

SSAAP Quarterly Newsletter, Edition XXXIV

Fall 2021, Zambia



To Barb and all of the Womyn of We'Moon; Thank you for making art a daily part of our African existence. Thank you for promoting women, artists, equality, justice, democracy, liberty, creativity, and for splashing color onto the canvas of our lives. Thank you for the best sustainable partnership SSAAP has ever had; here's to many more moons together of Love, sisterhood, and partnership.



"What seems impossible is not always really so." ~ M. K. Gandhi



Most people are so curious, and ask me repeatedly: “What do you do for light, electricity, computer or internet? What about water?”

Let me share all my secrets with you now... 😊

Solar Panel – SSAAP Headquarters, Zambia



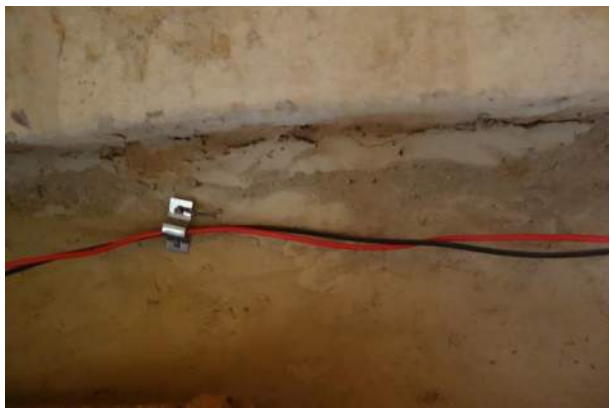
Behold our state-of-the-art solar panel and the little tower that supports it, made from cement and bricks, locally. It is situated just outside our front door.



The black and red (positive and negative) wires from the solar panel balance on a tall pole, above, before they weave into the house through one of the front house windows.



The wires enter our home through the window, and weave through the surface of the wall.



This device ensures that the power from the sun hitting the solar panel doesn't overcharge the battery thus ruining it.





Here is the battery that charges the laptop, and the inverter and the sockets we use to plug in the laptop.



My desk (left), made out of brick and cement and a cement slab on the top; Radiance's desk (right) made out of wood. And so this is how we email you from the village!



These small solar panels charge my mobile phone, and the lights we hang around our house at night.

It is so nice to rely on the sun. I have always said that Africa should get smart and utilize its most abundant resource – the sun! In some areas, such as Sierra Leone, the sun is so strong near to the equator that it is almost sickening to be outside during the daytime. Electricity generated, for example, by Zambia’s Victoria Falls, is so abundant that Zambia sells most of its electricity to our neighboring countries, leaving urban Zambia, for some months of the year, without electricity for eight hours a day. If that is not corruption, then corruption does not exist. Try working at your computer and the light and internet shuts off and won’t be back on for another eight hours – in the middle of an email or a report or a thought. Try being a storekeeper and selling meats and cheeses and other perishable goods in a deep-freeze that loses electricity for eight hours and what that means for your business. Needless to say, I am thrilled to have a solar-generated system that relies on the sun and on me – not on anything corrupt. This whole system costs approximately \$300. I should have invested in this years ago, and thanks to our SSAAP supporter who has funded this project, now this system is part of our lives here.

Simple is good! Simple is difficult, but simple – in the end, helps us to appreciate all the small details in life.

Water – SSAAP Headquarters, Zambia



Our water well, above, located about 20 minutes walking distance from our house. The local language, *cikuj*, literally means: ‘thing to pump’. Below: Water Women! Children are expected to take water for the family household, and although traditionally this was regarded as women’s and girls’ work, these days I see just as many boys and men fetching water as women. Things are changing – even here in Africa! And certainly on my compound, whereby people who fetch water as part of their 25% Community Contribution, are men and women alike: no gender discrimination.



We hand-water our garden after the water is filled into large-size 'drums' (grey, above) and small household containers.



Many have asked me: *“How do you do it? How have you learned to live this way – without running water?”* The answer is simple: *“Because Radiance has grown up this way and is used to it. Because I have lived so many years this way that I am used to it. Because the human spirit is resilient and gets used to almost anything, I am convinced.”* Both Nelson Mandela and Mohandas Gandhi became accomplished writers in their jail cells; Marie Queen of Scots spent nineteen years in imprisonment in five different castles in England: Carlisle Castle, Bolton Castle, Tutbury Castle, Sheffield Castle, and Fotheringay Castle; the human spirit doesn't know its limits until it is put in less-than-comfortable positions ~ sometimes we can even exceed the capacity of how well we know ourselves.

So comfortable with this life am I that it is difficult to adjust back to permanent life *with* running water. In October 2014, my first few days back in Colorado, U.S.A. at my mother's home, I was hand-washing an African cloth (*'chitenge'*) and accidentally left the water running, flooding her basement and having to pay \$500 to have the damaged wooden floorboards repaired. So used to dirt and cement beneath my feet am I, that the feeling of carpet beneath them is unusual. When Edwin “Buzz” Aldrin, Michael Collins and Neil Armstrong came back from their journey to the moon on July 20, 1969, they reportedly seemed disoriented, aloof, almost depressed. The more I research their 'back-to-Earth' experience, the more persuaded I feel that the distances in time, space, and orientation between Africa and the United States of America parallel that of the moon and Earth. Whenever I come back to the States, like Collins, Armstrong, and Aldrin, I often feel disoriented – not only from jetlag, but also from the change of energetic frequencies, although subtle, between both *zones* of the planet. Africa... is a different universe from U.S.A., and in my mind – however much to my dismay –the two worlds meet do not meet. I have spent this lifetime attempting to connect them.

And as for SSAAP-Sierra Leone, I have exciting news. When we return to Sierra Leone in 2022, we have resources for 22 wells. One of my life's dreams is to put a water well in every village in Sierra Leone. It is more or less a statement, a testament, to how much I Love that country ~ it gave me the most precious thing in my life, my child. Sierra Leone is another one of our homes on the planet, and a place which receives an abundance of our undying loyalty.

Siachija Village Well



We will be drilling more SSAAP-Zambia 2021 water wells in the weeks to come in September 2021; for the purposes of this newsletter, I wanted to include the drilling of one well only. Meet John and Vinegar: our contacts for Siachija Village Well in 2021.

They applied for the well on behalf of their community in 2014/2015, so needless to say, their patience has proven bountiful. ☺ In Africa, people are blessed with endless *patience*. I have always appreciated this quality in them.

John and Vinegar live near to one of the main (unpaved and horribly-bumpy) roads that run through Simwatachela Chiefdom. Most of the children fetch water in the rainy season via potholes in the road, and in the dry season, they walk 16 km to the nearest borehole.

