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A LETTER FROM THE CEO

Dear reader,

It has been another exciting year for PureMadi, where we saw more social engagement, a greater number of fundraising opportunities, and hired a new South African employee. We started out 2018 by honoring two of our original Dertig Facility employees at our seventh annual fundraiser in Charlottesville where we raised \$17,412. These fundraisers have allowed us to connect with and engage more of our UVA community and to honor our long-standing donors who make what we do possible. We also partnered with UVA Alumni and Milwaukee Buck's Guard Malcolm Brogdon who auctioned off a pair of game-worn signed shoes helping us bring in an additional \$2,000! We had a record number of people support us during Giving Tuesday this year and have seen steady growth in social media engagement.

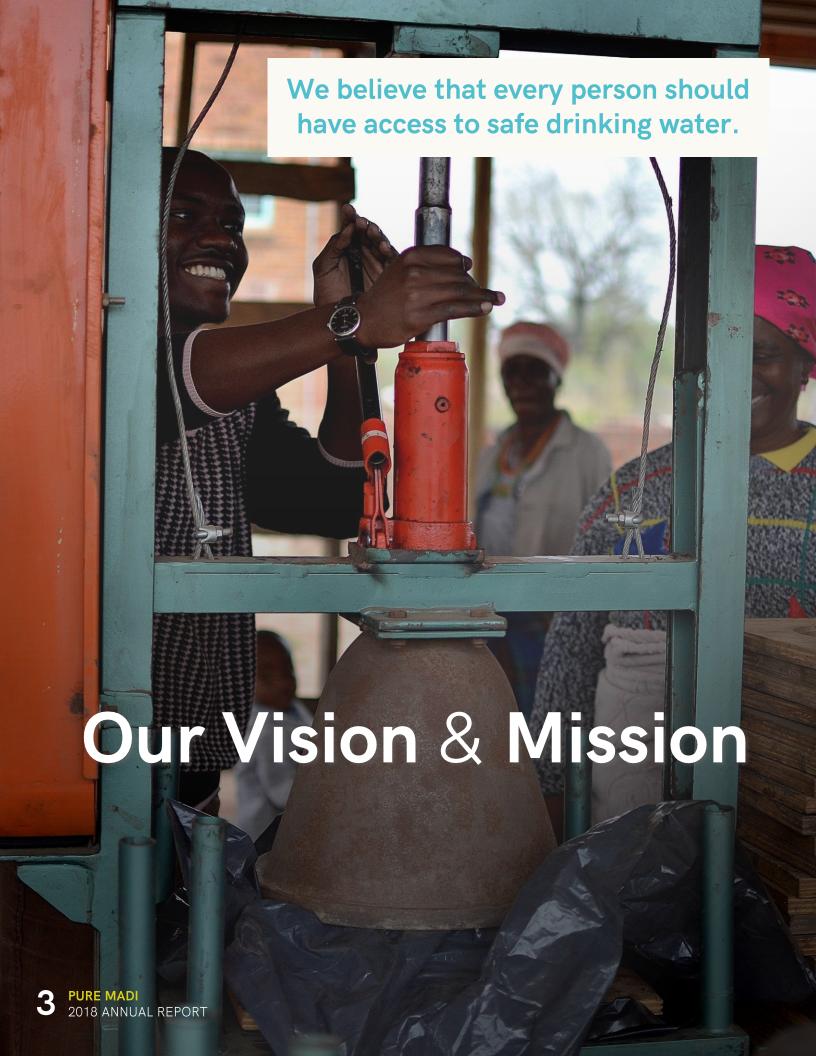
We shifted our focus to sales this year, hiring a full-time sales manager in September. Our facilities have streamlined their production processes and are able to consistently make high quality filters. We are ready to expand our distribution, develop supply channels, and increase the accessibility of our filters. As we work on our sales effort to make the facilities sustainable, we remain committed to our work with local schools. We have kept up with both donating filters to schools as well as providing vital water, health, and sanitation lessons to elementary school students. We have distributed 2,500 filters, provided 13,000 people with clean water, and educated 350 children.

