Uganda: Sanitary Pad Manufacturer

Brief Overview

Prepared for Grand Challenges Canada

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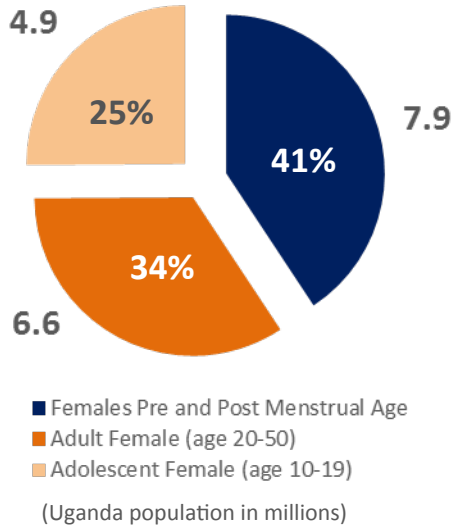
Strictly confidential

Close to two-thirds of women in Uganda are not able to use sanitary feminine hygiene solutions that would allow them to have uninterrupted work or school attendance

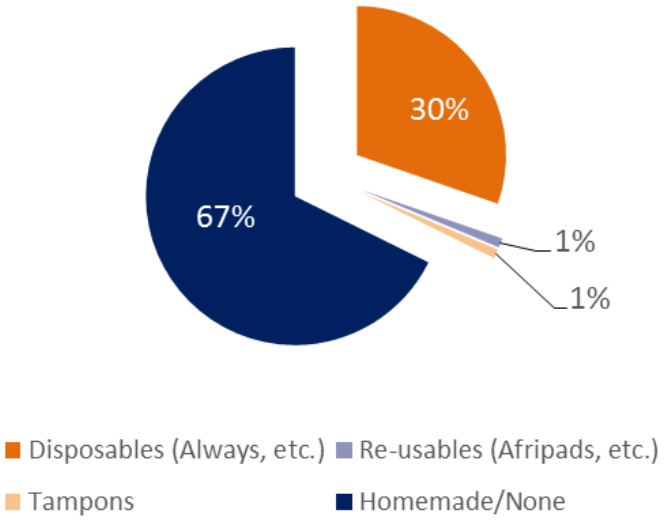
UGANDA DEMOGRAPHICS HIGHLIGHTS

11.5 million Ugandan women are of reproductive age, of which 79% live in rural areas, and almost 5 million are adolescents



CURRENTLY AVAILABLE HYGIENE SOLUTIONS

Unsanitary solutions - or no solution at all - vastly dominate the options currently available to women in Uganda



Uganda also has one of the highest fertility rates and GDP growth rates in the world

Among highest fertility rates in world at

5.8

births per woman

GDP Growth Rate

5.2%

Though not the only factor, the impact on women's education and access to financial independence due to the lack of proper feminine hygiene in Uganda cannot be overstated

24.7%

Drop in school attendance as girls come of age [1]

19%

Lower secondary school attendance by girls vs boys [4]

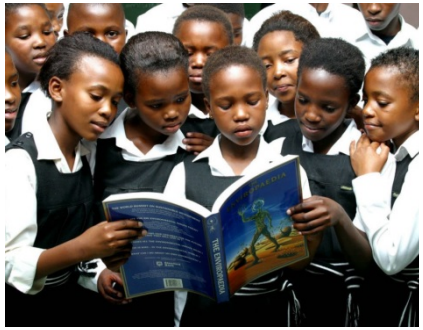
16.6%

School time lost due to menstrual hygiene management [2]

Women who complete secondary school are

64%

less likely to become child brides [5]



4.1%

Difference in literacy between young males vs females (difference is only 0.8% in Kenya) [3]

> *"Reports from Africa estimate that within four years of high school, each girl loses 156 learning days equivalent to almost 24 weeks out of 144 weeks of learning."* [6]
>
> — Water Supply & Sanitation Collaborative Council (WSSCC)

[1] Montgomery, et al. (2016) *Menstruation and the Cycle of Poverty: A Cluster Quasi-Randomised Control Trial of Sanitary Pad and Puberty Education Provision in Uganda*