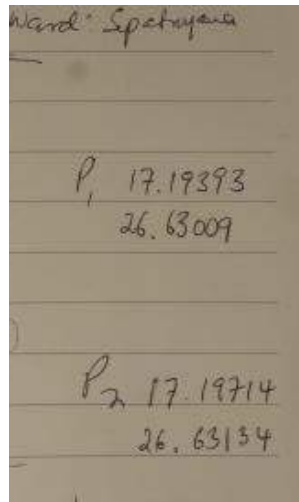
So no wonder they are desperate for this well!



It doesn't get much worse than this if your drinking water comes from potholes on a road. I have lived here 17+ years and some things never fail to stun me, the toxicity of poverty.

Many, many people's source of water during the rainy season are the potholes on the Simwatachela Road.

Well-Siting Report for Siachija Village



Likumbi had found two points that he believes will provide water at this site (see above, P1 and P2 for the points), as well as a large concentration of quartz which indicates the presence of water. Quartz is more or less a stone that is formed, just like amethyst, when there is a break in the granite layers of rock. Granite, if you recall, is the enemy of water. Where you find granite outcroppings, you generally do not find water.

JAMES SIKAFUMPA
SIACHIJA VILLAGE
WARD: SPATUYANA

ab/z	P ₁	P ₂
10	316.24	429.48
15	191.92	98.42
20	69.93	18.29
25	28.15	10.48
30	16.73	65.67
35	13.46	8.14
40	11.17	73.67
45	7.82	65.76
50	10.26	110.88
55	5.55	136.26
60	8.77	117.48
65	24.91	309.52
70	18.35	251.54
75	27.89	408.50
80	16.34	203.80
85	36.42	223.33

Likumbi feels that Point #2 will yield a better borehole than Point #1, so when we begin the drilling, we will begin with Point #2.

Drilling Siachija Village Well, June 11, 2021



We all squashed in the front of the drill rig for the Siachija hole: 5 workers, 1 driver, Likumbi (SSAAP's driller) and I.



My daughter, Radiance, couldn't come along for the drilling – which we were both sad about, as she likes to do field work and I like her to learn as much as possible from it! But there was no room in the front of the drill rig to carry her. She was quite distraught when I told her I would have to leave her behind at Likumbi's house in Choma town. She was already dressed in her 'field uniform' – as you can see, we both wear similar 'twins' shirts when we drill wells or go to the field to install hand-pumps: black and white checked shirts.



The drill rig has a panel inside which lights up as you drive!



The road to Siachija Village – although picturesque, is very bumpy and difficult to traverse. This is the same Simwatachela Road that leads up to our home, approximately 45 km after Siachija Village, then 30 km after our home, the road leads to amethyst mines called *Mapatizya Mines*.



We crossed two very precarious villages on the way to Siachija Village! The drill rig is incredibly heavy, so the driver had to be very careful.



The drill rig pulled into point B (Likumbi sited two areas for each site, then chooses the better of the two points based on the numbers from his tests, so the rig pulled into second point for Siachija Village). John, our contact for Siachija Village, comes out of the bush to welcome us.

John originally applied to SSAAP for this well in 2014! So it has been long-awaited. He is nearly shaking with joy as the drill rig begins its assembly for drilling, first by pulling the long blue PVC pipes from the rig and putting them onto the ground, for casing the Siachija hole after it is drilled.



The community crowd begins to gather as the drill bit first hits the ground.



Our driller, Likumbi, sits on his shovel, stressed (on the following page). He drills to 50 meters and then decides to wait for 10 minutes, for the earth to breathe, as he says there is too much air inside the hole.

He prays before each drilling, asking for success for each community's water source, of which he feels fully responsible if not succeeding.

Sometimes I ask him about certain trees – whether or not they indicate the presence of a sustainable water source in the area. He shakes his head, patting me on the back: “You are the one who is fascinated by the trees; I am the geologist ~ I look at stones and can sense the presence of water based upon the rocks.”



I have a very tangible, almost intuitive or otherworldly, connection to Likumbi. He understands me – what I am trying to do through SSAAP to help people in rural communities, why SSAAP demands community contribution for all projects, and how difficult the pressures of providing water sources to communities can be, on a plethora of levels: scientifically, socially; something of such high demand, which is such a life-or-death situation, isn't going to be easy. And this is the work we are both doing in rural Zambia. It is so comforting to have someone I can trust to work alongside on such a momentous task.

So together, he and I have taken this on; we share stories, compare notes, give each other advice. I cannot imagine what life was like in Zambia before I knew him and could rely on him to help SSAAP with our water wells.

He is one of the best friends I ever had, and from a project perspective – one of the greatest gifts SSAAP has ever received. I had been asking for him to be sent to SSAAP for a long time, I think.



Every 5 metres is indicated by a different pile of dirt. As shown above, we began at topsoil level (left). Then, proceeding to the right: mica schist, quartz, wet schist, wet schist, granite, granite, mica schist, quartz, quartz, quartz. This is the first 50 metres for this hole. Please see the various colours in the photos below, detailed with each pile of earth.



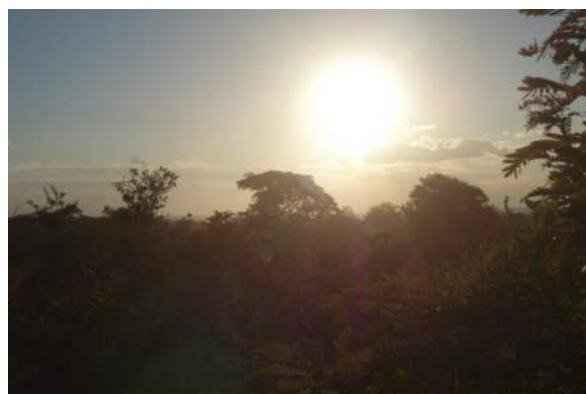
Likumbi tells me he feels *very* satisfied with this hole, as the variation between soils: mica schist, quartz, granite, then back to mica schist and quartz again, indicates a very deep aquifer of water. He says that typically of most holes, the bottom layer will be granite. It is infinitely better, he teaches me, that a hole have its base in a different stone such as quartz or mica schist than granite – although atypical – it guarantees longevity of a water vein in the earth.



Siachija Village is surrounded in quartz. I sat in a quartz bed while we were drilling this hole! Quartz everywhere, and all over the ground: crystal quartz, rose quartz – stunning. ☺



We continue to drill into the sunset, the last 20 meters. The Siachija Village well will be approximately 70 meters deep.



The community (which is my area of expertise, whereby Likumbi's is the drilling) begins to get anxious, believing there is no water at this point. It is my job to try to heighten their confidence, reassuring them that Likumbi wouldn't keep drilling and wasting fuel if he didn't believe in finding a good amount of water at this point!



The last 20 meters are critical; if the water comes, then it will be plenty. We all wait in anticipation as the dirt turns darker, and the sound of the drill bit becomes harsher as it drills through hard quartz rock.