While we are tremendously proud of our accomplishments, we recognize how much work still needs to be done. 1 in 10 people lack access to safe water. Globally, 1/3 of all schools lack access to clean water and sanitation. This contributes to the spread of infections and waterborne diseases, killing nearly 1 million people each year. We believe that clean water is a right for everyone and we have a passionate team of people both in the US and South Africa who are working to make this a reality. Our supporters remain indispensable to our work and much of what we have accomplished would not be possible without them. By empowering South African communities with jobs and the ability to access clean water, we're helping provide families with hope, health and the opportunity to break the cycle of poverty.











Our Vision

At PureMadi we believe that safe drinking water should be accessible everywhere; as a result, our products will be sold and priced in a manner that balances costs and profitability with the economic circumstances of customers.

- PureMadi's goal as a nonprofit is to design, develop, and manufacture watertreatment technologies that are effective, simple, and affordable and that fit the lifestyle requirements of people and communities throughout the world.
- PureMadi uses local labor and resources for all filter production and distribution.
- PureMadi products are manufactured, packaged, and distributed in a manner that minimizes environmental impact and maximizes economic impact, without significantly and adversely affecting costs and affordability.



"Madi" translates to "water" in the Tshivenda language common to the Venda region of South Africa, where our work originated. As a result, we determined that the name most fitting to our mission and South African roots was "Pure Water."

Mission Statement

The mission of PureMadi is to prevent waterborne disease through educating, training, and empowering resource-limited communities to produce and distribute an innovative point-of-use water technology.

About us

PureMadi is a 501(c)3 nonprofit organization operating under the auspices of the University of Virginia Fund. It was formally established in 2011 by an interdisciplinary collaboration of students and professors at the University of Virginia (UVA). PureMadi operates two ceramic water filter facilities in South Africa working to educate people about the global water crisis, collaborating with locals, and empowering people to bring solutions to their own communities. The facilities employ local South Africans to produce and distribute ceramic water filters. In 2012, PureMadi partnered with UVA, the University of Venda (UniVen) in Thohoyandou, South Africa, and Rotary International to open its first facility in Limpopo, South Africa. In 2015, PureMadi established a second facility in partnership with Khulisa Social Solutions, a South African NGO, in Gauteng, South Africa.





In response to the global health crisis concerning clean water, PureMadi designed an inexpensive point-of-use water filter with the potential to help millions of people throughout the world purify their drinking water, and thus prevent water-quality related disease and death.

The PureMadi ceramic water filter is a point-of-use water treatment technology. This means the filtration process takes place in the home, close to the point of consumption, thereby reducing the risks of contamination during storage and minimizing the time spent seeking out clean water sources. We sell the ceramic filter along with a lower receptacle that stores and dispenses the purified water. The filter sits within the lower receptacle, which allows the water that passes through the ceramic to be safely stored at the bottom of the receptacle and out of reach of recontamination. The lower receptacle has a spigot so users can easily access their clean water as needed.

The filter effectively cleans water in two ways: filtration and disinfection. Physical filtration occurs when the water passes through small pores in the ceramic, which block bacteria and particles. Natural chemical disinfection occurs when the water passes through the filter and has contact with the applied silver technology. The combined purification techniques result in 99% bacterial removal from the water.

1.8 billion

Despite the availability of various water-treatment products, approximately 1.8 billion people drink water that is contaminated with waterborne pathogens. Consumption of unsafe water results in 1.2 billion cases of illness and 2.2 million deaths per year.