[2, 6] Water Supply and Sanitation Collaborative Council – 2013 (data across the African Continent)

[3] World Bank (Uganda compared to Kenya)

[4] UNICEF

[5] Women Thrive Alliance. *Women Poverty in Africa: A Look at the Numbers*

The typical solutions available today in Uganda are unsatisfactory, leading to the prevalence of the homemade rag or the absence of use of any solution altogether

Disposables

- Currently expensive imported brands
- Increasing in market share, but largely confined to elite urban consumers
- Typically contain chemicals and other irritants
- Non-biodegradable and harmful to the environment

Tampons

- Expensive imported brands
- Typically confined to urban western female expat communities in urban centers
- Minimal market share among the local female population, not particularly growing
- Several health concerns have surfaced globally regarding the use of tampons

Homemade / no solution

- Homemade cloth rags or no solution at all are by far the most prevalent choices in Uganda
- Rags are often cleaned in unsanitary water, potentially leading to infection and reproductive issues
- Rinsed rags hung to dry risk broadcasting a girl's maturity, potentially leading to personal safety issues
- Rags, and even more so no solution at all, are highly restrictive of mobility or commute, leading to absence from school and work

Re-usables

- Primarily a recent western solution, not particularly fit for rural Africa markets
- Marketed as a lower cost alternative, these products have realized little inroads in Uganda
- Re-usables present similar concerns as homemade rags, being cleaned in unsanitary water and hung publicly to dry, and greatly reducing traveling comfort

The available alternative solution: A locally manufactured eco-friendly biodegradable sanitary pad made from locally sourced papyrus and other materials

100%
Female management team

10yr
Relationship with the UN Refugee Agency

95%
Biodegradable and chemical free

100%
Locally produced and locally manufactured

50%
Cheaper than imported brands

300
Refugee workers, almost entirely female, employed

100%
Sterile and sanitary – prevents infections

85%
Of material can be locally sourced

This solution inherently delivers on a number of Sustainable Development Goals, including improvements to women's health, access to education and employment, improved sanitation, and reduced environmental

Manufacturing process is currently manual – the objective is to mechanize to expand production

