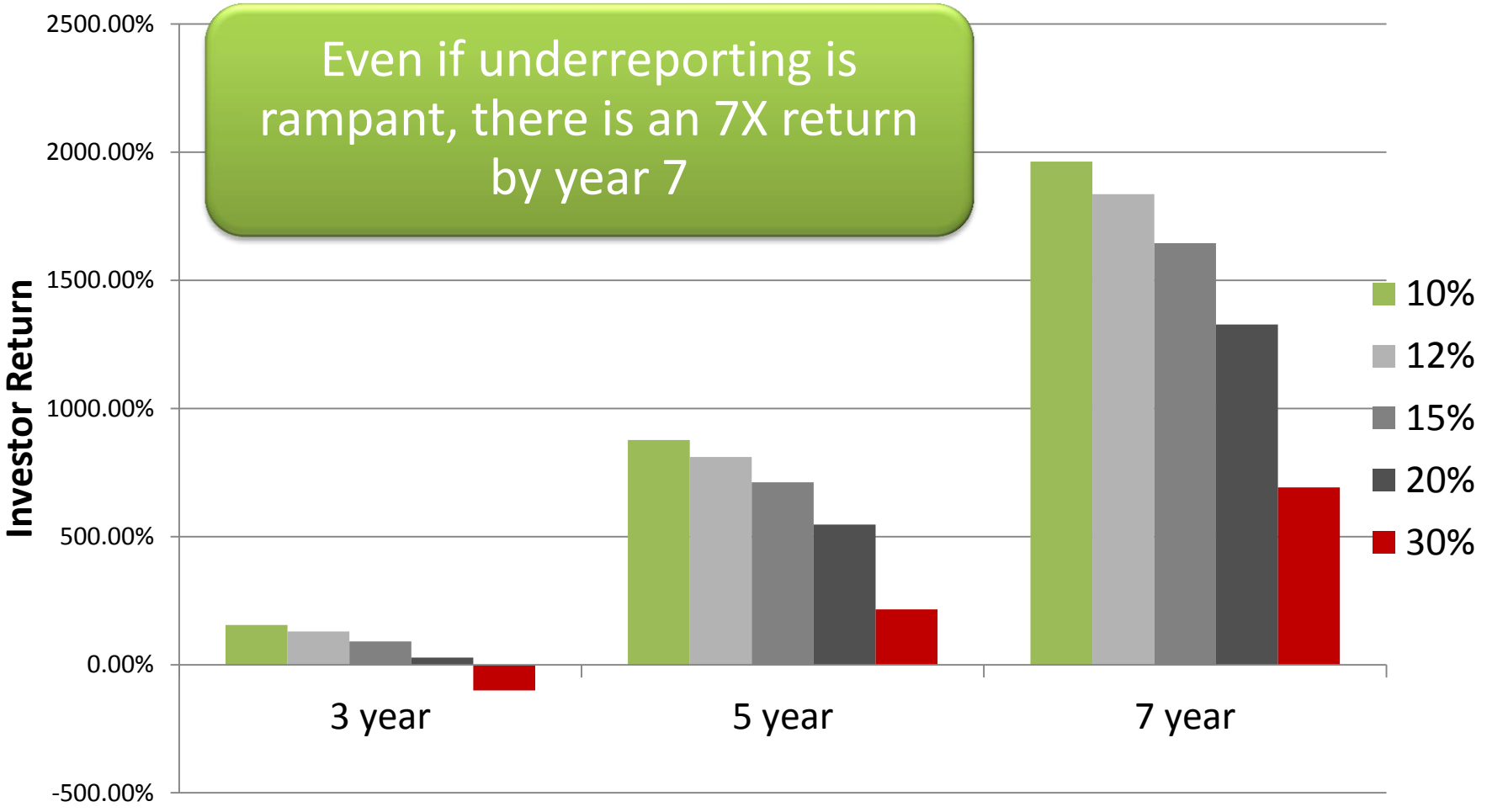
	Year 1	Year 2	Year 3
Net Cash from Operating Activities	$ (86,975)	$ 2,577,000	$ 4,041,670
Net Cash from Investing Activities	$ (42,250)	$ (1,467,750)	$ (532,500)
Net Cash from Financing Activities	$ 200,000	$ -	$ -
Free Cash Flow	$ 70,775	$ 1,109,250	$ 3,509,170
Ending Cash Balance	$ 70,775	$ 1,180,025	$ 4,689,195

THE OPPORTUNITY

$200k Investment for 20% Equity Stake

3 year return = $510k	3 year return = 2.55X	3 year return = 155%
5 year return = $1.535M	5 year return = 9.77X	5 year return = 877%
7 year return = $2.562M	7 year return = 20.63X	7 year return = 1,963%

Sensitivity Analysis – Underreporting



SUMMARY

Risks & Returns

Risks	Mitigation	Return
Filter Damage, under-reporting, bribes, currency risk, quality	*Incentives, meters, education, hedging, quality control*	*3 Yr = 2.55X* *5 Yr = 9.77X* *7 Yr = 20.63X*

THANK YOU

APPENDIX

Presentation:

- Introduction
- What We Do
- Investment
- Solution Overview
- Tanzania Profile
- UWP Distro Model
- Slow Sand Filtration
- Slow Sand Pros Cons
- Filter Manufacture
- Alternatives Matrix
- Mobile Payments
- Mobile – How it Works
- Expansion
- Expansion Alternatives
- Maputo
- Lusaka
- Risks
- Meter System
- Vendor Incentive Program
- Timeline
- Financial Assumptions
- Income Statement
- Cash Flow Statement
- Returns
- Sensitivity - Underreporting
- Summary

Biz Model:

- Other Filtration Methods
- City Data
- Temeke Warehouse
- Competition
- Competitive Pricing
- Seed Filter
- Mobile Payment Adoption
- Mobile Carrier Mkt Share
- Mobile Banking Success
- Mobile Banking Tariffs
- Mobile Banking Regulation

Risks:

- Corruption
- Quality Control
- Currency Risk

Financials:

- Sensitivity – Corruption
- Sensitivity – Filter Misuse
- Sensitivity Analysis - Growth
- Sensitivity Analysis - customers
- Cost of Capital
- Detailed Income Statement
- Detailed Cash Flow Statement
- CapEx Assumptions
- Depreciation Assumptions
- Revenue Assumptions
- Investor Returns
- Self-Sufficiency

Alternative Filtration Methods

- **Fast Sand Filtration**
  - Usually only cost effective for serving a population over 30,000
  - water must be pre treated before filtration
  - faster filtration
  - uses less area, sand, less sensitive to water quality
  - much greater maintenance
  - Cannot remove bacteria
- **Boiling**
  - cost of charcoal
- **UV irradiation**
  - Expensive to set up
  - Electricity required
  - Water must be somewhat clear before starting
- **Distillation**
  - bacteria or particles can find their way into collected water
- **Reverse osmosis**
  - expensive membrane
  - Membrane hard to maintain. gets clogged with dirty water.

