

Can't Devour It

Watermaker - SDGC toward SDGs/UN 6.1

(Target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all).

Summary

Can't Devour It	3
Chapter 1:	3
Chapter 2:	11
Chapter 3:	20
Chapter 4:	27
J W T	35
Bibliography/Conclusion	35
Watermaker from SDGC (source) :	36
Summary – Applications (to SDGs).....	38
International Application Status Report	44

Can't Devour It

Chapter 1:

I took a sip of my beer as my brain tortured me with the thought of how I was sitting here wasting money on alcohol when we can't afford to buy water for a week. The price for one gallon just went double over a month. We made sure to ration the water at home but mother had diarrhea so she had to drink more not to end up getting dehydrated. The noise of waves hitting the beach next to the bar I was sitting in was piercing my ears. We're surrounded by water but we can't devour it as we want. I sighed at my own helplessness because that's all I could do right now.

"Maria, I'm not a good person. I'm leaching off of everyone here, yes you too Maria. God is never going to forgive me for this. My mother might come out of her grave to scold me for it." A dark haired guy sitting on a chair next to mine was blabbering with his head in his hands as he sat on the counter talking to the bar owner, Maria. I remember playing volleyball with Luca several times when we were little. I remember him being some

years older than me. I remember hearing it from my mother that he went to a University in the city before me.

“Luca, you don’t have to blame yourself for what they are doing.” Maria patted his back while consoling him.

Maria was a kind middle aged lady, who was running this bar that she had inherited from her father and him from his. She was always a good listener; I had myself drunk ranted several times to her. She has a way to make the other person feel better. From her warm smile that she gives as a customer enters her bar to the free therapy sessions like this. Everyone on the island knew how considerate she was.

“No Maria, they are literally pulling the water out of the ground with some pumps and selling here for 10 times the price it should be.” Luca said as he gulped down his scotch in one shot. My eyes widened at the information that I was getting. I knew the companies were making profits but not this much. I was suddenly interested in Luca’s rant now. My eyes were stuck on the shelf with empty bottles that Maria had put up for décor, behind the counter but my ears were stuck to eavesdrop on their conversation.

“Did you see the UN SDG 6.1?” Luca grabbed his phone out of his back pocket and started taping and scrolling on

it. “Here, it says that ‘by 2030, achieve universal and equitable access to safe and affordable drinking water for all.’ Do you really think this is going to happen? It’s been years and we’ve been suffering. Our fathers did and so did theirs and it’s just getting worse. They are just words giving us false hope.”

The words that Luca just said engraved in my mind. I wanted to achieve that somehow, the world where everyone had access to water to drink and cook. My island, my family having water without spending half of their month’s earning on it. Yes, this sounded too good to be true right now.

“I heard Longo’s boy almost died because he got thirsty and gulped down water from the sea.” This was normal around here, since children didn’t get much to drink at home, while playing they get thirsty and resort to drinking sea water to calm their thirst. I had several friends having near death experience because of it back when I was young. Our mothers wouldn’t let us play around much when we were short on water.

“I wish we had something to turn all this water around us into drinking water. It’s like the sea is continuously teasing us with its waves that we can’t drink from it.” Maria sighed as she poured another scotch for Luca.

My mind started racing with all the ideas right there, I had pictures of all the parts of the device working together in synchronization flash in front of my eyes. All the passion for my degree, Mechanical Engineering was bubbling in my blood with excitement.

“Maybe- we can.” I said it out loud unconsciously before I could even realize it. I looked turned my neck to the side to find two dark brown eyes staring at me in confusion. “I mean, maybe we can make the water around us drinkable and useable.”

“How?” Luca seemed interested but I had no clue how yet. I had just the initial lay out of the device in my head but not the entire plan.

“I don’t know, it’s a maybe but we can make a device ourselves.” Luca immersed himself in his own thoughts for a minute before looking at me again.

“How will this device work? Chemical purification, maybe? Sea water is high in salt content how are we going to make it drinkable?” Luca was already coming up with the ideas for the mechanism of the device. Now I remember his major was Chemical engineering.

“I was thinking more on the lines of Reverse Osmosis.” I stated before taking a sip from my bottle.

“Brilliant Giuseppe! No wonder you went into that University on scholarship.” Luca knew my name even about my university and that I scored a scholarship too? Everyone does know everyone on this island.

“Maybe you two should talk more about it, I have to take out the trash.” Maria opened a new bottle of beer and slid it in my direction, “This one is on the house, stop wasting money on beer when you don’t have water at home.” Before I could even thank her she was already making her way out through the back door with two bags full of trash.