I have a little saying that is waiting for water at a site is like waiting, watching a child be birthed. Everyone just holds his/her breath! And surrender all control to something much more powerful than are we ourselves.



My role is always with the community, or I should say on community development; therefore, the human aspect of the work is my concentration point. Below, Likumbi, John and I. John is noticeably tense that there isn't water pouring from the borehole yet, and Likumbi and I continue to reassure him that water spraying out of a hole isn't always an indication of its ability to provide water for a community. *Sometimes less is more when you are drilling, Likumbi always says to me, the holes that show less water as you drill are usually the ones that end up yielding more water after you are finished drilling.*



The sun is setting as we hit water...



... and we are all pleasantly surprised to see that the dirt that begins to come up from the hole is wet!



Likumbi instructs the workers to begin casing the hole with blue PVC casement pipe, before the sun sets. He says it is a very good hole, and if he didn't believe so he wouldn't be using expensive PVC pipe to case it! Once PVC is in the ground, there is no getting it back out: it becomes brittle from the earth over time.



Now it's just a race against the sun – and the sun will always win.



This man is cutting 3-4 small slits in each PVC pipe. Essentially, through cutting slits in the PVC pipe, and then pouring gravel around the pipes once all the PVC pipes are lowered into the hole, this ensures that the water extracted from the hole is 100% purified.



Eleven and a half PVC pipes are used to case the Siachija Village borehole.



Above left: the community is thrilled that they will now have water; above right, John [right] with the Headman ('Sibbuku') of Siachija Village [center] and the Headman's wife [left].





Casing the hole: one blue PVC pipe is lowered into the ground after the next, so that they connect (but are not glued together) thus that the hole is fully 'lined' with PVC pipe, so that it won't cave in.



The blue PVC's are lowered into the ground using the same crane that lifts them from the ground, then drops them into the hole.







For the Gravel Filtration System, gravel (approximately 5-6 bags of gravel per hole) is poured into the hole, between the hole itself and the outside circumference of the PVC pipes, to act as an earthen filtration system, guaranteeing clean drinking water for the people of Siachija Village.



After finishing, the PVC pipe is cut and the sealed shut using fire. Now the hole is ready for a hand-pump. Likumbi likes to wait 2 weeks < x < 2 months to put the hand-pump on the hole after drilling – the logic behind this being that the earth needs to settle before affixing the hand-pump.





A delicious meal awaits us, cooked by Vinegar (John's wife).

Likumbi's Team of exhausted drillers.



We got back to Likumbi's house in Choma town around 23:00 that night, where I found my daughter waiting for me in her pajamas, ecstatic I was home. She hates missing project work.



SSAAP Irrigation Project and Plantation Project – Site B: “Bermuda”; Site C: “Satori”

Introduction and Explanation of Site B: I want to do a project entirely unparalleled to another ~ coming from my heart, mind, and hands fused together; I have a vision of helping people get water and food and to try to heal the ache on the planet for those without human essentials. There will always be masses of people starving, as this is a reflection of the imbalances that exist within our collective humanity. I am not unrealistic in my efforts. But I know I can help, and even if I can't help everyone, let me aim to help as many people as I can. That is the goal. I know that the next phase of my project is with **food**. We have worked with water; now let SSAAP work with food.

Food and water are both the two most material and two most spiritual things that exist to a human being. Food and water are part of our bodies, minds, and spirits. They are the most precious commodities there are in this life. If you have money but no food, you cannot survive; if you have food but no money, you can survive. Food is unparalleled to any resource on the planet in terms of its value and importance, excepting water.

I have a vision that true development happens with the fusion of the worlds: Africa and U.S.A. They are different worlds – but if you put them together, you strike two matches, and you get Light. With the great minds and hands-on approach of the rural African people, fused with my never-tiring energy, I know we can grow – *we will grow!*

My benefit in this work is not material, and it never will be. I made that choice when I was 28 years old, when I began this project. I knew it would never make me rich materially, but abundant in other ways. Now that I am age 41, I see that my benefit is precisely within theirs: *the African people*. They are the reason we have come here, they are the reason we are here, they are the reason keeping us here. *The African people*: the people we stay with, the people who have taught me to go to the depths – where they exist - , the people who have kept me alive here: these are the people of Africa, and the spirit of Africa. The energy of Africa ~ which is also the energy of celestial Earth in its rawest and purest form, has saved me, taught me, grown me, thus my life is the compilation of an offering back to it. In the Universe, we cannot take without receiving; we cannot receive without giving. My greatest offering to the planet is my whole self, holy wholly healed. Thus, if the people SSAAP serves benefit, so do I. Their success is my success. Their success is SSAAP's success. I will never advance, SSAAP will never advance, if the people themselves do not.

We are so interconnected that this is the only way it can be. That is the intangible and Love-based element to the work SSAAP is doing here, on this continent. If the people prosper, then so do we. We cannot grow unless they do.

The Irrigation Project is the sum of my life's work here in Africa ~ I think everything I have done here in Africa for the last 17 years has been to reach this point. *I want to irrigate fields so that*

people can grow food and not be hungry anymore. This is the direction I want my energy, my purpose, my brainpower, my intellect and my heart to funnel into: helping people have more food.

In our Environmental Studies class in high school, I had a teacher I adored. I recall so much of his wisdom, from when I was 17 years old. He used to teach with his foot on a tree stump and he said, once, to our class: “If you are flowing through life and not fighting its current than you never have to make a decision about anything. Life decides for you, if you flow with it. If you surrender to life, it will take care of you. Then one day will come where you reach a point that everything you had done in your life leading up to this day was meant for this day, and the river bends, and you simply flow in one direction – like a stream, without ever even having to make a decision. Be a river, and you will flow.”

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Logistics of Site-B: I have three meetings scheduled with two chiefs and contact people who know the Chiefs. I am expanding SSAAP into another chiefdom; I am not abandoning our first project site in Simwatachela, but rather – SSAAP needs to expand. There is a need to share the abundant resources of the project with other well-deserving people.

Together with my daughter, Radiance, we are going to choose the chief that resonates best, because a good, proactive Chief in Africa is everything. And then we are setting up a simple irrigation system. Not a fancy, expensive drip irrigation such that the commercial farmers in Africa use for their cash crops, but rather a simple system that – if broken down, then even my elementary understanding of how the system works I can repair.

I have been planning this project and its process in my mind for the last half of a decade. The water well, we say *cikuju* in our local language, is the centerpiece of the whole orchestra; from it, there is a pump that operates using the sun, and it pumps water into a large tank – 5000 liters. That water is enough to irrigate a whole field. The water coming from the center water well must pump 0.5 liters per second in order to make the entire system work.