CURRENT PROCESS

1. Papyrus field

2. Pulverized pulp

3. Sundried pulp

4. Fluff pulp mixed

5. Mix applied to drying screens

6. Sundried fluff mix

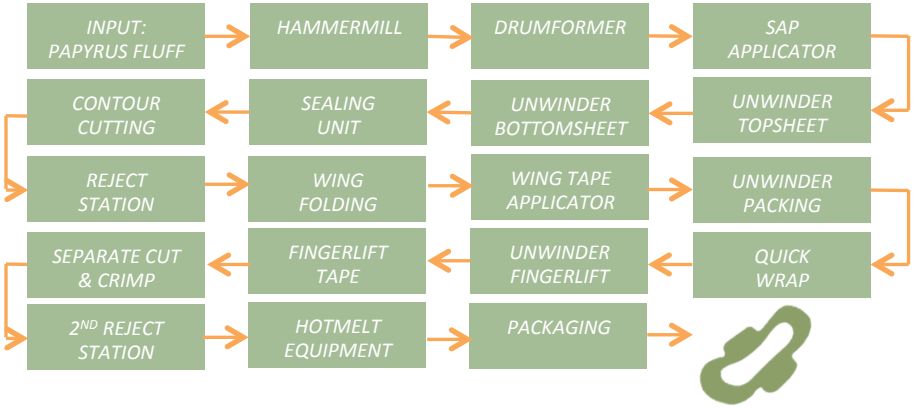
7. Dried fluff softened

8. Front & backsheets applied and quality control check

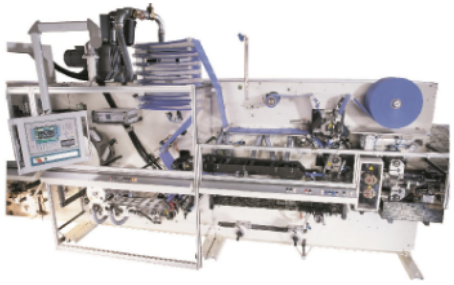
9. Packaged & sanitized with UV light

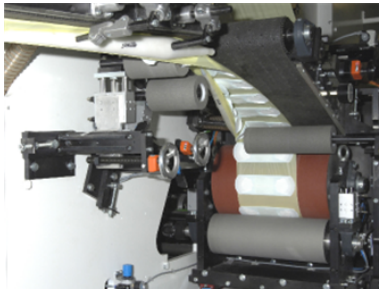
MECHANIZED PROCESS

The mechanized process dramatically increases throughput



Discussions are under way with production line manufacturers to start testing the use of papyrus as feedstock



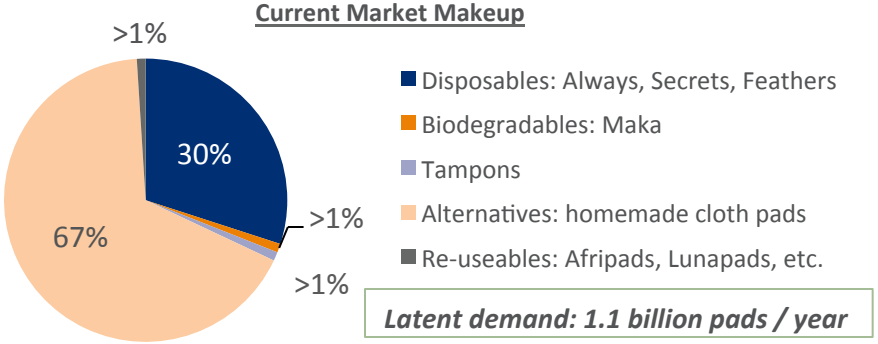


Targeting the base-of-pyramid consumer and moving beyond the urban centers presents a path to significant market share and a case for sustainable long term economics

MARKET POTENTIAL

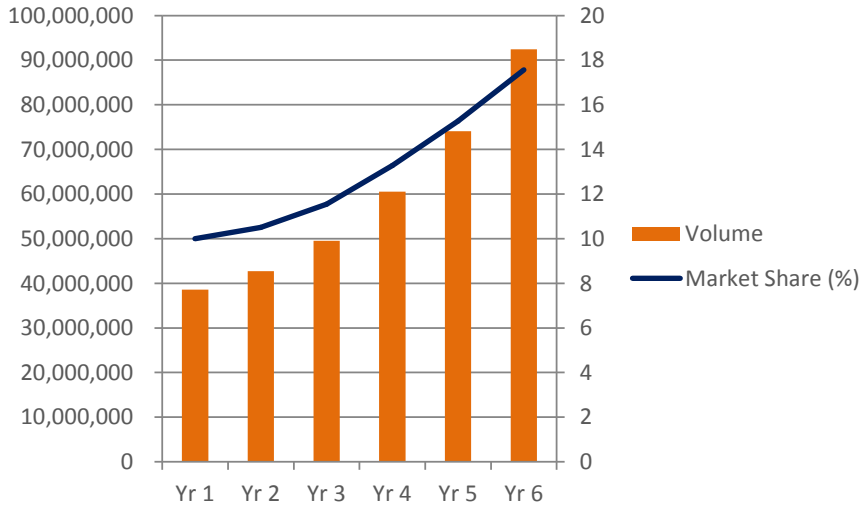
The key market opportunity is displacing homemade rags, or simply providing access