City Data

- **South Africa, Johannesburg**
- stability: high
- water need: medium
- Population: 5m
- Household sellers: 0
- mobile banking implemented
- Water connection rate: 88%

- **Ghana, Accra**
- stability: high (with past fluctuation)
- water need: high
- Population: 4.5 million
- Household sellers: yes
- mobile banking expansion -zap
- Water connection rate: 56%

- **Kenya, Nairobi (no resellers)**
- stability: high
- water need: high
- Population: 4 million
- Household sellers: 0
- Water connection rate: 51%
- mobile banking implemented

- **Mozambique, Maputo**
- stability: high
- water need: medium
- Population: 1.4 million
- Household seller rate: 26%
- Water connection rate: 26%
- mobile banking expansion-2010
- multiple m-banking options

- **DR Congo, Kinshasa**
- stability: low
- water need: high
- Population: 10m
- mobile banking expanding-volatile
- Household sellers: yes
- Water connection rate: 36%

- **Lesotho, Maseru**
- stability: high (high past fluctuation)
- water need: low
- Population: 300,000
- Household seller rate: 31%
- Water connection rate: 33%
- mobile banking-not lucrative yet

- **Uganda, Kampala**
- stability: low
- water need: high
- Population: 1.5m
- Household sellers: yes
- Water connection rate: 30%
- Mobile banking expansion

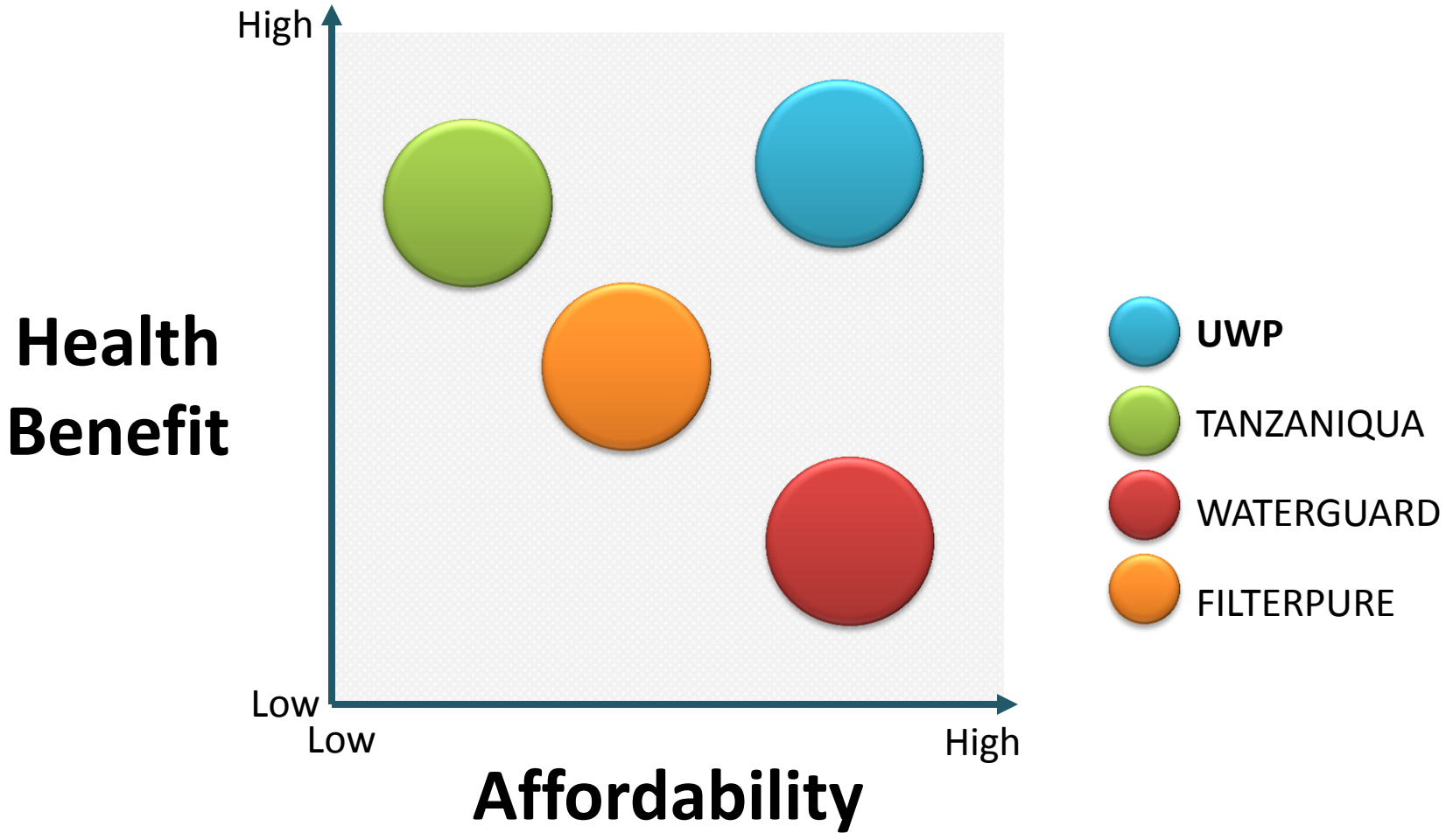
- **Nigeria, Kaduna**
- stability: medium
- water need: medium
- Population: 760,084
- Water connection rate: 48%
- Household sellers: yes
- mobile banking-infancy

- **Zambia, Lusaka**
- stability: medium
- water need: medium
- Population: 1.75 million
- household connection: 27%
- household sellers: yes
- Great mobile banking potential!
- mobile banking expansion

Temeke Warehouse

- Staff of ten includes management and workers
- Once warehouse is up and running will be self-sufficient
- Every filter checked for quality before transport
- Location provides access in Tanzania but also to neighboring countries by road and rail

COMPETITION

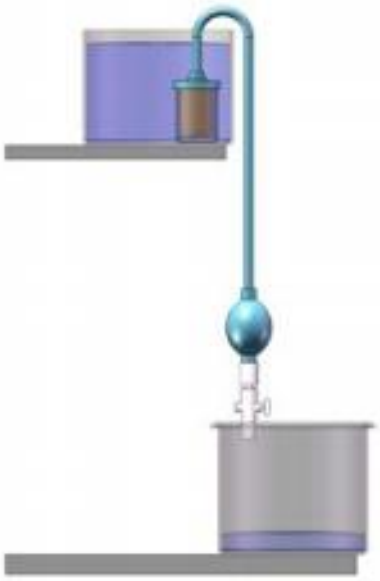


TANZANIAQUA

- Siphon Filter: focus on hygienic usability
- Flexible market
- Market: low to middle class
- Still a pilot project; need approval from Tanzanian government to sell the filter
- Natural taste, soil taste
- Flow rate: 4-5L/hour
- Filter capacity: 7,000 L = 1 year
- Expensive:
  - Complete filter: 7-11 Euro = 15,156 – 23,817 TZS
  - Replacement: 2 Euro= 4,330.5 TZS

TANZANIAQUA

1. *Modified bucket*
2. *New pre-filter*
3. *Modified filter-tube connection*
4. *Feedback water-level in bellow*
5. *Integration of valve and tap*
6. *Modified tap*



WATERGUARD

- Price: 7.5 TZS/litre
- A household uses approx. 10 litres of drinking water/day
- Collaborate with Ministry of Health & Social Welfare and the Ministry of Water & Irrigation
- Simple, safe, low cost chlorine based household water treatment
- Liquid – common in urban areas; tablet – in rural area (ease of transportation & longer shelf life)
- Chemical taste & odor, burns throat
- Ads targeting women: supported by local & national radio spots
- Ineffective at killing some parasites and can lose effectiveness when used with highly turbid water

WATERGUARD

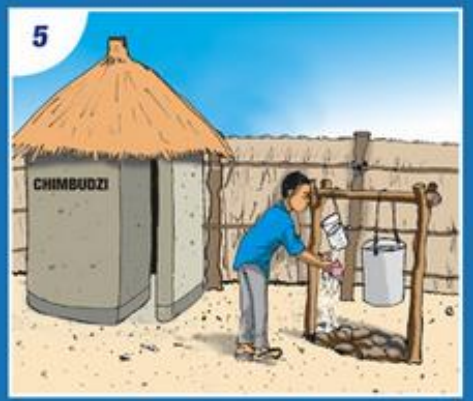
KASUNGIDWE KABWINO KA MADZI

Sungani madzi anu wotetezedwa kale ndi WaterGuard mu ndowa kapena mtsuko wokhala ndi chivindikiriro chokwana bwino. Gwiritsani ntchito makapu awiri wotsuka bwino, yina ikhale yotungira ndi yina yomwera madzi.