What I want is to have a Chief secure land: $10 < x < 50$ hectares, as neutral land specifically for the project and its beneficiaries, and use the land to grow both produce gardens and crops so that the people not only have more food variety, but also a sustainable, secure and reliable resource of food during the dry season and before their harvests are ready in March/April of each year. The sky is the limit: orchards with lemon, lime, orange, grapefruit, mango, guava, even local bush trees – just to bring more rain, from the trees.... Then community gardens, where people can grow the things they would want to buy in town, they can grow themselves, and work themselves, and eat these things themselves... if there is surplus then they can sell their produce or their crops – eventually, we can make a market, so people can have (1) more food, (2) better nutritional variety, (3) income-generation.

We are going to build another house on the new site land, which Radiance and I already named “*Bermuda*”, and the water that will be generated is enough that we can run a few poly-pipes out of the main water source and have taps outside our house. We can have two taps on each side of the SSAAP Headquarters house. After living for 17 years having to fetch water 20 minutes away from

our house in Simwatachela, this sounds like a fantasy! This is our dream house, and our dream project.

There are so many commercial farmers coming from South African, Zimbabwe, and Zambians who farm tobacco, or mushrooms, or another kind of cash crop here and they farm for profit; they are professional farmers, they have fancy irrigation systems, and they live large. They typically hire cheap labor from the hands of the African people. It is, in my mind, a form of modern-day colonialism: living like monarchs while others are paid pennies to serve them. Yes, one could argue that they are investors here, and to some degree they can justify their “helping” – producing goods that are for sale, giving jobs to local people – but to what degree is income a profit before it becomes theft? Where is the line? How much longer will Africa be enslaved by the greed of others, and at what cost? To what extent is the poverty of Africa the responsibility of the local African people, and at what point will the foreign investors in Africa realize their own contribution to this poverty? And open to realization of what the face of modern day colonialization looks like, what it is? Of course it is not as blatant as the European colonialization of Africa in the 1600s, 1700s, 1800s.... but colonialization is still here in Africa, alive and well, its stench decaying the hopes of the local, grassroots citizens of ever really advancing within their own indigenous societies.

Why do foreign investors come to Africa to invest only in themselves? Would it not be more profitable, more organic, more Loving, more beneficial to humanity to invest in the local people? An investment in humanity is always going to be more sustainable and more profitable in the end than the investment in only oneself and her/his immediate family. And this subtle, and gentle shift in perspective might mean the difference between the state of humanity we are all currently suffering under and the very change we wish to see in the world. Can our human society evolve past its own selfishness? I know we can! And so I am alive for this very Experiment in Truth.

If I am a part of the local people in Africa, and they are a part of me, then we are One and therefore wholly (and holy) inseparable. So if I work to serve them, then indirectly, I am also working to better my own well-being and my daughter's. I don't need to think of myself first. I don't need to live in fear. I don't need to be selfish! I already have everything I need ~ with the advancement of the local people comes the advancement of SSAAP. Mohandas K. Gandhi said: “*Being a slave to fear and selfishness is the worst of all slavery.*” I think he just stole my line! ☺

Here is my question: Why not invest in the local people *through themselves*, not putting myself first but rather, thinking of them – and then see where we end up? Why not help the local people, and think of them first (them before me) ~ and see what happens then. Maybe this is the way forward, a new way. There are so many systems on this planet that have become so old, so stale. Selfishness has become antiquated; now is the time for the awakening of humanity, and for those who don't want to or are unable to wake up ~ let them continue to sleep.

Let my work on this planet continue long, long after I am dead and dust.

One of my favorite lines in one of Radiance and my favorite films, called *Hidden Figures*, Kevin Costner says to his coworker, a young man plagued with jealousy and ill-will towards his female colleague: “*We either all come up together, or we don't come up at all.*” That is a microcosm for what

I believe applies just as thoroughly towards the macrocosm of the Universe, for humanity. We either all rise together, or none of us rise at all.

But I am grateful to the commercial farmers, as they have given me an idea: why couldn't SSAAP do what the commercial farmers here do, in terms of irrigation of produce gardens and growing their own food, but do it for the local people instead? Why couldn't the local people make their own gardens and grow their own crops to ensure year-round food without any season of starvation using SSAAP's irrigation system? I have been asking myself this for years. It would be the most incredible thing I can think of, if SSAAP could make this dream come to life: set up a system that others can use to farm and irrigate crops year-round, so that there is never a period of starvation in the year.

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Photo Journal: Here are some photos at our water well driller, Likumbi's, house in Choma town of the irrigation system he uses - which we will do for our Plantation Project for SSAAP. We will use a water well donated in 2021 as the centerpiece of the irrigation project, in the center of the land from the chief for the Plantation Project, then from one side we will have sprayers to irrigate land/gardens/crops, then the other side we will run taps out of and we will have a second mode of irrigation. The system requires a water well water tank, and a water tank stand, and solar panels: all previously funded in 2019.



The irrigation system starts with a single well... Radiance washing our clothes! This is at Likumbi's house in Choma town (one town north of Kalomo, our town).



The irrigation system uses a set of solar panels (4) and a tank on a tower. Then a simple sprayer can irrigate the gardens! The whole system with 4 solar panels, tower, tank, sprayers, tubes for the taps, etc. cost about \$3300, which was funded over two years ago, in 2019. It is so embarrassing for me to have to report that we are using the donation 2 years later :(- that's Africa for you!



Here is the sprayer we will use, or one similar to this, which will be typical for an initial irrigation project. And here is a tap, typical, again of what we will use on the Plantation Project.

We will also be using an elevated stand (below) which can be raised depending upon the plant/crop, and the water level necessary for its growth. The cost of the elevated stand with poles which can raise or lower it, depending on the needs of the community and what they will be growing, is K 150 ~ approximately \$7.50 for one stand. The sprayer can spray closer to the ground (orange sprinkler) or placed on a stand above the ground (black stand). The rule is that the stand

must be higher than whatever it is you are growing (whether maize, sorghum, sunflower) such that the sprayer acts as rain.



We will introduce the higher sprinkling system as we grow into the project more. To begin with, any system we have is better than the current system (which is that we don't have one!) and as this system is to be used by the local people and benefit the local people, it must move at their pace. If a system introduced to them comes too quickly, or is not given proper entry into the community, then it will not be embraced appropriately. In other words, a project must grow with the community it is assisting. For this reason, we will begin with planting, on a small scale, things the people are already quite familiar with: leafy greens, tomatoes, cabbage, onions – daily foods – as well as small tree seedlings. As the project grows, we will be in a better position after some time to grow large-scale crops such as maize, sorghum, or cassava – just a few examples. But I have learned it is good to start simple, build a foundation that profoundly supports sustainable development, and grow the project from the roots up.



The sprayer can also be tacked into the ground on a spoke, as pictured above.