“So tell me more, what idea did this genius mind of yours had.” Luca was now facing me with thrilled expressions.

“I don’t know Luca, I need time to gather my thoughts and come up with the design of the machine, its mechanism and everything. But even I do come up with everything, how are we going to build it?” I was getting hit by the reality now, the cost for the parts of the machine how were they going to get covered?

“What ship do you take home after your classes?” Luca asked as he sipped onto his scotch still deep in his thoughts.

“The 3:00 PM one. Why?” My mind was still fogged with the uncertainties. Is it really possible?

“You should focus on figuring out how to make this device, while I’ll think about the ways to make it happen till tomorrow and come up with a plan and everything.” He seemed more determined than I was. Maybe we could make a difference for our people.

I tossed and turned in my bed all night as my head churned with ideas, rejecting them one by one. Finally, I gave up on sleep, turned on the light on my table, sat in the chair, and started writing down everything that popped into my mind. There were numerous possibilities, but I had to choose the most efficient and cost-effective one due to our limited resources. Could we really accomplish this with just the two of us, relying on our modest paychecks and limited knowledge?

I could pay attention to my lectures; neither could I shut my mind off. I had to come up with something before meeting Luca. I was still scribbling on my notebook, crossing off every idea I had thought of now. I looked up from my desk to the projector ahead; Professor Bianchi was taking our class for thermodynamics. She was one of the most inspirational people I had ever come across; she was known for her inventions for the betterment of the humankind. I cleared my head and pushed out all the thoughts because I didn’t want to miss her lecture.

“So, a phase change is physical transformations that a substance undergoes as it transitions from one state of matter to another.” That’s it! Exactly like they show in the cartoons, the light bulb of my mind lit up. Thank you Dr. Bianchi. I thought to myself, making sure I didn’t say it out loud.

I rushed to the library after the lecture and started searching online for any information that could help me gain more insight on how to build a device that could save my people’s pockets from getting robbed for the sake of clean water.

After searching for the relevant keywords and a few clicks, I came across the Watermaker (SDGC – Solar Desalination Geoassisted Continuous) . I read through the whole patent and it was perfect. Something that we needed, something we could make and something that could solve this problem once and for all. I couldn’t contain my excitement and wanted to show it to Luca as early as possible.

I printed out the information, read through the description and claims for the Watermaker (SDGC) and studied its mechanism deeply. There were several figures which showed all the parts that were used for the device. I scribbled my own notes on the paper alongside the black

printer ink. I could already imagine myself putting one part at a time to make this device.

Chapter 2:

I had a big smile on my face as I walked towards the shore to catch the ship back to the island. I was intoxicated with excitement. The last time I was this thrilled was 3 years back on my first day of the University.

“Giuseppe!” I hear Luca’s voice calling me from behind. I stopped and turned around waiting for him to catch up. We walked together onto the ship and sat down.

“Luca, I’ve finally came up with an initial plan for us to work on!” Brimming with excitement, I reached for my backpack's zipper and took out the printed patent along with my own notes. I flipped to the final page where I had hand drawn a rough layout for a device and flow chart which explained its mechanism. “So, I was finding a way which would cost us less bucks and would still be effective. Reverse Osmosis, Electrodialysis and all the other ways were going to cost us a fortune with the cost of the machine parts and the operating it too.” Luca meticulously examined my somewhat amateurish rendition of the device layout.

I patiently waited for his reaction as he took one look at the page and quickly flipped through the whole document. He immersed himself in his own thoughts.

“Giuseppe, I want to go with reverse osmosis. It seems to be less of a manufacturing cost. I don’t think you understand it well.” Luca straight up neglected my idea.

“At least consider it. You didn’t even consider it for once.” My tone was getting agitated.

“You’re acting like a child, I get that you’re still in 3rd year. Don’t think that you know better.” Luca was still ignoring the possibility that I could come up with something better than him. Of course I had considered the manufacturing cost including the operating cost too.

“Did you even read what is written in there? Are you rejecting it just because it is my idea?” My pitch got unconsciously higher than I expected it to be.

“Reverse Osmosis is also your idea but I stayed up all night to come up with a plan how could be pursue and make a device using reverse osmosis. I have it all planned. I don’t want you to ruin it!” Luca matched my tone, making sure to glorify his all nighter that he had pulled.

“Oh you think you’re the only one who stayed up all night? I did too. But I didn’t just keep my mind stuck to one possibility. I crossed out each and every possibility to find the best option for us. Are you going to pay for the operating cost of a reverse osmosis device? Who’s going

to pay for the fuel?” By the time I finished stating my point, I was out of breath.