Current Market Makeup

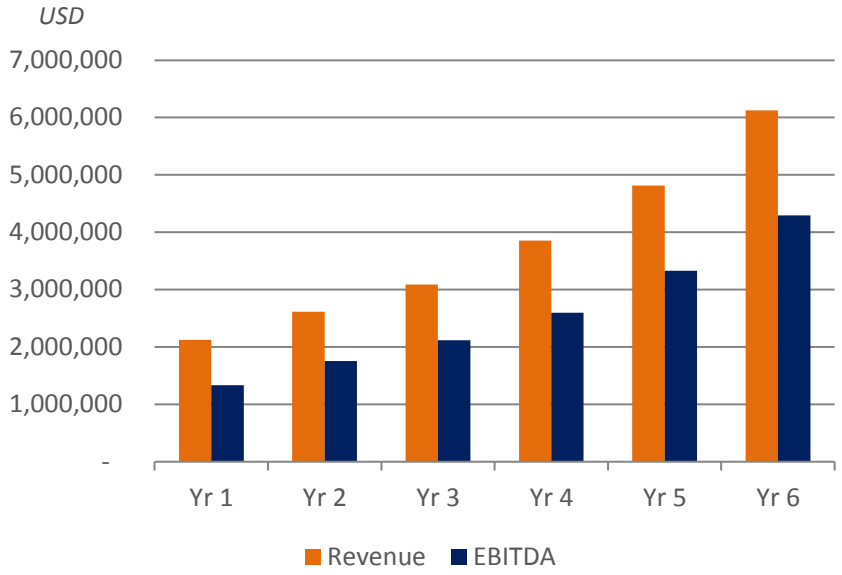


Latent demand: 1.1 billion pads / year

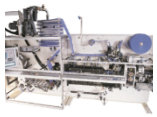
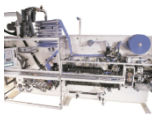
Current Forecast Demand for Maka



PRO FORMA FINANCIALS



The ultimate objective is a high volume locally sourced and eco-friendly product. An interim product using standard imported raw materials will afford the company time and resources to finalize the development and prepare the market for its ultimate product

	Raw materials	Manufacturing process		Market
Current product	• Locally sourced papyrus fluff • Only front / back sheets imported • No SAP or other chemicals • 95% biodegradable		Handmade	• Currently sold to UN HC on Refugees • Also sold to local schools in Uganda through Ministry of Education
Phase 1	*Current product: as above* *New product:* • Imported paper fluff, as well as front and back sheets • Standard imported raw materials facilitate transition to high speed automated production • Use of SAP, no other chemicals • Partially biodegradable	 	Handmade High speed automated	• Same as above • Commercial, open market sales in urban and rural distribution networks
Phase 2	• Locally sourced papyrus fluff • Possible local sourcing of front / back sheets • No SAP or other chemicals • 95% biodegradable • Expansion to other product lines: Diapers, bed pads		High speed automated	• UN HCR, local schools, other NGO and non-commercial • Commercial, open market sales in urban and rural distribution networks

Potential suppliers for the fully mechanized production line have been identified and conversations are on-going

Production Line

- BICMA (Germany)
- Curt G. Joa, Inc. (United States)
- Investknosult AB (Sweden)
- Focke & Co. (U.S. and Germany)
- A.C.M.Engineering (Italy)

*Fluff Core**

- Georgia-Pacific (United States)
- Rayonier, Inc. (United States)
- Weyrhaeuser (United States)

Non-wovens

- Tredegar (United States)
- Freudenberg (Germany)
- Fibertex (Denmark)
- Fiberweb (India)
- Pegas (Czech Republic)
- Pantex (Italy)
- Libeltex (Belgium)
- Sandler (Germany)

*Superabsorbent Polymer (SAP)***

- DEGUSSA (Germany)
- BASF (Germany)
- DOW Chemical (United States)
- Shokubai (Japan)