The whole system is controlled by a control box (above) which is powered by the solar panels surrounding the water tank.

*

During the day, the solar panels (4 solar panels generating 1,000 watts) charge the battery and regulator, so that by night there will be up to 5,000 liters of water. During the day, the use of the borehole (water well) will help to generate water that is drawn up into the tank using the submersible pump and the solar panels.

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An Engineer's Question: *Will the sprinkler system cause too much evaporation within the system, i.e. will it cause too much water to be lost when irrigating the crops?*

Our Driller/Contractor Likumbi's Response: *The proposed sprinkling system is the best for small-scale community irrigation projects. It uses a "Flood Irrigation" or "Overhead Irrigation" principle whereby the sprinkler is controlled based upon its stand, as well the height of the crops grown. The height of the sprinkler can be adjusted according to the height of the crops. Therefore, the sprinkler acts as rain and irrigates from the top using gravity to bring the water downward, versus the drip irrigation which waters the crops at their baseline (root). Drip irrigation systems are very problematic in this part of the world. They require constant upkeep and maintenance from an expert, and when there is a problem with the system it can be very difficult to diagnose. It can take time to fix the problem, whereas with a sprinkler, if there is a fault in it, it is easy to detect. Either the sprinkler needs fixed, or a new sprinkler should be purchased – and the cost is very low.*

Regarding evaporation, it is actually less using the Flood Irrigation or Overhead Irrigation System (with the sprinklers) than with the Drip Irrigation System. The drip system directly inserts water into the soil and into the base of the crop, but there is a lot of water waste on the pipes that are used to maintain the system. In other words, a lot of the water produced doesn't make it into the soil. With the sprinkler setup, the water sprays into the air and gravity brings it back to the ground so that the crops have been watered as though rained upon.

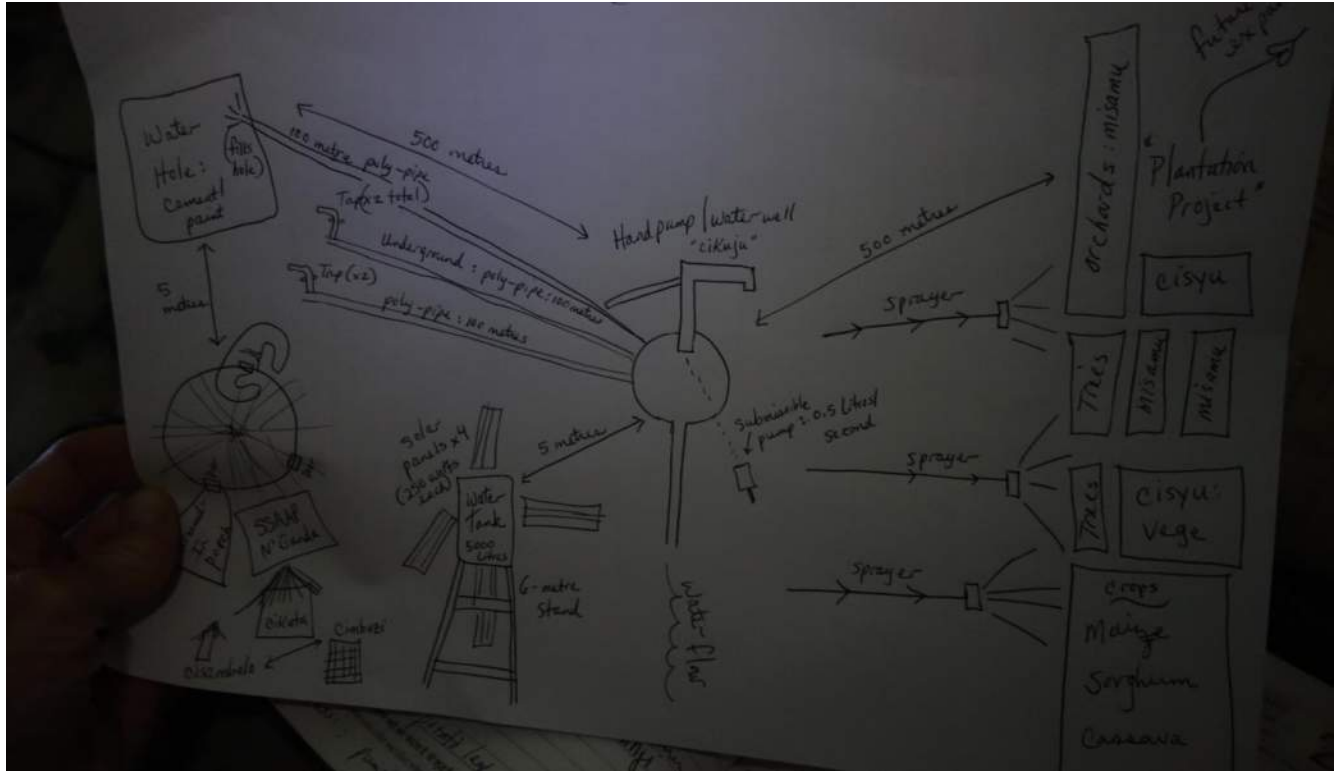
You will be surprised to learn (and this was news to me, too– I had no idea!) that the commercial farmers in Zambia all use sprinkler systems – not drip irrigation. Drip irrigation is a nuisance here in Africa. The commercial farmers use a modernized sprinkling system – more high-tech than what SSAAP will be using for the small-scale community irrigation project at this time, but the same basic principle applies. The sprinkler sprays above the crops and as it sprays, it acts as rain. The sprayer is adjusted to accommodate the height of whatever is being grown, and at the specific stage in the crop's growth. All the commercial farmers (Zimbabwean, Zambian, South African, just as examples) who have come here to make a living are also using sprinkler systems. They are just more high-end than the simple one SSAAP will be using, at this time. The sprinkler system, when SSAAP becomes ready, can then advance based upon the community's desire and willingness and interest to work, as the irrigation system is theirs and has been put in place for them and the well-being of their food sustainability in the long-term, especially during times of hardship drought. It is better they depend upon themselves than upon a government. This is Africa! We have learned not to depend upon our

governments unless we want to be disappointed. And that too is something we hope will change in Africa in the future. Even in Zambia, now we have elected a new government, and the change is upon us ~ we have high hopes for the dawning of a new, enlightened leadership for this precious nation. We can see a change we have wished to see for such a long time.