WaterGuard ndi Thanzi akupezeka mu sitolo zonse pa mtengo wotsika

UKHONDO WA CHAKUDYA NDI MALO WOTIZUNGULIRA

Kusamba m'manja ndi sopo ndi kofunika kwambiri kuti tipewe tizirombo toyambitsa matenda otsegula m'mimba. Tiyenera kusamba m'manja tisanadye chakudya.



Tiyeneranso kusamba m'manja tikangochoka ku chimbudzi.

FILTERPURE

- Ceramic water filtration
- Point of Use method: easy to use
- Maintenance: boil the filter every 3 months
- Low flow rates:
  - Ideally: 1-3 liters/hour
  - Actual flow rates 0.2L/hour
- Effective useful life: 5 years
- High Cost production to maintain quality

FILTERPURE

Table 2. Benefits and drawbacks of ceramic filtration

Benefits	Drawbacks
• Proven effective in removing bacteria and protozoa resulting in reduction of diarrhea by 60-70%	• Limited removal of viruses, heavy metals, and pesticides
• Can improve taste and smell of water and reduce turbidity	• Water can become re-contaminated as there is no residual protection
• Take advantage of local materials and existing local knowledge	• Filter quality can vary by region (pot) or brand (candle)
• One time investment ranging from 12-25 USD (pot) 12-60 USD (candle)	• Initial price can be relatively high
• Simple to use	• Ceramic membrane is fragile and taps may leak
• Simple to maintain	• Slow rate of filtration, 1-3 Liters per Hour (L/H)
	• The effective life span of the filter is unknown

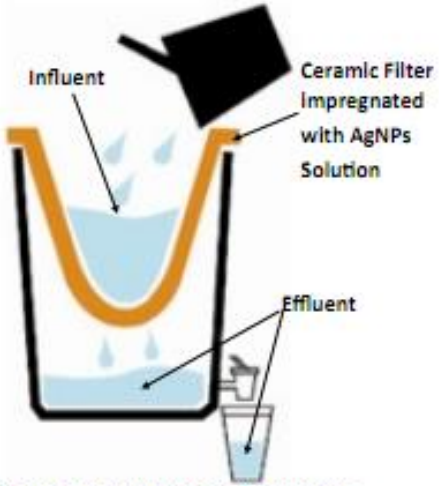


Figure 1: Ceramic water filter used to purify water at the household level[3].

Competitive-Pricing

Methods of Purification	Per liter
Slow-sand filters	$0.08
Bottled Water	$0.12
Charcoal boiling	$0.50
Waterguard	$0.13

MORINGA OLEIFERA Water Treatment

- Powder helps lower Turbidity of water
- The harvest of a mature single tree (3 kg) will treat just above 30,000 liters of water.
- For 450,000 liters a day you would need the harvest of 5,500 trees
- 16,500 kg/ 2.2= 7,500pounds
- 10$ per pound*7,500pounds: $75,000 in year 3