OUR ACHIEVEMENTS AT A GLANCE



3,000 filters distributed



15,000 people impacted with clean water



children received water & hygiene education



jobs created in two communities



500 volunteers and supporters engaged

SUCCESS TO DATE

- From 2010 2015 PureMadi received grants from UVA's JPC Program that has supported students from UVA and UniVen to collaborate on research. Students traveled to South Africa and conducted research on water treatment technologies and human health.
- In 2010 PureMadi was awarded the Deepening Global Education Grant for \$50,000 that helped pay for materials to construct the Mukondeni Filter Facility in Limpopo, South Africa.
- PureMadi has received grants and mentorship from UVA's Center for Global Health that has supported students' travel to South Africa since 2011.
- In 2012 PureMadi received first place in the \$20,000 National Walmart Better Living Business Plan Challenge that allowed us to continue construction of the Mukondeni Facility.
- In 2012, UVA alumnus Rachel Schmidt received a Fulbright Scholarship to spend nine months in South Africa. Rachel worked closely with the potters at Mukondeni, UniVen faculty and students, and local government to test, develop, market, and sell ceramic water filters.
- In 2013, PureMadi was awarded a \$38,000 grant from the Rockingham County Rotary Club, the Kernersville, North Carolina Rotary Club, the Louis Trichardt (South Africa) Rotary Club, and Rotary International. The grant has provided funding for an order of 1,100 filters to be produced and distributed as well as the facility improvements and training of the potters at the Mukondeni Filter Factory. This filter order has allowed PureMadi to provide the potters at the Mukondeni Cooperative with filters and to donate filters to the villages where we have conducted health studies: Tshaphasha, Tshibvumo, and Mashamba. As part of this filter order, PureMadi placed filters in every classroom of the Tshibvumo Primary School system and has coupled water, sanitation, and health education with the filter introduction.
- The Mukondeni Filter Facility is fully operational with ten employees that have produced over 2,000 filters to provide clean water to 10,000 people.
- University of Virginia Innovations selected PureMadi to be the first-ever project for support through a novel Crowd-Funding platform in 2013. During the campaign, 89 supporters donated over \$11,000 to help us fund our second filter facility.
- In 2015, PureMadi broke ground on our second filter facility in Dertig in collaboration with Khulisa Social Solutions. Four employees are currently being trained on filter manufacturing.
- In 2016, PureMadi received funding from the Community Based Undergraduate Research Grants program at UVA that supported a student team to travel to South Africa and work with both facilities for eight weeks.
- PureMadi received a \$50,000 donation from the Sara Sneed Charitable Trust to "provide help to children in Africa" in 2016.
- PureMadi has held an annual fundraiser in Charlottesville, Virginia since 2012 and cumulatively raised \$142,000.



Celebrating Ten Years of Clean Water!

While PureMadi was officially founded in 2011, 2019 marks the tenth year of our team's dedication to fulfilling its mission of empowering communities to sustainably provide potable water at the point of use. The timeline on the following pages provides a summary of our organizational development.

CELEBRATING 10 YEARS OF CLEAN WATER!

2009

The first team of University of Virginia (USA) and University of Venda (South Africa) students and faculty conducted baseline community assessments including a complete census, water quality testing, and GIS mapping of water sources, sanitation facilities, and households. Univen faculty members from nursing, public health, microbiology, hydrology, GIS, and planning have been and remain engaged in these efforts. The outcome from the first research projects highlighted that the community's priority was access to a greater supply of water (1).



2010

We conducted surveys in the villages of Tshapasha and Tshibvumo to find out if ceramic water filters were the correct point-of-use water purification technology for the area, and if such technology was needed.



2011

PureMadi was officially named; we broke ground on the Mukondeni Filter Factory in Mashamba, South Africa in conjunction with the Mukondeni Pottery Cooperative.

2012

We focused on perfecting the manufacturing process and on training the potters to create filters that met our quality standards. Our first long-term on-ground presence was Rachel Schmidt, who spent 9 months in Mashamba as part of a Fulbright Fellowship.

2013

We reorganized PureMadi to align with our business outlook by creating a Board of Directors and appointing Officers. We received final approval on a grant from Rotary International and delivered our first shipment of filters to the villages of Tshapasha and Tshibvumo.



2014

We hired Boas Thangoane as our Mukondeni Filter Factory Liaison. We also saw signed a memorandum of understanding with Khulisa Social Solutions as our partner for our second filter facility in Dertig.

2015

We broke ground on our second filter production facility in Dertig, South Africa.