Drawbacks to a Drip Irrigation System

- Drip irrigation system requires constant monitoring, as it uses PVC pipes to drip water from it;
- Drip irrigation system, because it is so expensive, needs a security system to protect it;
- The implications of a Drip Irrigation System, in Africa, are that of commercial farmers, typically what we call 'commercial farmers' here in Zambia; typically those with wealth, coming from Botswana, Zimbabwe, South Africa, or Zambia; there is a colonialization stigmatization attached to it whereby, because I am a foreigner, people would expect or assume me (personally, as Heather) to be running a farm whereby I would hire local people as laborers on the farm. The expectation that comes with a large-scale Drip Irrigation System is that I would be using local labor for personal profit/benefit. On the contrary, I know little to nothing about farming, and this irrigation project is for the local people and will be managed by the local people. SSAAP is merely providing a year-round irrigation system whereby year-round crops and produce can be generated, if the people wish to work for themselves. The local people will be doing the work, and the local people will be benefiting;
- The budget for a Drip Irrigation System is well out of SSAAP's budget for this system; the system we are implementing will cost approximately \$3,300 USD; a Drip Irrigation System will cost something to the tune of \$15,000 USD;
- We can be doing the water with the above-stated spraying system, as well as watering manually since the borehole well will be in such close proximity to the community gardens. We could also water using a *horse pipe* tube that generates water through pumping the water well itself.

When creating the community gardens, we will be planting seeds and seedlings in holes; watering the hole with a simple horse pipe tube or even watering it with a bucket will keep the water inside the hole for 3-4 days before the seeds/seedlings will need to be watered again.



My rough sketch of ideas, for “Bermuda”.

Photos of our meetings, with Likumbi (SSAAP’s driller/constructor) and SSAAP on 24 June 2021, with me wearing my pajamas. The informality of life in Africa is both a blessing and a curse, I have discovered.



Meeting on 25 June 2021, me in my pajamas drinking lemon and lemongrass tea and Likumbi drinking beer from a goblet:



We are staying at Likumbi's house while we do the site visits to the new chiefdoms and work on the wells. I can honestly say that all of this would never be possible without the engineer/geologist mastermind behind it all: Likumbi, our Zimbabwean driller.



Meeting on 26/07/21 with the man, in blue, called Satish, whose community will be constructing our home in exchange for a water well. Again, I am wearing pajamas. It is brutally cold this winter.

*

Site Visit #1: 27-30 June, 2021: Namateba Zone, Simuzingili Village: Chona Chiefdom, 40 km from Monze town: Three men (left to right): Vernon, Chris and Alex, came to pick Radiance and I up from Likumbi's house in Choma town. Their intention was to take us to their home village, where they had grown up, to do a development project.





As per proper protocol, before driving to the rural area, we had a meeting with Chief Chona to discuss the project and to seek his approval to begin the project in his chiefdom. I was able to use ciTonga the entire meeting, which made me very grateful. My ciTonga is by no means incredible, but it gets me by. The energy of the field work we do seems activated through my use of the local language. When I use English, something falls short – and the energy flattens. Chief Chona is a warm-hearted, kind man, as you can see through the photo on the right.



We stayed at Vernon and Alex's family house while we were visiting. Vernon and Alex are brothers, and Chris is their cousin. There was no running water or electricity at our lodging headquarters during the site visit.



We were treated like royalty during our stay there, and given gifts such as *imbula* (local fruit plucked off fruit trees) and *n'dongo* (ground nuts and a great source of protein).



N'dongo and *imbula*, above left. Above right: the family hosting us, relatives of Chris, Vernon and Alex.

On Wednesday, 28 July, we drove around the chiefdom in search of an appropriate area to begin the project.



This is the area we settled on, more or less a hilly, remote, isolated area. Agriculture through farming is not as common in this area as is animal-based husbandry, due to the hills and thus the inability to farm land using cattle to plow.



We drove through the bumpy footpaths in the bush all day, in search of **just the right** area to set up the project.



I know exactly what it is I am hunting. ☺ It took us the whole of the day, and even meetings with various communities in an effort for me to explain the purpose of SSAAP to them – but at the end of the day, we were right back where we began, and that was the original land we had found in the morning hours.



At dusk, we found ourselves back on the land we want to ask Chief Chona to secure for the SSAAP Headquarters.





Cotton grows all over the trees here (above, left and right). We chose a hilly area to set up our SSAAP-Headquarters here, with many white trees (“*misamu utuba*”) which in the bush near the Zambezi river are the trees the carvers use to make their curios. They are striking in the bush, *ghost trees*. Radiance says: “I want to live in the White Woods.” ☺



The next day, the women in the family – stating that we had already become part of the family ;) – showed us the graveyard that all of their family members who were deceased had been buried: the family cemetery.





We were invited to one family member's house (above, left), and to my horror I learned that the Tonga people of this region eat mice/rats (above, right). I felt sick to my stomach.

What we learned on this site visit was the essence of how much the Tonga tribe varies from region to region. We live with the 'River Tongas' – people who grew up along the Zambezi River, or just hours from it. Their ciTonga uses a heavy 'z' sound. The people of Simuzingili Village are called 'Plateau Tongas' and even speak ciTonga differently: some of the words are different, and they do not use the 'z' sound in their speech, but rather an 'h' sound instead.



Very industrious and clever people, Radiance and I both agreed this was definitely an area we believe our project will prosper. After the site visits, together we agreed this would be the home of Site C, or "Satori".

Site Visit #2: 3 August, 2021: Meeting with Chief Cooma at Choma Hotel, Choma town



We met Chief Cooma at a cute little bar within town, called *Choma Hotel*, and I liked him instantly. He was incredibly knowledgeable about the project, as Likumbi (our driller) had well-informed him of SSAAP’s activities and basic vision as well as mission statement. A matter-of-fact type of man, he was very, very honored that SSAAP would want to set up a project in his chiefdom.



What I explained to Chief Cooma was essentially what I had explained to Chief Chona the week prior: the project will look differently wherever it is located. The Simwatachela site will look different than the Chona Chiefdom site, which will also look different than the Cooma Chiefdom site. I explained to him that while SSAAP is certainly not dumping the Simwatachela site, we intend to expand our project thus sharing our resources with as many communities as possible.



So thrilled with the project was Chief Cooma that he recommended the SSAAP land be in its own area – without a headman (*Sibbuku*) governing it, but rather that he and I would run this project as partners. This was *exactly* what I have been seeking ~ someone I can truly work with on development as a partner, not a subject to the Chief but rather, a partner.



Chief Cooma recommended that after our Zambian elections (August 12th), he would organize a vehicle to take us to six different locations in his chiefdom, and from there, we would choose the preferred location for our project. The Chief explained that he wanted to provide SSAAP with land that would be flat enough to set up our Irrigation/Plantation Project. It was a wonderful meeting. 😊

Afterwards, I consulted my daughter Radiance, and we decided that since the land provided to SSAAP in Chona Chiefdom (site visit on 27-30 June) was too hilly to do agriculture projects, we would set up the Irrigation/Plantation Project in Cooma Chiefdom instead, such that we would name our SSAAP Headquarters in Cooma Chiefdom “Site B” or “*Bermuda*” and our SSAAP-Headquarters in Chona Chiefdom “Site C” or “*Satori*”.