Luca didn't bother to answer to my argument and stayed quiet. His gaze was stuck far ahead on the glistening water surface.

The rest of the ride to the island was quiet. We both didn't talk to one another. I guess this was it, our short lived ambition to do something for our community.

“At least take it with you and consider reading it once.” I handed Luca the document before getting off of the ship and walking towards my home.

Sleep seemed elusive to me tonight. I was concerned that Luca and I might not be on the same page. Allowing our egos to interfere with our community's well-being isn't the way to go; we need to collaborate to bring the change we were aiming for.

I decided to revisit the topic of reverse osmosis, especially since Luca was emphasizing it. As I delved into the mechanisms of devices I found online, that employed the same concept. I discovered a common drawback: all of them required the use of fossil fuels to operate. But that was the core motivation behind our venture. We aimed to

offer our community a water supply solution that wouldn't burden them with expenses.

Without even realizing I was again looking at the patent for the Watermaker (SDGC) on my laptop screen, reading the document again and again. Each time I was surer that this device just had everything that we needed. I hope Luca realizes it too.

'Please go through it, at least once.' I sent a text to Luca, making one final attempt to persuade him before giving in to sleep.

My body felt drained the next morning when I woke up. Thank God it was a weekend or I would've had to miss lectures. I grabbed a new T-shirt from the closet, it was stiff from the salt residue and I could see its color fading. It was one of my rough ones that were now at the mercy of sea water every time that it was washed. Lack of water for drinking was not the only problem we had to face.

I went out for a stroll in the neighborhood after having my breakfast. The breeze was colder than yesterday, winter was near. I took a deep breath and could almost taste the salt in the air, or maybe it was just my T-shirt. My gaze landed upon Mr. Mianci's hardware shop across the street, he is the one who has been arranging the material and parts for all of my university projects. I crossed the street

and entered his shop only to find Luca already sitting there with the document I gave him yesterday. He and Mr. Mianci were in a deep discussion. I cleared my throat to announce my presence. Luca met my eyes for a few seconds before lowering his gaze to the floor.

“Come on boy, take a seat.” Mr. Mianci gestured towards an empty seat beside Luca.

I quietly sat down and saw Luca shaking his leg.

“I’m sorry Giuseppe.” Luca took a deep breath before putting these words out there. “I should have at least gone through it before rejecting your idea.”

“It’s fine, all we want is to do well and help our community and I see you’ve come around to understand now why I was adamant on this device.” I patted Luca’s back with a big smile on my face.

“This is fantastic Giuseppe. How dumb of me! You are a genius! We can use renewable resources for it. The sea is going to give us water and the energy to operate this device. I was worried about the operating cost too that our people would’ve had to afford.” Excitement was pouring out in his pitch as well as from his smile that was almost touching his ears. “I’ve arranged some money for it too.”

He took out his wallet and showed me a cheque for \$15000 named to him.

“Where did you get this much money from?” My eyes almost protruded out of my head as I counted the zeros on that piece of paper.

“I sold my car yesterday.” Luca sighed as he folded the cheque to put it in his wallet safely.

“No Luca, you shouldn’t have. Your parents and you saved up all these years to buy yourselves that car.” I couldn’t believe my ears. The whole island knew how Luca and his father had worked hard for years to finally get a car for themselves, since both of them were the famous gear-heads of our island. How could he sell something that was so precious to them?

“Its fine, we didn’t get to drive it around much anyway. The money could be used for everyone’s good now. My father didn’t even hesitate when I told him why I needed the money.” Luca had a genuine smile on his face as if he had no regrets for what he did. “But my friend, I was just discussing it with Mr. Mianci. You have come up with such a great idea that I doubt we’ll have to spend even half of it.”

“Really? The heating system can consume a hefty amount, since we need a good insulation too for the tank.” Honestly, this was the most economical way I could think of; nevertheless it remained beyond our financial means.

“Don’t worry; Mr. Mianci is great friends with his supplier, who’s going to hook us up with good but affordable used parts.” Luca gazed ahead, his eyes fixated on the figure on the document which showed the device that we were going to build. “The Watermaker (SDGC) . I like it.” Luca whispered softly.

For the next few weeks Luca and I were stuck in my garage from evening till midnight to assemble The Watermaker (SDGC) . Mr. Mianci had arranged good quality machine parts to work with. We had a big tank, which had a good capacity to supply the island. The loading pipe was of excellent quality and of appropriate gauge to maintain the effective water level. I could see the device coming together within a month now, only if we manage to get our hands on fine quality heat exchangers. After that we could run some tests on it and check the quality of the water.