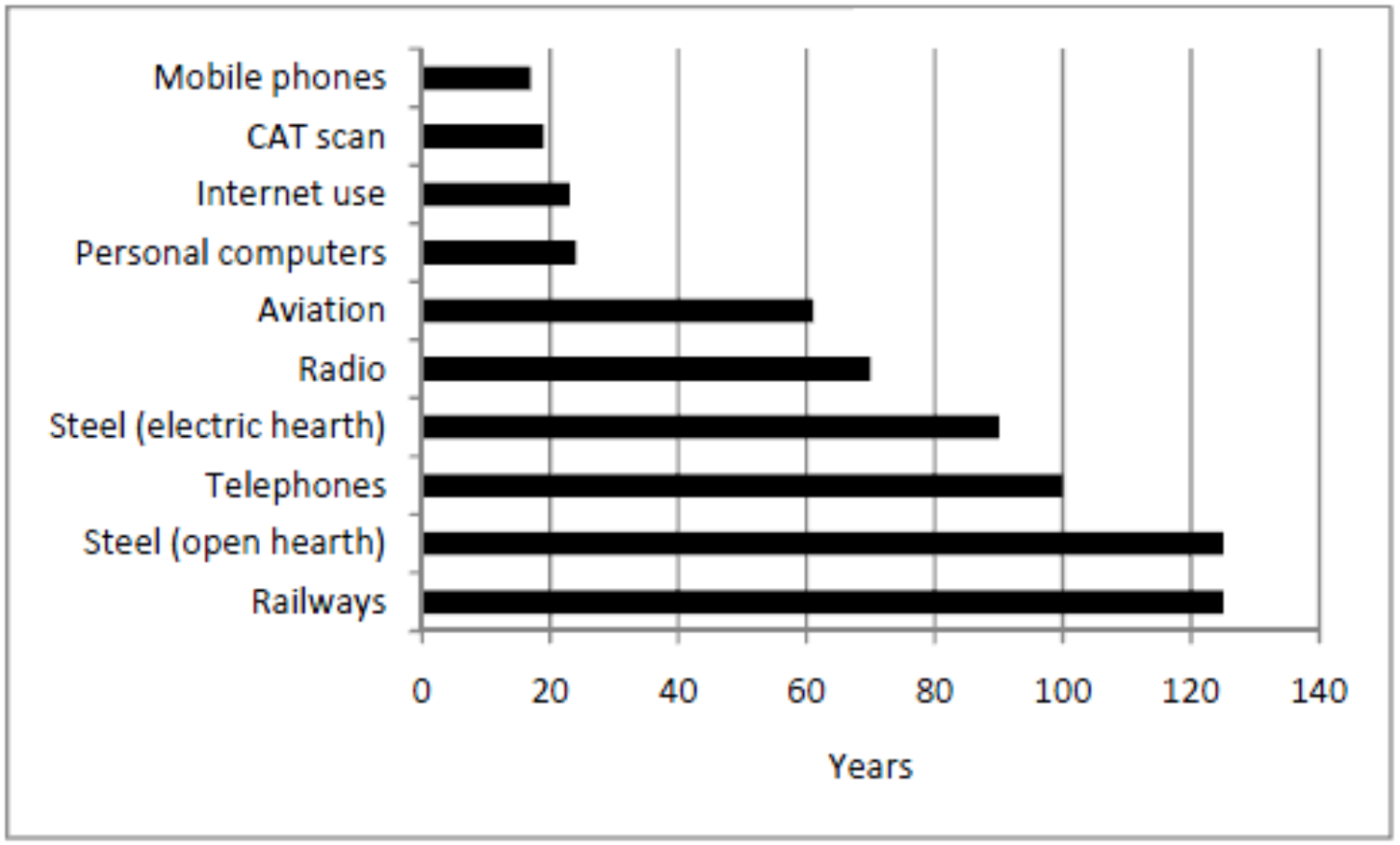
MOBILE BANKING – How It Works

Register and open an account

Deposit money at an approved outlet

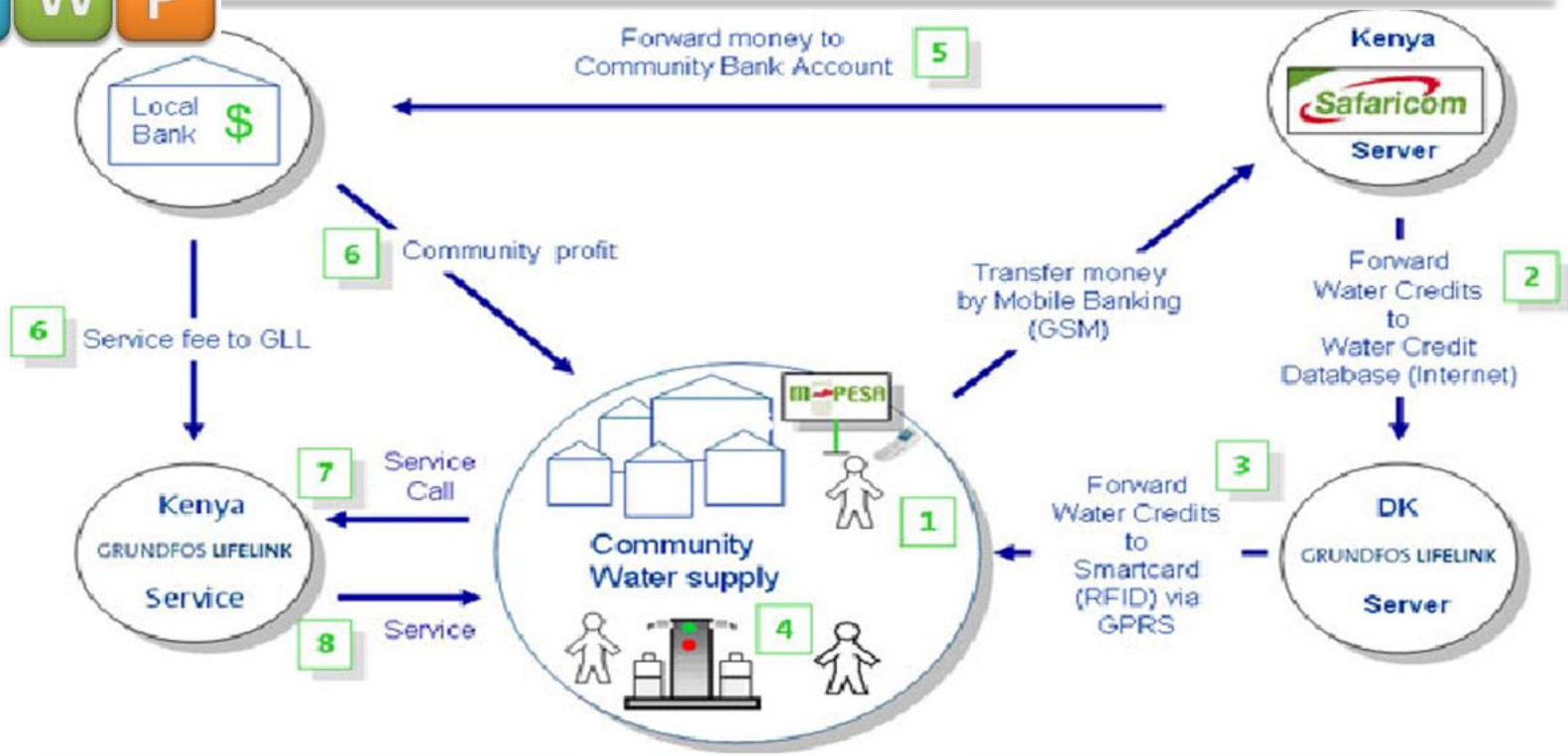
Use the mobile payment menu on your cellphone to send money

Technology Adoption



Technology adoption for select innovations (number years to reach 80% coverage)

MOBILE BANKING Potential Competition



ADVANTAGES

- **Safaricom-Grundfos LIFELINK Partnership**
  - Purchase water via M-PESA
  - Smart card used to access water

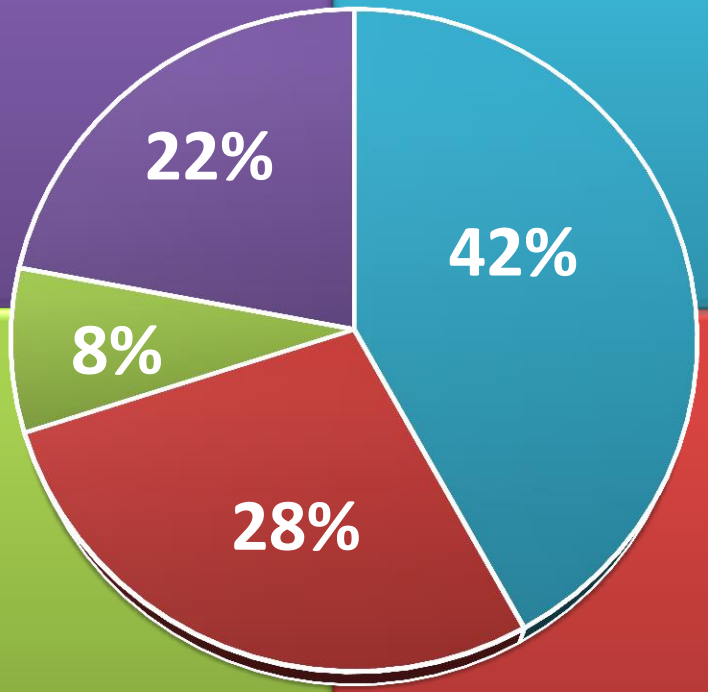
DISADVANTAGES

- **Complex payment/water retrieval system**
- **Non-conventional**
  - High set-up costs due to location differences