Hotmelt

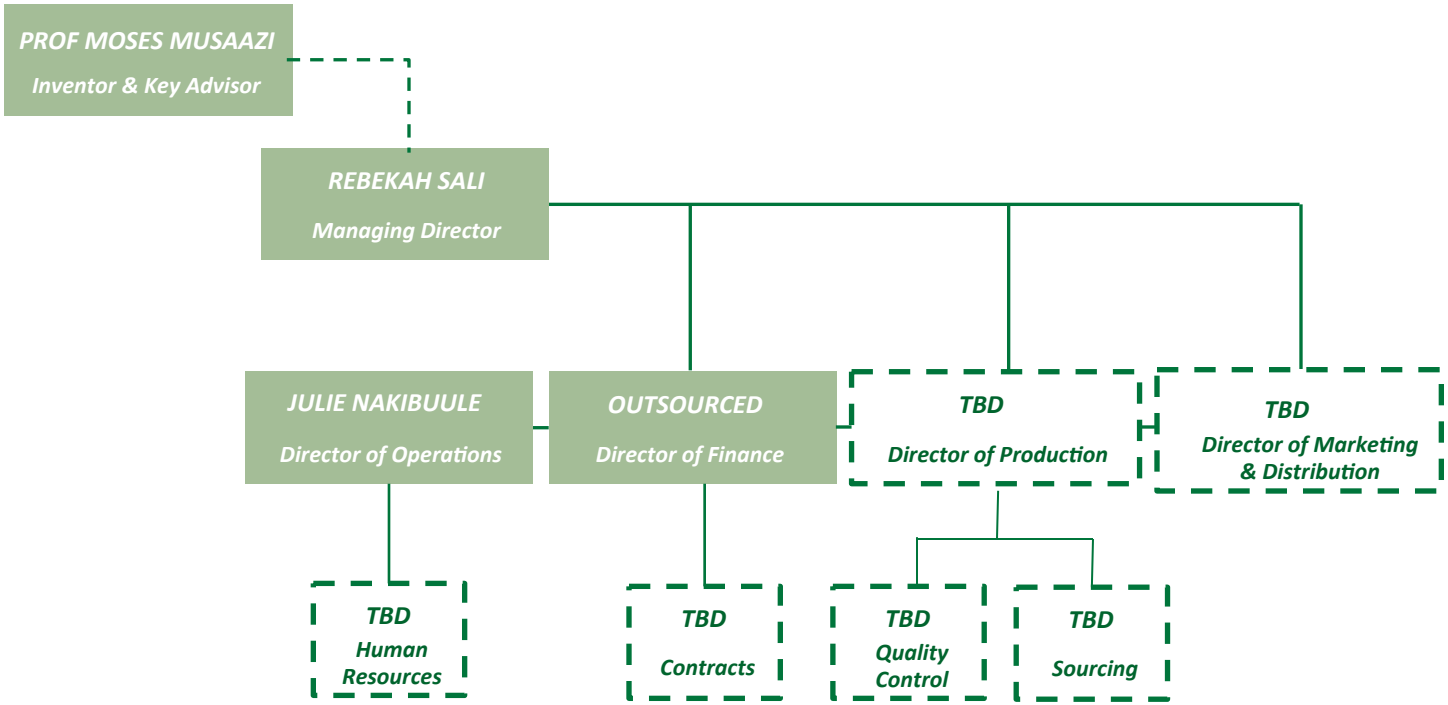
- National Adhesives (Germany)
- Ingredion (United States)
- H.B. Fuller Company (United States)
- Henkel KgaA (Germany)

Phase 2:

Proving out the use of papyrus as a viable input for the high capacity production line will drive our ability to ***eliminate the importation of the two most costly inputs***:

- The fluff core, and*
- The use of chemical SAP**

Maka Group is currently being managed by a capable but streamlined management team, which will be supplemented as, and in order to achieve scale



Advisory Board

PROFESSOR MOSES K. MUSAAZI

Experience

- 30 years as a University Professor
- Serial Innovator of Base-of-the-Pyramid and Pro-Poor Technologies
- Founder of Technology for Tomorrow, Ltd
- Rockefeller Foundation Grant Recipient
- Recipient of Siemens Stitfung "Empowering People" Award

Education

- PhD, Imperial College
- MEng, Imperial College
- BSc, Engineering, Makerere University

KATE TAMALE-SALI

Experience

- Co-founder and Managing Director, Women's Hospital International, Uganda
- Co-founder, Sali International Hospital, Tanzania, Rwanda, Zambia
- Founder, I CAN DO IT FOUNDATION AFRICA
- Co-host of local TV program, 'Faith and Science'
- Public Educator on faith and medical issues