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2016

The Mukondeni Filter Factory continued to produce filters that meet our quality standards and has recently started shipping filters to other areas of the country. We hired a Facility Manager, Nkosi Ndebele, in Dertig and finished construction on our second facility.

2017

Partnerships with local primary and secondary schools were established to educate students on the importance of clean water for human health.

2018

The Dertig facility staff was significantly expanded and formalized; Mofahloshi Chuene was hired to spearhead PureMadi's on-site marketing and sales presence.







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The filter effectively cleans water in two ways: filtration and disinfection. Physical filtration occurs when the water passes through small pores in the ceramic, which block bacteria and particles. Natural chemical disinfection occurs when the water passes through the filter and has contact with the applied silver technology.

99%

The combined purification techniques result in 99% bacterial removal from the water.



Low cost, high benefit

In the field and in the laboratory, we have demonstrated that this technology is highly effective at purifying water and the filters are socially acceptable to developing-world communities. In some of our most recent work, we have shown that the filters significantly improve the health outcomes of human populations using the filters relative to groups who only drink untreated water. Reducing time under illness is not only conducive to familial happiness but is also a valuable economic asset.

Locally sourced and made

Raw materials for the ceramic filters include clay, sawdust, water, and aqueous silver. Clay and sawdust are locally sourced which ameliorates much of the bulk cost of the filter material while stimulating the local economy. Filtermakers at both our facilities are also active community members who are devoted to making PureMadi a thriving and integrated part of the local environment.

Ultimately, filter creation methods require primarily low-cost, local materials (clay, water, sawdust) which are readily available. Additionally, local labor fuels the filter manufacturing process, which empowers local communities and helps to minimize filter production costs and pricing to end users.



Features and benefits of the filter at a glance:



provides **disinfection**for a wide range of
waterborne
pathogens and
removes turbidity



improves health of treated water recipients



effectively provides safe drinking water for a family of five for **2-3 years**



reduces
energy/materials
required for
alternative
purification options



does not alter taste or smell of the drinking water





PureMadi currently operates filter production facilities in Ha-Mashamba and Dertig, South Africa. Both facilities are locally staffed and have independent managers who lead active communication between their respective sites and the PureMadi board (see map and additional information below):



Map data ©2018 AfriGIS (Pty) Ltd, Google

FACILITIES & PEOPLE



Mukondeni

Manager: Boas Thangoane
The Mukendoni Filter Factor

The Mukondeni Filter Factory is located in Ha-Mashamba, Limpopo Province, South Africa. Like much of rural South Africa, Limpopo Province faces "quadruple" health challenges related to the crippling burden of HIV/AIDS; other infectious and nutritional diseases; non-communicable diseases; and injury-related conditions. It is a predominantly agricultural province, which suffers from the highest rates of poverty (34%) in the Republic of South Africa and reports the lowest rates of accessible drinking water (44%).



Manager Boas Thangoane can be contacted at boaspuremadi@gmail.com.



Dertig

Manager: Nkosi Ndebele

The Dertig Facility, near the larger city of Dertig, is up and running! Manager Nkosi Ndebele is working on fine-tuning our filter recipe to produce the optimal flow rates in the filters. The Dertig Facility has become a community fixture and many people from the area are excited to be involved in filter production as well as tending to the garden that was planted last year. We continue to work with our community partner Khulisa Social Solutions and are looking to grow our sales in the next year.



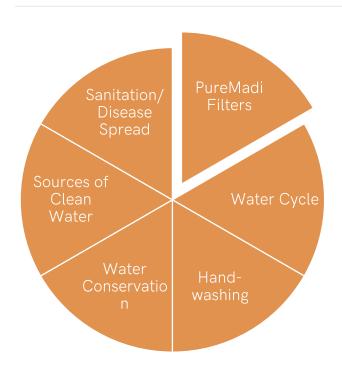
Manager Nkosi Ndebele can be contacted at nkosinobubelondebele@live.com.





A significant driver in resource limited communities is cultural and social acceptability. Frequently, new technologies will not "catch on" in a small community until a cultural or social leader endorses the technology.