MOBILE BANKING – Market Share

TIGO
TigoPeza

VODACOM
M-PESA



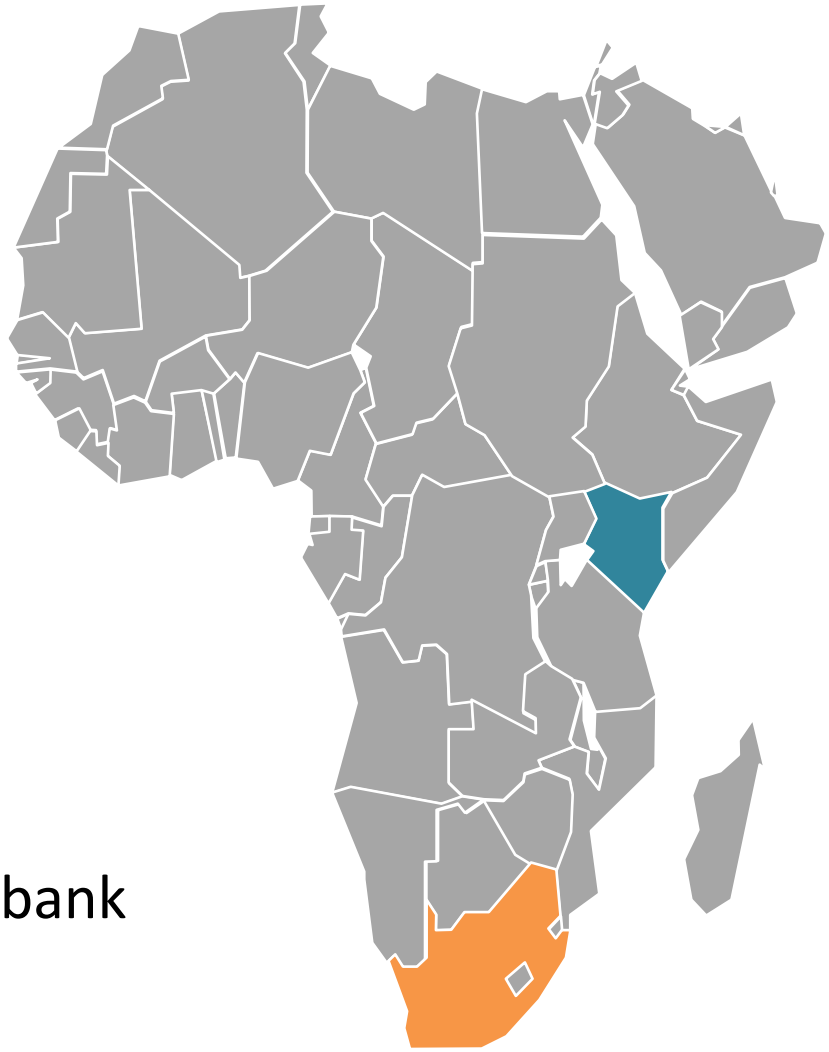
Z-PEZA
ZANTEL

ZAP
ZAIN

MOBILE BANKING SUCCESS

KENYA

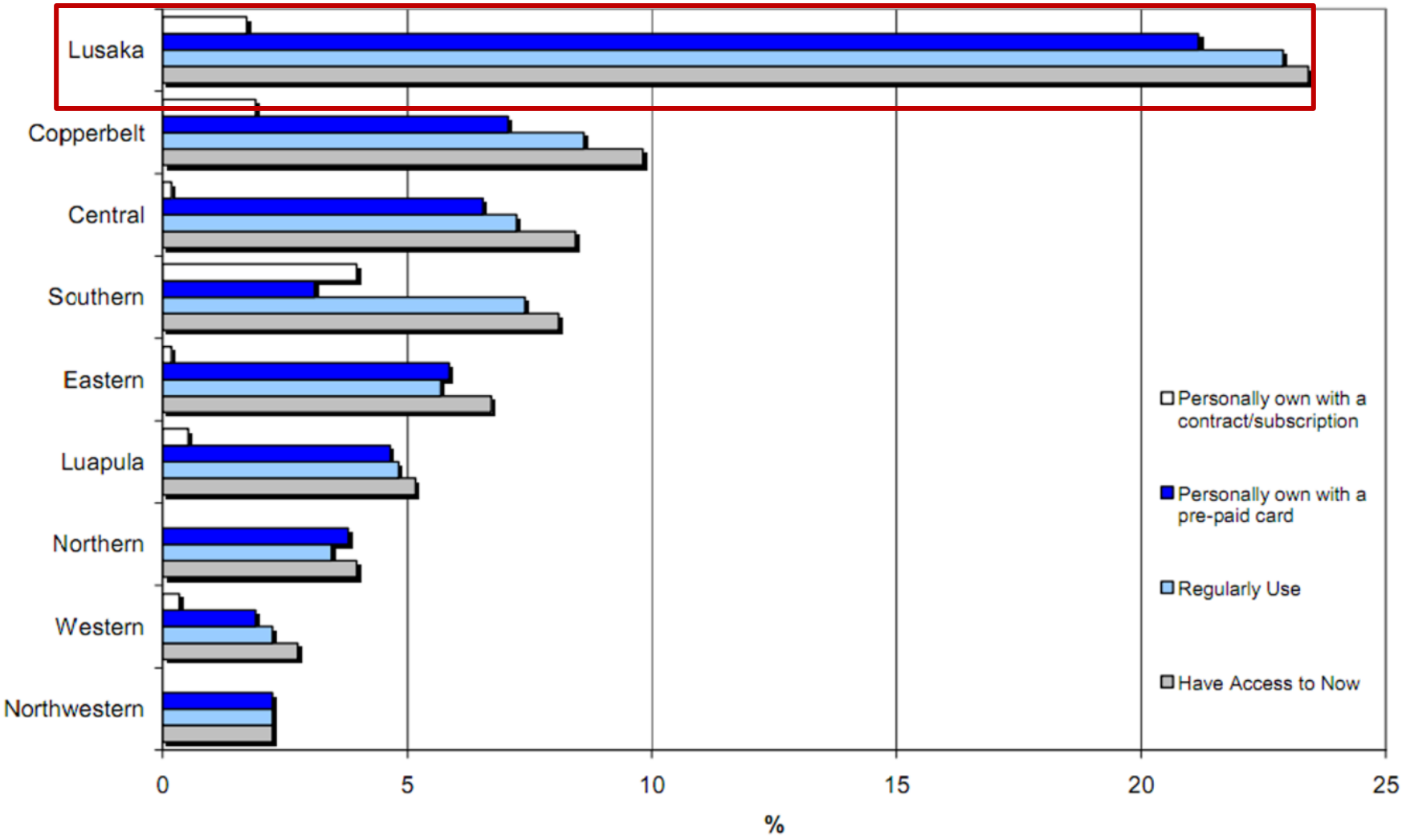
- M-PESA grew by **61%** (2009-2010)
- Socially accepted: **“M-PESA Me”**
- Only form of payment at select locations



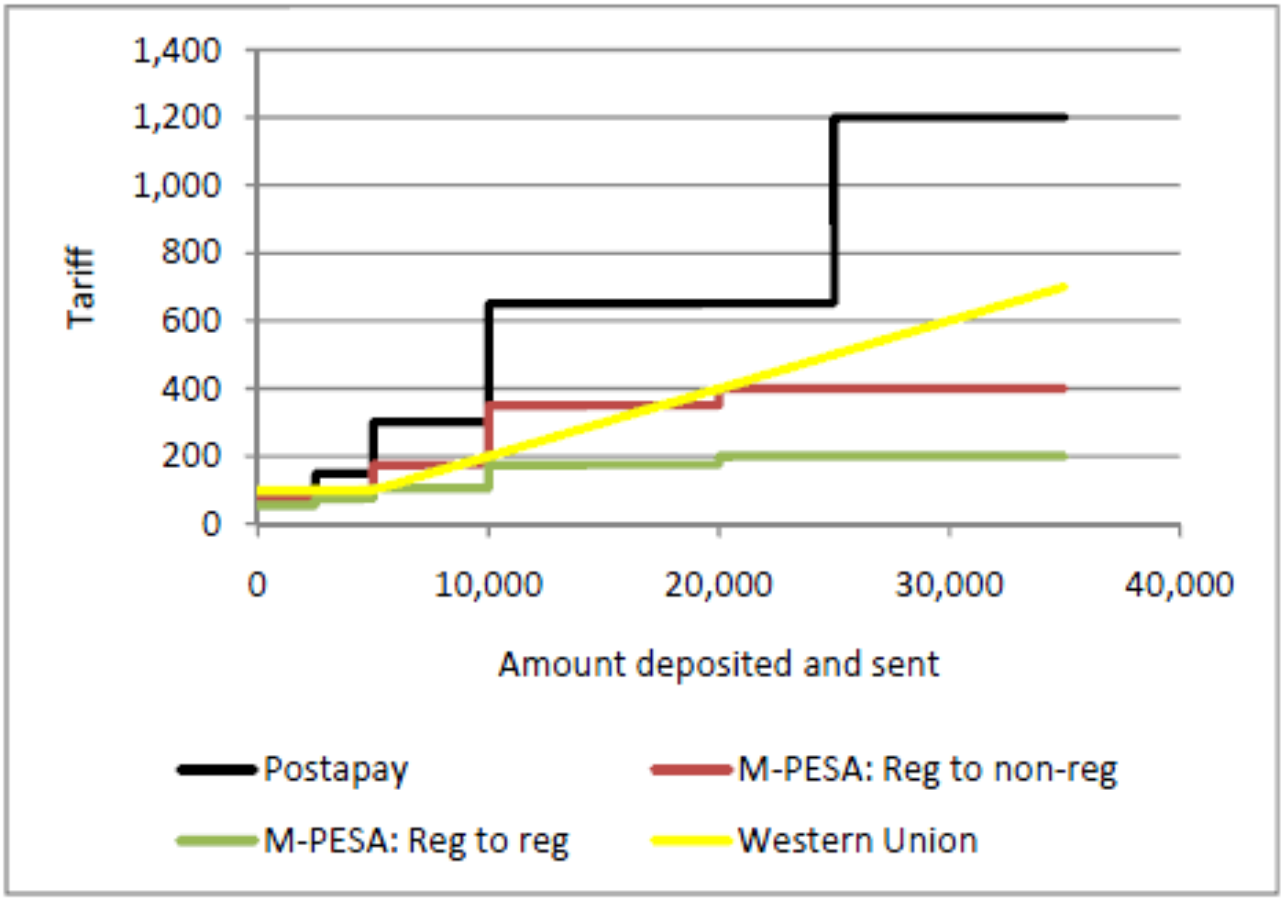
SOUTH AFRICA

- Largest use of Mobile Banking on continent
- Provides options for both bank/non-bank account holders