DANIEL E. JOHNSON

Experience

- Co-founder, Africa Finance & Advisory Partners
- Corporate Finance & Economic Strategy, Dry Associates Ltd., Nairobi, Kenya
- Political Risk & Investment Insurance, OPIC
- Structured Products Investment Banking, JP Morgan

Education

- MA International Relations & Political Economy, New York University
- BA Economics, Fordham University

VELLASAMY SEKARAN

Experience

- Owner of Malaysia Furnishing, Uganda
- Program Director for International Child Care Fund (ICCF), Uganda
- Owner and Director, Nisha Distributors, Ltd
- Founder of Malaysian Business Centre (U) Ltd
- Pastor at the Full Gospel Fellowship Union

Application for a patent covering 54 African markets has been filed with ARIPO through the Uganda Registration Services

PATENT APPLICATION NUMBER

Patent application number: VMS/M0219-0001 (SR3716/UG)

The patent was filed in 2015 with the African Regional Intellectual Property Organization (ARIPO), through the Uganda Registration Service Bureau and is currently pending approval.

SCOPE OF THE PATENT

The patent has been filed to protect the use of papyrus pulp and paper paste in the production of absorbent material for use in sanitary pads, diapers, bed pads, etc.

The patent will cover 54 African markets. In due course, Maka may apply for a global patent through the World Intellectual Property Organization (WIPO).

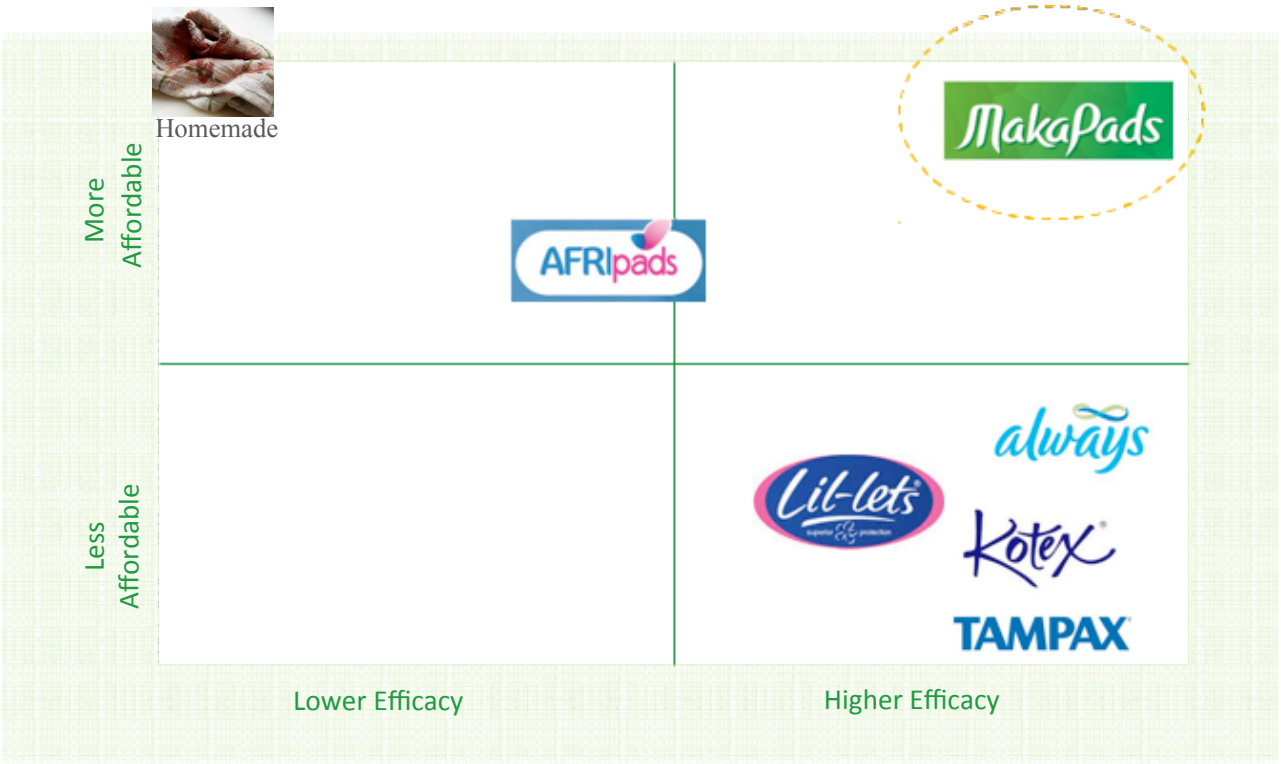
OWNER OF THE INTELLECTUAL PROPERTY RIGHT