A foundational part of PureMadi's role in such communities is therefore to distribute knowledge of waterborne illness and potential treatment options alongside the filter technology itself.



Educational outreach began in 2017 when we taught 2-3 lessons to the "learners" (students) in grades 3-7 at the primary school nearest the facility. Our goal with the designed curriculum was to use a series of 6 lessons to teach the fundamentals of water sanitation. We taught the six topics to the left.

At the end of our lessons, two filters were donated to each classroom, for a total of 16 filters.

The summer team's time spent at the school and water filter facility culminated with a Community Water Day. Important community figures, such as the principal of the school, teachers, and the local pastor were present. Ultimately, education empowers PureMadi to compete with the "do nothing" option in public health outreach campaigns.







PureMadi is fully committed to the **transformative effects** of **women's empowerment** on local communities.

The majority of the staff at our facilities are women who manage, produce, and distribute the ceramic water filters to their respective communities.



Broadly, PureMadi partners with local organizations to develop 1) produce facilities and employ local laborers to:

- 1) filters and
- 2) provide economic stimulus to the community.





Not only are they dedicated to the creation and dissemination of ceramic water filters, but they are also passionate about teaching their communities about health and sanitation related to water.

PureMadi is proud of the women who have literally helped build the organization's South African presence from the ground up.

Women are at the core of our organization and the heart of our mission.



TESTIMONIALS of WOMEN

Water Filter Owner

Miss Rakgogo is a community member from Lefatleng Village, North West Province of South Africa. Before her family bought a PureMadi ceramic water filter, they consumed unpurified water that they stored in buckets, as they do not have a continuous supply of tap water due to water rationing in the area. Her family now drinks water from a ceramic water and she likes the water filter because it is user friendly for the whole family. Her family has never suffered from water borne illnesses ever since using the water filter.





PureMadi Worker

Margaret Rahlibe is a 74 year old PureMadi worker who enjoys making water filters for communities that lack clean drinking water. She especially loves operating the filter press, which molds the shape of the water filter. Margaret started working for PureMadi in 2016 and asserts that working at the filter facility helps her keep fit as most of her age mates usually stay idle at home and are prone to many diseases.

Student

Karabo Makama is a Grade 5 learner at Tlaloganyo Primary School. She is very grateful because PureMadi gave her a beautiful blue drinking cup and all her classmates now drink filtered water from a ceramic water filter!





School Teacher

Mrs. Tsoku is a Grade 1 teacher at Tlaloganyo Primary School in Dertig, North West Province. The Dertig area is affected by water shortages and the school uses borehole water as their main source of water. Because the water is unpurified, some of the students have suffered from acute water borne illnesses such as diarrhea. In 2017, PureMadi donated ceramic water filters and drinking cups for each class in the school. All the students were taught about the importance of clean water and good sanitation. Thereafter, the students have been drinking clean water and are now aware of the importance of good hygiene practices.



A filter facility can become a sustainable business venture that provides economic stimulus to the local community. Our goal is to create a blueprint for a successful facility, including its architecture, efficiency of water and energy use, technological performance of the filter itself, and an effective and sustainable business model.

Preventable waterborne diseases wreak havoc on communities by causing death, widespread infection, and cognitive and physical impairment among the young. This is a staggering waste of human potential. PureMadi hopes that our facilities and filters can improve the health and socio-economic opportunities in communities. Each facility provides numerous jobs which has a significant impact on the community, not only for the individual and his/her family but for the economic health of the town as well.



Our hope is that the jobs and subsequent clean water will have a ripple effect within the community.

Having a consistent supply of clean water will improve cognitive and physical development in children allowing them to attend and perform better in school, creating previously unreachable opportunities. Providing distribution, construction, and facility jobs allows more members of the community to work locally rather than travel to larger cities seeking work. We are trying to incubate micro-businesses and will provide the initial capital and act as the safety net while the filter facility starts up. Ultimately, these factories will be sustainable on their own.