LUSAKA MOBILE BANKING SUBSCRIBER



Mobile Payment; Tariff Costs



Total net tariff rates for depositing and sending money by Postapay and by M-PESA to a registered user and to a non-registered user

MOBILE BANKING – Regulations & Security

Coordinated Regulation

Bank of Tanzania

Financial Transactions

Tanzania Communication Regulatory Authority

Communication Infrastructure

Less Fraud

Improved Security

Comprehensive Legislation by EOY

DEALING WITH BRIBES

- Many local leaders will attempt to extract bribes for information or permission to operate
- Educate local leaders on social mission of company: eliminate disease, provide clean water, stimulate business, etc.
- Local workers are less likely to be asked for bribes
- Gain support of government and port authority

QUALITY CONTROL

- Brand image will diminish if quality degrades
- Technicians must file weekly quality checks on each filter in their area
- Any filter that does not pass quality check will be immediately disabled and an investigation will take place

CURRENCY RISK

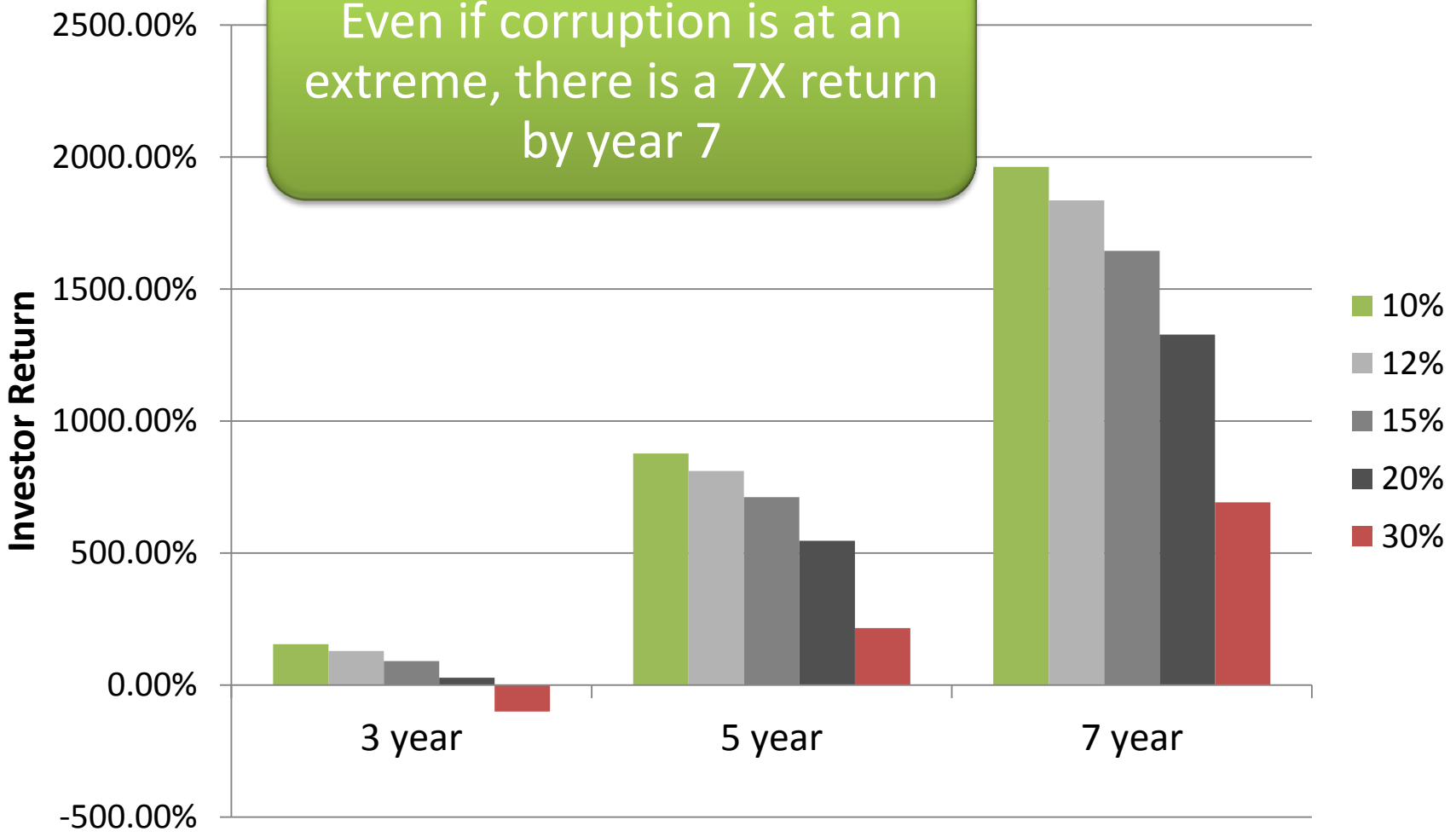
USD/TZS

How can we mitigate this risk?

- Use forwards swaps → a series of forward contracts
- Locks in exchange at current forward rate. Less exposed to risk related to currency exchange rate volatility