The patent application was filled under the inventor, Professor Moses K. Musaazi.

The grant funds are intended to be used to significantly scale up production of Maka Pads and develop a sustainable socially and economically responsible Ugandan enterprise

Segment	Strategy
Product / Innovation	• Perform research and development of papyrus fluff for use in mechanized production line • Simplify and enhance production to support scaling up • Integrate sustainability in supply chains • Expand raw material sources
People	• Establish robust Human Resources platform • Build employee capacity to support scaling up of the industrialized process, with a focus on hiring and retaining local employees, women in particular • Establish training programs for employees • Track progress against employee training plans
Resource Team	• Build a resource network of researchers, policy makers and social activists to support innovation and expansion • Establish a network of distributors with the required reach into rural communities, kiosks and smaller retailers • Develop relevant branding and marketing expertise
Community Development	• Build on existing relationships with the United Nations and the Uganda Ministry of Education • Develop thought leadership around the issue of better menstrual health management knowledge and practices • Become a public voice driving the education of women and girls around Menstrual Health Management best practices
Environmental	• Drive toward the development and use of papyrus fluff and elimination of SAP chemicals • Develop plans around and monitor resource use-efficiency • Institute recycling schemes at the company level and monitor recycling rates • Monitor water use and treatment

The currently available alternatives, or competitors, are either cost prohibitive to the majority of the market, or are ineffective and dangerous solutions



Maka Pads is a cost leader with a distinct social and environmental differentiator

Pro forma revenue projections for the fully manufactured process reflect strong growth over a five year time span as Maka delivers to the market a low cost alternative

	Unit	YR1	YR2	YR3	YR4	YR5
Market Size (Pads)						
Increase in market share of pads	%		2%	2%	3%	3%
Potential Market (as % of Fem Pop Age 10-50)	%	35.00%	35.70%	36.41%	37.51%	38.63%
Potential Market (as # pads consumed)	%	385,976,674	406,688,183	428,511,070	455,931,494	485,106,550
Maka Market Share						
Growth in Maka market share	%		5.00%	10.00%	15.00%	15.00%
Potential Market Share (%)	%	10.00%	10.50%	11.55%	13.28%	15.27%
Potential Market (# pads consumed/yr)	#	**38,597,667**	**42,702,259**	**49,493,029**	**60,559,101**	**74,099,419**
Potential Market (# women)	#	402,059	444,815	515,552	630,824	771,869
			11%	*16%*	*22%*	*22%*
Production split						
Normal pads sold	#	19,298,834	21,351,130	24,746,514	30,279,550	37,049,710
Super pads sold	#	19,298,834	21,351,130	24,746,514	30,279,550	37,049,710
Revenues						
Wholesale Price (Normal)	*USD/ pad*	0.0500	0.0510	0.0520	0.0531	0.0541
Wholesale Price (Super)	*USD/ pad*	0.0600	0.0612	0.0624	0.0637	0.0649
Revenue (Pads)	*USD*	2,122,872	2,613,378	3,089,553	3,855,948	4,812,456
Revenue growth (Pads)	%		*23%*	*18%*	*25%*	*25%*

Similarly, the use of locally sourced papyrus will help contain costs and generate comfortable pro forma EBITDA margins