PureMadi teams up with various partners to ensure that community remains at our core.

Khulisa Social Solutions, one of PureMadi's partners, continues to provide invaluable assistance with onground support to our Dertig facility. Khulisa's intention is to influence business practices, build corporate business and philanthropic relationships and develop earned-income ventures.

Khulisa helped PureMadi develop community relationships at the Dertig facility site as well as aid in marketing and promotion. Mr. Zain Halle has been invaluable in helping to establish community ties in Dertig. Mr. Halle began volunteering with Khulisa in 2007 while completing his degree in Psychology and Criminology. In 2008, he began working for Khulisa full time from Dertig.



THE PUREMADI PLAN...

PureMadi has identified several methods of expansion, both at our existing facilities as well as throughout South Africa and in other countries in Africa. We envision two main opportunities for growth in the near term:



Increasing production capacity at existing facilities

Increasing production capacity at one or both of PureMadi's existing facilities is a relatively **low-risk method of expansion**. This method would allow us to leverage the investment we already made in our existing factories, both in human capital and infrastructure.

Currently, the kiln is the primary limiting factor for increased filter production. Therefore, adding a second kiln to the Dertig facility would allow for our filter production to potentially double. The facility has the space and electrical capacity to support the addition of a second kiln. PureMadi could then take advantage of economies of scale for our bulk purchase items (e.g buckets, spigots, packaging, etc.). Additionally, adding another kiln would allow PureMadi to hire more people from the local Dertig community, providing additional economic stimulus to the area.

The need for filters in the Dertig and surrounding communities is larger than we can supply at the moment. As a result, there would be a market for our increased production. It would also allow PureMadi to explore shipping filters to further areas of need as we gradually satisfy the local demand. Additionally, Khulisa pledged to aid PureMadi in marketing the filter to surrounding stakeholders. Ultimately, we are confident that we will be able to identify the market for our increased production at our existing facilities if we were to choose this method of expansion.



2 Establishing additional facilities in other regions/countries

Establishing additional filter facilities in new areas is another feasible method of expansion that PureMadi is considering for the future. PureMadi plans to break ground on its third facility in the summer of 2021. While this strategy would require greater capital expenditure and risk, it also provides a greater opportunity to reach entirely new markets with the need for an affordable water purification technology.

PureMadi could also leverage our experience establishing previous factories as well as our partnership with Khulisa Social Solutions when creating a new facility. Khulisa has been an invaluable community partner in the Gauteng Province. Moving forward, Khulisa has a presence in seven of the nine South African Provinces. We plan to work with Khulisa to identify the next area in South Africa with the greatest need and the greatest potential for a thriving community partnership to open our third facility. Khulisa would help us manage any cultural differences and navigate communications with local authorities.

In the long-term, PureMadi's goal is to open five facilities throughout South Africa prior to expanding to a new country. PureMadi will then have a more established and recognizable brand that will aid us when making the leap to a completely new culture and geography. We will not only have more technical experience, but we'll also have increased funding sources: filter sales from existing facilities as well as a larger donor base. Similar to our strategy in South Africa, PureMadi will seek out a reliable partner in the target country who will help us understand the nuances of the new location (e.g. culturally, geographically, demographically).

Ways to Contribute

1 Spread the word!

Find us on social media **@puremadi** - each like, comment, share or follow helps us raise awareness about the global water crisis and ultimately helps us have a greater impact in the communities we are working with!

Attend our
Charlottesville
fundraiser!

PureMadi has held an annual fundraiser in Charlottesville for the last 7 years. Several sponsors help make the night a success, including the Alumni Association, UVA catering, and local entertainment. The fundraiser includes a silent auction with items donated by local vendors and individuals. We have had growing success and the fundraiser has proven to be a popular community outreach effort as well.

3 Donate

As always, online donations are welcomed and appreciated via our website at http://www.puremadi.org/donate/. Donations are also appreciated by check payable to PureMadi and mailed to UVA Fund, PO Box 400314, Charlottesville, VA 22904. Receipt of donation is always provided.