*

After finishing the meeting with Chief Cooma, I went back to Likumbi’s house and sat in a room and organized the entire 2021 Contract with Likumbi, detail to detail, start to finish. Here is what I devised:

Drilling Program – 2021, SSAAP-Zambia

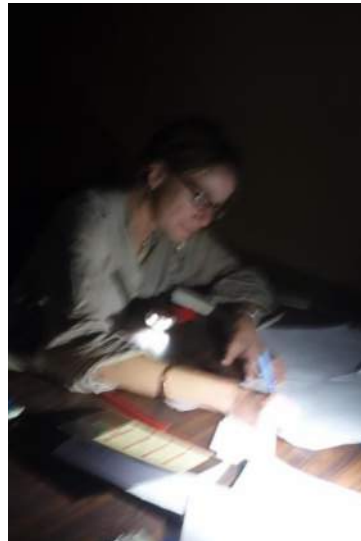
- 1. Centerpiece well (well which will irrigate the Plantation Project for Site B, ‘Bermuda’, using a water tank/stand/sprinkler system, etc.); also location of SSAAP-Headquarters, Cooma Chiefdom*
- 2. Community well, Cooma Chiefdom (specific village to be decided in August/September 2021)*
- 3. Community well, Cooma Chiefdom (specific village to be decided in August/September 2021)*
- 4. Community well, Cooma Chiefdom (specific village to be decided in August/September 2021)*
- 5. Well for SSAAP-Headquarters, Chona Chiefdom; will support SSAAP’s projects in Chona Chiefdom*

*

The following day, 4 August 2021, Likumbi and I signed our 2021 Contract for the five wells and the irrigation system, in the dark, with headlamps. ;) This is the African way!



It is almost intangible to think that huge, thousands-of-U.S. dollar contracts can be signed without electricity, in almost-darkness, but in Africa, almost everything goes!



The official Signing of the Contract, 4 August 2021.



Likumbi and I then decide on a Payment Plan. We agreed on three installments. We decided SSAAP would pay him 25% upfront (on 4 August), then another 25% when he was halfway through the job (20-25 August), then the final 50% when the job was completed (by 10 September 2021). I like to do large contracts this way in Africa: three installments. The first installment starts off the job. The second installment is necessary in a large contract because if the contractor underestimates his expenses to buy materials, hire the drill rig, hire workers, etc., then the job won't get finished; installment #2 insures the job will complete, then installment #3 is the reward.

Smaller contracts, such as the ones I make with our SSAAP artisans, I typically do in two installments: 75% upfront, 25% when the job has been completed.



Likumbi and I then proceed to counting thousands of dollars in “bricks” of Zambian Kwacha. Our local currency has declined so significantly thus that our highest note, a 100-Kwacha note, is now worth only about \$5 USD. So counting thousands of dollars-worth of money in Kwacha takes hours, in \$5-increments, essentially. Likumbi kept making mistakes counting the money, so I had to count it aloud with him. When he asked me how I am so good at counting Kwacha, I laughed and told him: the Microloan Program! The Zambians call it a “Village Banking” program; literally, our Microloan Program has helped hundreds of people with thousands of dollars-worth of loans, and it has really helped me be able to think in Kwacha and count in Kwacha. In other words, the Microloan Program has turned me into a competent banker! I can count Kwacha as quickly now as the people working in the commercial banks in the towns in Zambia. 😊

Construction of Water Tower



The beginning phases of the Irrigation Project are underway as the tower is constructed.



A visit to Chief Cooma's Chiefdom on 28 August 2021 reveals that the chiefdom is breathtaking, and there is much room for developmental projects here.



Chief Cooma's house is impressively modest, and bears the iconic cheetah's fur which is the traditional statement of a fine chief in our culture.



Chief Cooma, his Retainer and Advisors, Likumbi and Radiance and I take a tour of Chief Cooma's homestead, his animals and his office.



In Chief Cooma's office, we were able to see many artifacts and articles of interest.





The maize represents agriculture, and Zambia's staple food. Here in Southern Province, the Tonga people are the agriculturists of the nation: farmers, rearing animals [goats, sheep, chickens, pigs, guinea fowls, and cattle).



I was welcomed into the chiefdom and presented with a very special treasure: a book about the history of the chiefdom, and the family line, and the projects the chiefdom has worked with.



I was then asked to sign in the ceremonial Registration Log Book for visitors to the chiefdom.



They were so happy for our visit and we will visit again in a few days' time to do site visits in order to select the site for the Irrigation Project. There are six areas Chief Cooma has selected for this, and wants me to decide among the six which land suits SSAAP's needs the best for its Headquarters in Cooma Chiefdom.

Site Visits, Cooma Chiefdom: 31 August 2021:



Chief Cooma and his Retainer (in uniform, above left) carefully selected and combed through all six sites with us, so that we would be able to choose the site to SSAAP's best liking and potential.

The Chief himself personally escorted us on this outing throughout his chiefdom so we could choose the site to best suit the vision for SSAAP.



Each site... just wasn't quite right, and Radiance and I were not sold. We began to lose hope, and by Site #4, our hope was fading fast.



Site #5 was home to this riverbed, with large stones that we decided the community would use to construct the SSAAP Headquarters in Cooma Chiefdom.



Likumbi and his driver accompanied us on the site visits, so that he could help to survey the land at each site in search of a suitable groundwater source which would host the Irrigation Project.



Just after Site #5, the Chief stopped his vehicle and explained that we were about to enter Site #6, the last and final site he had to offer SSAAP.



As a geologist by profession, Likumbi (wearing a red shirt) scampers ahead to check the site for certain rocks which would suggest the hope of a good water source at the site. Finding micah schist, he was very, very impressed – told me that he thought Site #6 would be perfect for SSAAP Headquarters – Cooma Chiefdom.



But Likumbi didn't have to convince Radiance and I. For us, it was Love at first sight. 😊



Radiance diligently takes notes at every site.



“Oh my gosh, Mommy!” Radiance sais to me, “It is absolutely perfect! This is what I always wanted!”





The idea that Africa is infinitely abundant... in that moment, this had become my reality, took me to a higher state of mind and a deeper state of being. The natural resources in Africa are the very thing that will elevate the people from their poverty. And SSAAP will use Nature itself to work with them.

There is even a little stream that will run through the land.







This is the area on the land we will drill the centerpiece SSAAP borehole, which will feed the irrigation system with water; Likumbi (below) talks about different options of how to get the drill rig to enter the land on the bad road. He has a one-track mind for finding water. ;)



So that day, 31 August 2021, we decided SSAAP would choose Site #6 in which to begin our project, and the Chief would begin to fill out the proper paperwork accordingly. He said to me, as we parted ways: “This is a project that I do not want to see an end to anytime soon; this is a project that I wish to be running long after my death... long after your death... long after your daughter’s death...”