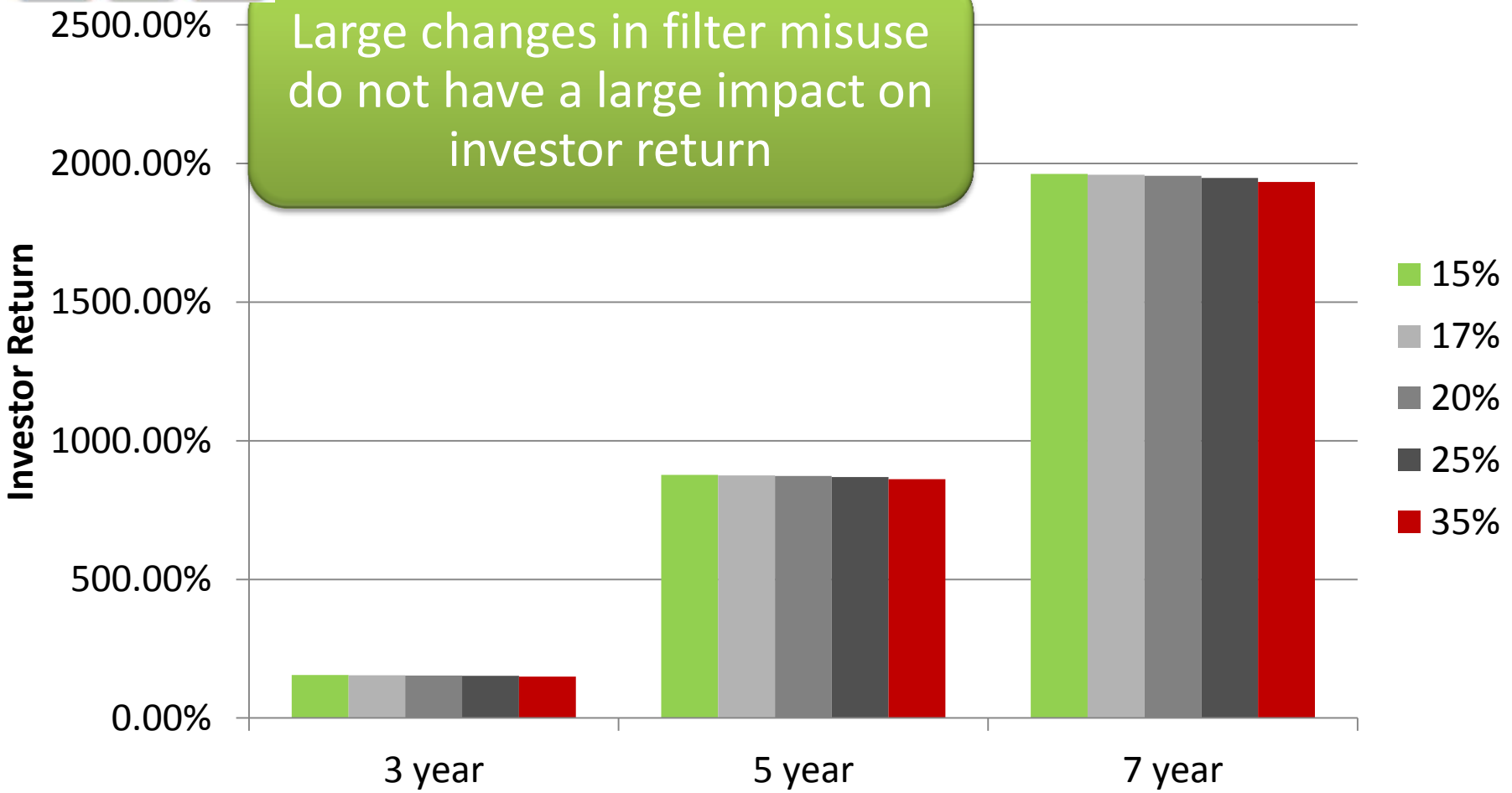
Sensitivity Analysis – Corruption

Even if corruption is at an extreme, there is a 7X return by year 7

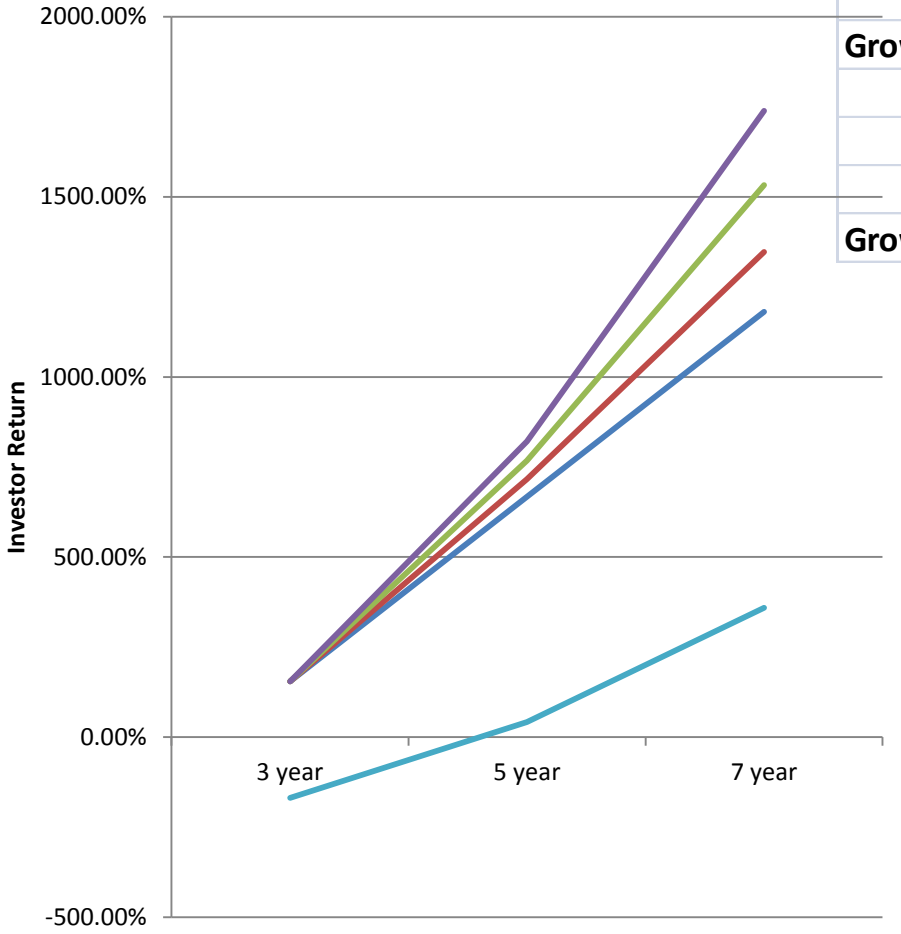


Sensitivity Analysis – Filter Misuse

Large changes in filter misuse do not have a large impact on investor return



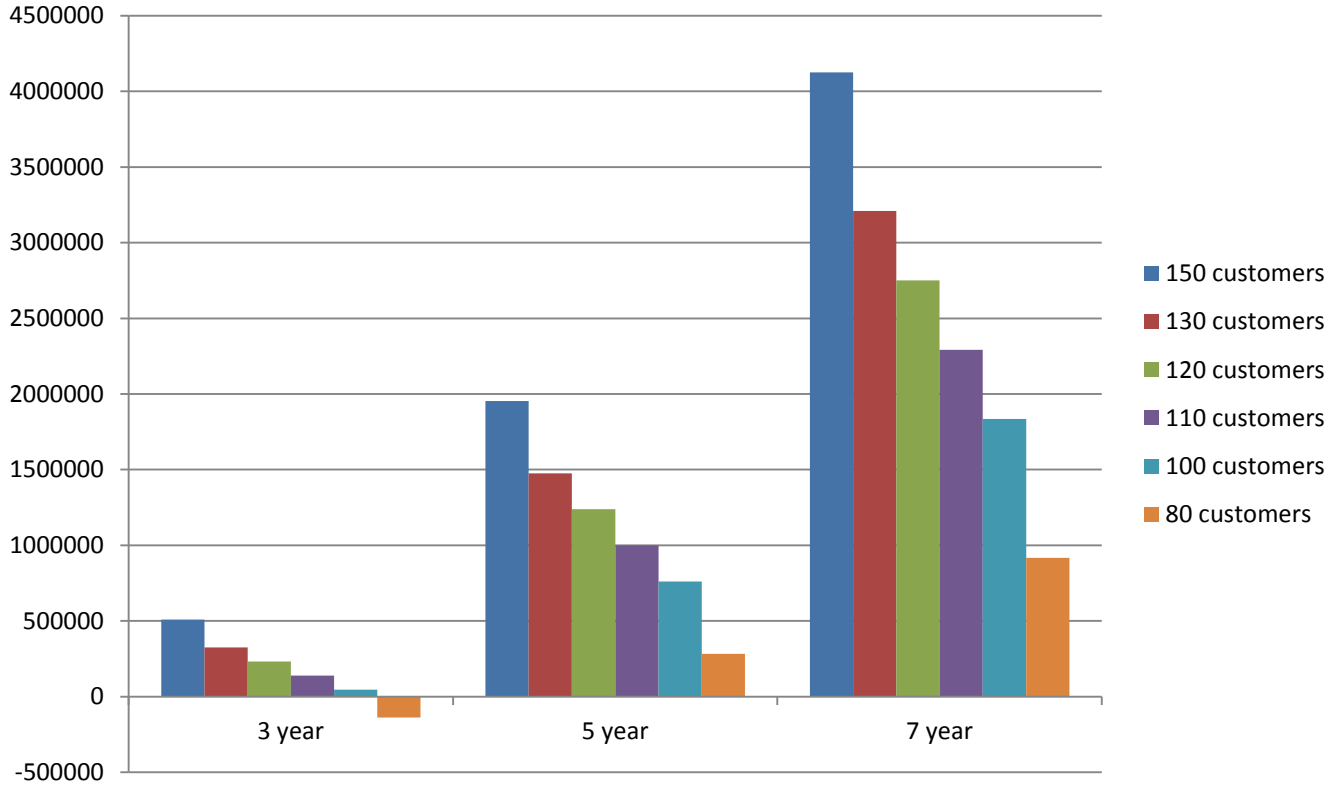
Sensitivity Analysis – Growth Rates



	Year 4	Year 5	Year 6	Year 7
Growth Rate (conservative)	5%	10%	8%	6%
	10%	20%	15%	8%
	15%	30%	22%	10%
	20%	40%	29%	12%
Growth Rate (projected)	25%	50%	35%	15%

Even with conservative growth rates there is a 12X return by year 7

Sensitivity Analysis – # of Customers



Even with an extremely low amount of customers there is a 5X return by year 7

COST OF CAPITAL

Cost of Equity Capital	
Beta	0.689
Risk-free rate	3.46%
Return on market	6.84%
K(e):	**8.17%**
Cost of Debt Capital	
Interest Rate	10.00%
K(d):	**10.00%**
Weighted Average Cost of Capital	
Total Debt Weight	13.30%
Total Equity Weight	86.70%
Cost of Debt	10.00%
Cost of Equity	8.17%
Tax Rate	40%
K:	**7.88%**

Pro Forma Income Statement (detailed)

	Year 1	Year 2	Year 3
Revenue			
Vendors	50	2,000	3,000
Customers per vendor	150	150	150
Total customers	7,500	300,000	450,000
Liters per day	1	1	1
Cost per liter	0	0	0
Days	365	365	365
Total Revenue	219,000	8,760,000	13,140,000
Vendor Revenue Share	(43,800)	(1,752,000)	(2,628,000)
Net Revenue	175,200	7,008,000	10,512,000
Operating Costs			
Technician Salary	3,600	120,000	180,000
Management Salary	120,000	325,000	400,000
Sales Staff	0	36,000	36,000
Filter Testing	5,200	208,000	312,000
Filter Maintanence	5,000	200,000	300,000
Marketing	10,000	25,000	40,000
Brand Ambassador	100,000	100,000	131,400
Vehicle Operations	2,500	65,000	110,000
Depreciation Expense	5,483	169,000	236,167
Total Operating Costs	(251,783)	(1,248,000)	(1,745,567)
Total Operating Income	(76,583)	5,760,000	8,766,433
Risk Related Costs			
Underreporting	21,900	876,000	1,314,000
Filter Misuse	750	30,000	45,000
Corruption Costs	32,850	1,314,000	1,971,000
Total Risk Cost	(55,500)	(2,220,000)	(3,330,000)
Interest Expense	0	(100,000)	0
Profit Before Tax	(132,083)	3,440,000	5,436,433
Income Tax Expense	39,625	(1,032,000)	(1,630,930)
Net Income	(92,458)	2,408,000	3,805,503

Pro Forma Cash Flow Statement (detailed)

	Year 1	Year 2	Year 3
Cash Flow from Operating Activities			
Net Income	$ (92,458.33)	$ 2,408,000.00	$ 3,805,503.33
Add back Depreciation	$ 5,483	$ 169,000	$ 236,167
Net Cash from Operating Activities	$ (86,975.00)	$ 2,577,000.00	$ 4,041,670.00
Cash Flow from Investing Activities			