	Unit	*YR1*	*YR2*	*YR3*	*YR4*	*YR5*
Raw Materials Cost - Pads ($)						
Raw materials (Normal)	*USD*	267,508	295,956	343,021	419,716	513,560
Raw materials (Super)	*USD*	319,072	353,003	409,140	500,618	612,551
Total raw materials cost	*USD*	586,580	648,959	752,160	920,335	1,126,111
Labor Cost ($)						
Machine Laborers	*USD*	129,600	132,192	132,192	176,256	176,256
Line Supervisors	*USD*	43,200	44,064	44,064	44,064	44,064
Quality Control	*USD*	21,600	22,032	22,032	22,032	22,032
Management (Operations, Production)	*USD*	144,000	146,880	146,880	146,880	146,880
Labor Cost ($)	*USD*	338,400	345,168	345,168	389,232	389,232
Energy Cost	*USD*	90,029	90,029	90,029	180,058	180,058
Energy Cost / unit	*USD*	0.00233	0.00211	0.00182	0.00297	0.00243
Marketing, Distribution, etc. % of manuf costs	*%*	10%	10.0%	10.0%	10.0%	10.0%
Marketing, Distribution, etc.	*USD*	212,287	261,338	308,955	385,595	481,246
Total Costs	*USD*	1,227,296	1,345,494	1,496,312	1,875,219	2,176,646
EBITDA	*USD*	**895,575**	**1,267,885**	**1,593,240**	**1,980,729**	**2,635,809**
EBITDA Margin	*%*	*42%*	*49%*	*52%*	*51%*	*55%*

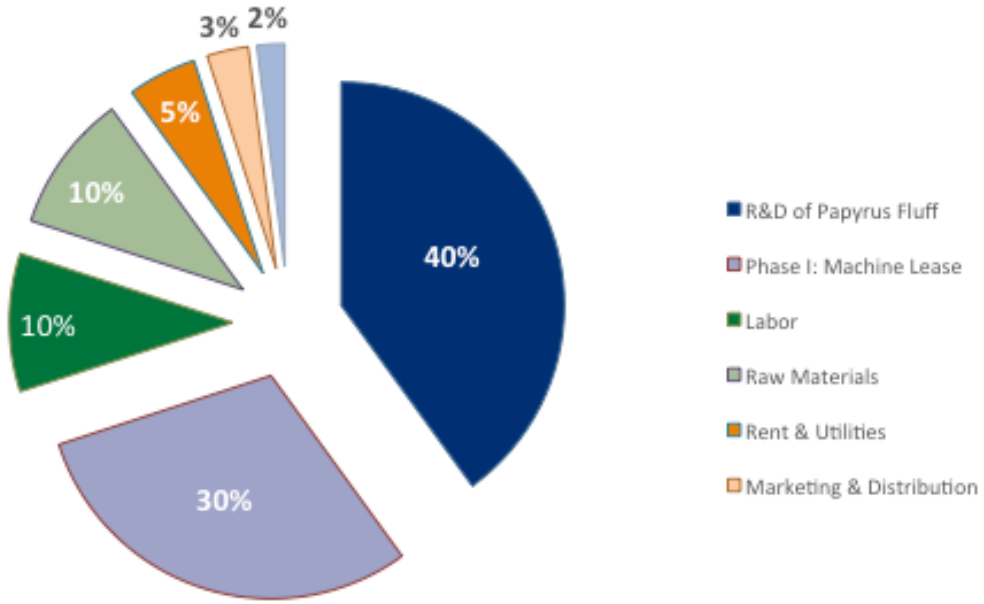
The main use of the GCC Grant and Matching Funds will be to drive forward the research and development of papyrus fluff for use in the mechanized production line; remaining funds will be used to continue and expand distribution of the handmade product

Use of Funds

		Unit	
Grand Challenges Canada Grant		*USD*	1,000,000
Matching Funds		*USD*	1,000,000
	Total funds	*USD*	2,000,000

Start-up Period

	%	USD
R&D of Papyrus Fluff	40%	800,000
Phase I: Machine Lease	30%	600,000
Labor	10%	200,000
Raw Materials	10%	200,000
Rent & Utilities	5%	100,000
Marketing & Distribution	3%	60,000
Handmade Machines & Equipment	2%	40,000
		2,000,000



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