“Aha!” I told him, “*moyo wenu a moyo wangu wajata kabotu.*” *Your heart and my heart are touching.* “*Tulijisi muzeezo yomwe biyo.*” *We have just the same idea, then.*



Likumbi and his Team, alongside SSAAP, will begin to drill the four wells in Cooma Chiefdom, and the one well in Chona Chiefdom, in the weeks to come (month of September). As well, we will hire a surveyor to plot out the SSAAP project land in Cooma Chiefdom, and Likumbi will begin to construct the Irrigation Project System at SSAAP Headquarters in Cooma Chiefdom. I will provide updates on this in the next Quarterly Newsletter, due in November 2021: *Holiday Edition XXXV.*

SSAAP’s Philosophy on Rural Community Development (Grassroots Sustainability Model): *You work with people according to where they are. You don’t ask more of people than what they can perform, and you don’t introduce systems that work for you but don’t work for them. Your work with them is for them, not for you. You stay within their comfort levels. They will teach you what those comfort levels are. You observe, you observe, you observe. Then you introduce local projects that will allow and provide opportunity for people rise to their highest Light, not bring about frustration or cause political divides within their communities. Then you observe again; observe, observe, observe. What are they capable of? What are their areas of strength and weakness? What are their deepest needs, and – most importantly: what are the roots of their deepest poverty? Can you work within the taproot of their deepest need? And then you observe again... and this work, it will take nothing short of a lifetime.*



My closest neighbor (and friend) in Peace Corps (2004-2006) said she never could have survived Peace Corps without Livingstone. I attribute the success of SSAAP all these years to: *Livingstone*. A pool day at Avani Resort, in Mosi-oa-Tunya National Park, just minutes away from Victoria Falls.





Radiance diligently does her schoolwork in the Zambezi Gorge; there is a waterfall there, and in the photo below the swirling Zambezi is locally called the “*Boiling Pot*”. The land mass on the left is Zambia, and on the right: Zimbabwe.





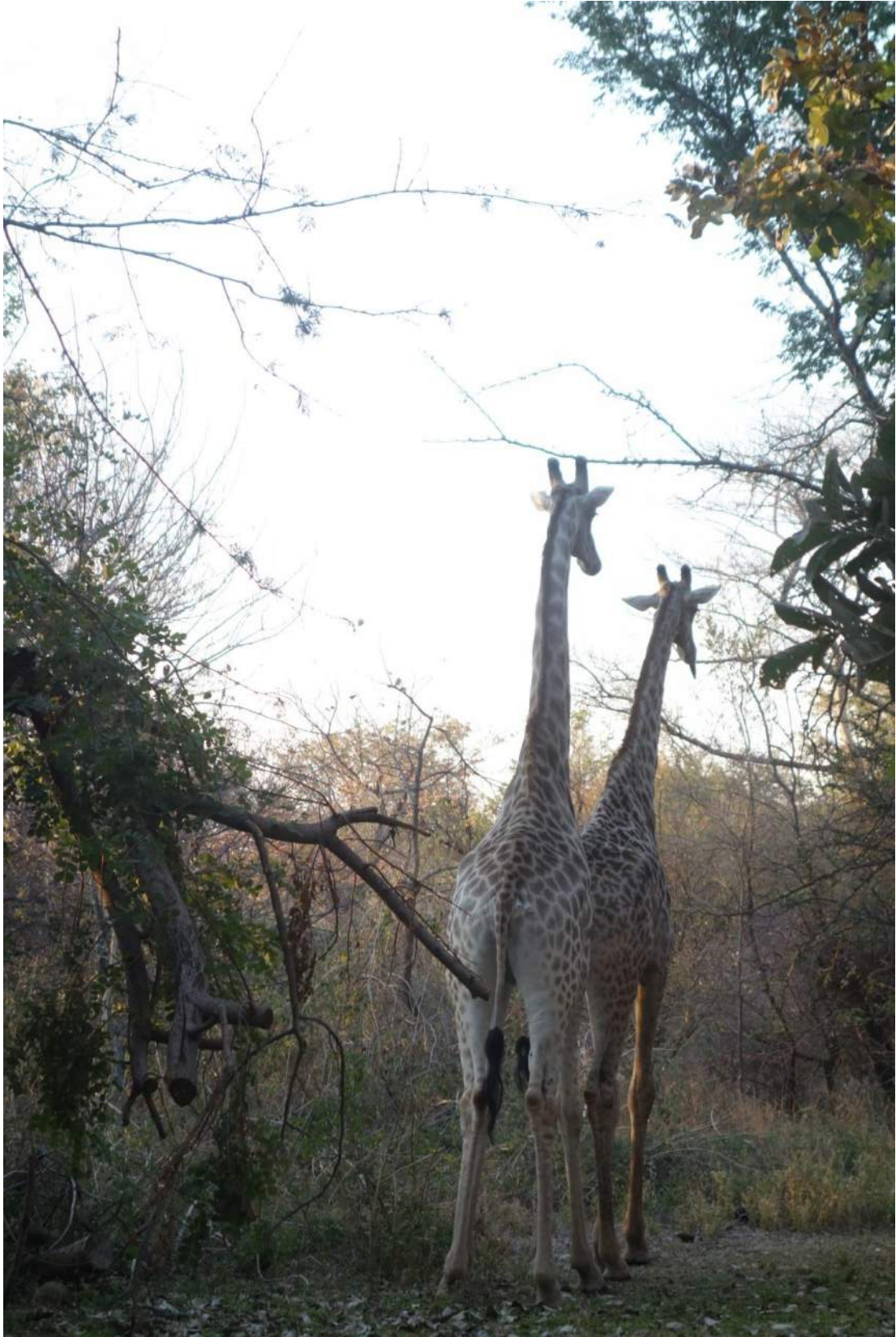
Zambezi Fisherman, below, just before the cliff drop that is known as Victoria Falls; the great water flow off the Falls, into the cavity of Mother Earth, is shown above .





SSAAP is a 501(c)3 not-for-profit (NPO) organization, with three international bases: U.S.A., Zambia, and Sierra Leone. SSAAP is a water, food, and nutrition education sustainability organization created by the people and committed to serving the needs of the people.







“What more do you want? The heavens are within you.” - M. K. Gandhi



*Gentlemen, he said, I don't need your organization,
I've shined your shoes
I've moved your mountains
and marked your cards;
but Eden is burning,
either get ready for elimination
or else your hearts must have the courage
for the changing of the guards.*



*Peace will come
with tranquility and splendor
on the wheels of fire,
but will offer no reward when her false idols fall
with its pale ghost retreating
between the King and the Queen of Swords.*

- Bob Dylan, "The Changing of the Guards", 1978