Capital Expenditures	$ (42,250)	$ (1,467,750)	$ (532,500)
Net Cash from Investing Activities	$ (42,250)	$ (1,467,750)	$ (532,500)
Cash Flow from Financing Activities			
Payments of debt	$ -	$ (1,000,000)	$ -
Equity Investment	$ 200,000	$ -	$ -
Proceeds from debt		$ 1,000,000	$ -
Net Cash from Financing Activities	$ 200,000	$ -	$ -
Free Cash Flow	$ 70,775.00	$ 1,109,250.00	$ 3,509,170.00
Ending Cash Balance	$ 70,775.00	$ 1,180,025.00	$ 4,689,195.00

CapEx Assumptions

	Year 1	Year 2	Year 3
Manufacturing Plant	0	400,000	0
Slowsand Filters			
Number installed	50	1,950	1,000
Cost per filter	445	295	295
Total expenditure	22,250	575,250	295,000
Technician Motorcylces			
Number	3	97	50
Cost per motorcycle	2,500	2,500	2,500
Total Expenditure	7,500	242,500	125,000
Flatbed Trucks			
Number	1	20	9
Cost per truck	12,500	12,500	12,500
Total Expenditure	12,500	250,000	112,500
Total CapEx	42,250	1,467,750	532,500

Depreciation Assumptions

	Year 1	Year 2	Year 3	Assumption
Depreciation Expense (Filters)	1483.3	39833.3	59500.0	15 yr straight line
Depreciation Expense (Vehicles)	4000.0	102500.0	150000.0	5 yr straight line
Depreciation Expense (Plant)	0.0	26666.7	26666.7	15 yr straight line
Depreciation Expense (Total)	5483.3	169000.0	236166.7	
Accumulated Depreciation	5483.3	174483.3	410650.0	

Revenue Assumptions

	Year 1	Year 2	Year 3
Revenue			
Vendors	50	2000	3000
Customers per Vendor	150	150	150
Total Customers	7500	300000	450000
Liters per day	1	1	1
Cost per liter	0.08	0.08	0.08
Days	365	365	365
Total Revenue	219000	8760000	13140000
Vendor Revenue Share	43800	1752000	2628000
Net Revenue	175200	7008000	10512000

INVESTORS RETURN

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Free Cash Flow	$ 65,291.67	$ 940,250.00	$ 3,273,003.33	$ 4,091,254.17	$ 6,136,881.25	$ 8,284,789.69	$ 9,527,508.14
Investor Share (20%)	$ 13,058.33	$ 188,050.00	$ 654,600.67	$ 818,250.83	$ 1,227,376.25	$ 1,656,957.94	$ 1,905,501.63
Initial Investment	$ (200,000)	$ -	$ -	$ -	$ -	$ -	$ -
Net Return	$ (186,941.67)	$ 188,050.00	$ 654,600.67	$ 818,250.83	$ 1,227,376.25	$ 1,656,957.94	$ 1,905,501.63
NPV (3 years)	$509,673.87						
NPV (5 years)	$1,953,781.06						
NPV (7 years)	$4,125,461.99						

	Year 4	Year 5	Year 6	Year 7
Growth Rate	25%	50%	35%	15%

SELF-SUFFICIENCY

$4,689,195 FCF in Year 3

CapEx in Years 4 & 5

- $400k for manufacturing facility
- $1200k for filters
- $500k for motorcycles
- $526k for trucks
- **Total = $2,626,000**

FCF can fund to projects and CapEx moving forward, while Sales will easily cover Operating Expenses. NO NEW DEBT OR EQUITY needed.