“Maria, beers for us please.” I casually asked while entering the bar with Luca. We used to go there frequently to discuss how we could improve the Watermaker (SDGC) and how we could make it better over some drinks before

heading to my garage to work on what we had just discussed.

Luca and I were engaged in a discussion about which material would offer the most effective and budget-friendly insulation for our tank. We were as boisterous as ever, but this time Maria had shushed us three times already to quiet down. It was unlike her usual self; she used to actively contribute her own ideas to our discussions.

“Boys please keep it down. He is the driver for the DrinkUp.” She gestured her head towards a man sitting on my left digging into his plate of fries and hamburger.

“So what?” I was confused, why should we care about him listening to our conversation?

“Do you think DrinkUp is going to just let go off of all the bucks they get from this island so easily?” Maria whispered lightly for us to hear.

She did have a point but what could they do? We’re making this device on our own and with our own money. Maybe she was just being paranoid.

We had decided on our material for insulation finally, Luca was going to place an order for it with Mr. Mianci

tomorrow. We were finally getting close to achieving our goal.

Chapter 3:

Just like any other day, Luca and I disembarked from the ship and headed straight to the bar together. Upon seeing the 'Closed' sign, Luca and I exchanged perplexed and apprehensive glances.

I felt my phone vibrate in the back of my pocket. I hastily retrieved it and saw Maria's name flash on my screen.

"Yes, Maria, wher—"

"Giuseppe, your garage!"

I couldn't finish my sentence as Maria's frantic voice interrupted me.

Without wasting even a second I ran towards my house, I heard Luca calling my name from behind as he ran after me.

My eyes instantly filled with tears, I couldn't catch my breath as something inside my chest clenched at the sight of my garage being a wreck. I didn't even realize I was already on my knees struggling to breathe. Maria, my mom and dad were going through the shambles and picking out the pieces they thought were still useful.

I felt Luca kneeling beside me, his own eyes welling up with anger and sorrow, a stream of tears tracing down his cheeks. His mouth hung open in sheer shock.

Both of us knelt there for some time, in quietness letting our emotions get the best of us.

“It’s okay boys, you can always make one again and better. Let’s consider this one for practice purposes.” My dad walked up to us and helped us both to our feet.

“Who did this?” I tried not to let my voice shiver as I let my vocal cords finally make some sound.

“I don’t know, I was taking a shower when I heard loud noises. I managed to come out of the house within 5 minutes and saw a bunch of people driving away in a black van.” My mother was alone at home.

“Are you okay mom?” I wrapped my arms around my mother in concern.

“I asked around, they took the ship back to the city.” Maria joined us; she had our loading pipe in her hands or what was left of it.

We all spent our rest of the day clearing out the wreckage. Only some of the parts were reusable, most of them were damaged badly.

“What did the authorities say?” Maria asked us while pouring us our scotches. It was 9 PM and we had just come back after filing a report.

“Nothing much, we had no names to give to them to investigate the incident.” Luca replied with a sigh.

“So you are the ones who were making that excuse for a device?” Our eyes followed the sound coming all the way from the other side of the bar. A man in a well tailored and fitted grey suit with his hair gelled back was sitting with two more guys in black. Only he had a glass of scotch right in front of him. The others were just staring down at the table.

“Yes, why does it concern you? You don’t look from around here.” I was getting agitated by his remark. One his sideman got up and handed over his business card to me.

I couldn’t help but frown as I read the business card. ‘Marco Santoro. CEO DrinkUp’. I passed the card to Luca for him to read. Both of us had our forehead crinkled and our fists closed, trying our best to contain the anger within us that was boiling our blood.

“As you can see it very much concerns me. I hope you boys would focus more on your studies and jobs, leave the

water supply to us now.” He got up and straightened his jacket before heading out.

“It was him.” Maria said as they closed the door behind them.

“Yes Maria, but we don’t have any proof.” I retorted, and downed the liquor, allowing it to sear my throat for a brief moment.

“Giuseppe, we’re up against this guy, who might even have strings he could pull up in the authorities too. He is going to shatter our hard work every single time. We might as well just give up now.” I could sense the vulnerability clearly in his voice.

“We just have to not let anyone know about the Watermaker (SDGC) until it’s done and ready.” Maria said as she was wiping off the counter.

“Yes, we can’t give up now Luca. It was almost ready.” I tried to put some strength and enthusiasm in my words but I doubt that it was enough for Luca.

“Yes, use my basement if you want. Not a soul would know about it.”