Your donation will help provide clean water and create new jobs for people in need!

4 Give a gift

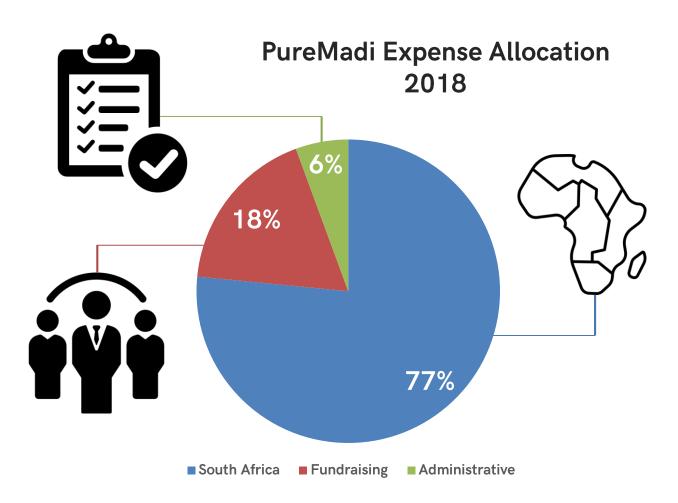
Make a donation in honor of someone you care about that will have a lasting impact on a community in need. Holiday cards that can be sent to family and friends can be found on the donate page of our website.



FINANCIAL SNAPSHOT

Donations received in 2018





THANK YOU TO OUR DONORS & SPONSORS







Since day one, donors have played a pivotal role in PureMadi's growth and ability to pursue our mission of spreading access to clean water globally.

While PureMadi donors come in all shapes and sizes and from varying backgrounds, they all share a common passion for pure water. PureMadi is grateful for all of our supporters over the years, especially those who joined us at the beginning of our journey in South Africa.

Since PureMadi's inception, we have sought a variety of fundraising opportunities. Thanks to the enthusiasm of our donor network, PureMadi has raised over \$100,000 over the years! Without our annual fundraising celebration, Giving Tuesday, and our generous partners, PureMadi would not be where we are today.

Easily our largest and most engaging fundraising event of the year, our PureMadi annual celebrations provide an opportunity for us to share organization updates as well as introduce South African PureMadi members to our American donor base. There are countless individuals and groups that contribute to the success of the event, many of whom return each year. We would be remiss not to share a special thanks for the continued support of Virginia Catering Company, Hoos in Treble, 180, and the Junior League of Charlottesville for providing services for our celebration year after year. PureMadi also thanks the dozens of local Charlottesville businesses who donate items and services to our silent auction annually.

Additionally, PureMadi recognizes the following sponsors of our PureMadi 7 celebration:

Madi Level (\$5,000 or more)

Susan Wells Sargeant Pamela and Peter Kelly UVa School of Engineering and Applied Sciences

Silver Level (\$2,500-\$4,999)

UVa Curry School of Education

Copper Level (\$1,000-\$2,499)

John and Katherine Nelson
Jim and Gail Smith
UVa School of Nursing
UVa Civil and Environmental Engineering
UVa Department of Systems and Information Engineering

Ceramic Level (\$500-\$999)

Michael and Lynette Gallagher
Jim and Sherry Lambert
Scott and Randi Marshall
UVa Department of Chemical Engineering
Dr. Rebecca Dillingham and Mr. Colin Learmonth



PureMadi raised approximately \$4,000 during Giving Tuesday 2018 from dozens of donors across the country and globe. Thanks to everyone who has welcomed PureMadi into their Thanksgiving and Giving Tuesday traditions!

Lastly, PureMadi's partners continue to leave a lasting impact as they contribute technical, cultural, and financial support to our organization. The creation of the filter facilities was built upon a strong relationship between the University of Virginia (UVA), the University of Venda (UNIVEN), Rotary International, Mukondeni Cooperative, Khulisa Social Solutions, Cocokind, PureMadi, and rural communities in S. Africa. PureMadi thanks each of our partners for their collaborative efforts towards our mission.