“You have a basement?” Luca looked at her with utter shock, this fact was unknown by us.

“Yes and a big one.” Maria laughed at both of our expressions.

We trailed behind Maria, passing the counter and entering her home. Inside her living room, she unveiled an almost concealed door beneath the rug. A steep flight of stairs beckoned, and we descended after 3 steps I heard Maria flip a switch which was on the wall to our right. The basement lit up revealing crates of beer, shelves decorated with wines, several small fridges which had more alcohol in them. There was a small couch and a coffee table right in the middle of it.

“Bring your engineering tools or whatever and start working again from tomorrow; I want to gulp down that water till I drop dead from my stomach bursting.” Maria handed us a key to her house.

We were again bursting with enthusiasm within a day, coming straight from the city to the basement and worked till our bodies gave up. This time everything was coming together faster and better since we had done it all before.

“Mr. Mianci, please ask your supplier to try his best.” Luca and I were earnestly appealing to Mr. Mianci.

Unfortunately, our enthusiasm was short-lived as we found ourselves stuck once again. It had been more than a

week, and everything had come to a halt as we struggled to obtain properly functioning heat exchangers. Either they didn't meet our standards or they were too expensive for us to afford. Given our budget constraints following the wreckage, we had to repurchase most of the parts.

"I'm sorry, boys. I've reached out to every supplier I've known throughout my years of running this shop," he said with a hint of demotivation. The warm, toothy smile he always greeted us with had vanished.

After hearing a 'no' from Mr. Mianci, again. We walked towards the deck to catch the ship to the city, I for my lecture and Luca for his work. We both kept quiet. The whole ride was filled with awkward but sad silence. What are we going to do now?

I made my way into my class. Dr. Bianchi was again delivering her lecture but my mind was too fogged with all the thoughts to focus on it.

"Giuseppe, could you come to my office after your lectures?" Dr. Bianchi said as the lecture concluded, and she began gathering her belongings to leave.

"Su- sure, Professor Bianchi." I replied hesitantly as she left the lecture room.

I knew I was in trouble since university and classes have been the last thing on my mind these past few months.

Chapter 4:

“Yes, come in.” I grabbed the handle of the door to push as Dr. Bianchi replied to my knock at the office.

I walked in with my eyes glued to the ground.

“Where are your thoughts these days during the lecture Giuseppe? And your latest assessments were not exactly up to the mark as they used to be, is something going on?” I knew this was going to happen one way or another. From the last few months I have been so indulged and busy with the Watermaker (SDGC), I didn’t have time to study for the assessments. During the lectures I’m constantly thinking of ways to make it better than before.

“Professor, actually I-“ I stopped in between my sentence. I was not sure how and what to tell her.

“Giuseppe, you’ve been an exemplary student all these years. If there is something going on that I can help you with, I will gladly.” Professor Bianchi was genuinely worried.

“Actually Professor, the thing is. I was kind of in-between inventing a device with the help of a friend.” I decided to carefully thread my words into a sentence somehow.

“Interesting.” Dr. Bianchi pushed her glasses up her nose, expecting me to give her further details.

I provided her with a brief overview of the Watermaker (SDGC) , explaining how we had almost successfully built a cost-effective device that relies on natural and renewable resources to operate but couldn’t find the heat exchangers to achieve what we wanted. I also mentioned the challenges we were currently encountering with Marco, the CEO of DrinkUp, regarding the protection of the device.

“First of all Giuseppe, I’m glad and proud of you and your friend are willing to go above and beyond for you community. This can actually motivate people from other communities to help themselves too. Secondly, if you had told me about it earlier I would’ve helped you in so many ways through my contacts to get even better parts for your device.” Dr. Bianchi expressed her enthusiasm, mirroring the excitement that Luca and I felt when we initially conceived the idea for the Watermaker (SDGC) . Dr. Bianchi stood up from her chair, gestured me to sit on a couch which was in the middle of her office with a coffee table at front. She started walking to and fro behind her chair and was drowned in her thoughts.

I immediately texted Luca and asked him to join us in Dr. Bianchi’s office. He had been carrying around the layout

for our device to look for the heat exchangers in the city himself, along with the pictures and he videos he took to document our progress. This helped Dr. Bianchi to closely analyze our partially built device and provided us her expert opinion.

“You have done good job boys. Here’s what we’re going to do. I’m going to arrange the heat exchangers and a remineralization device to make the water drinkable. Also some funds for setting up CCTV cameras where this device is going to be installed. We’ll deal with this Marco too.” Luca and I were both speechless. I thanked Dr. Bianchi with words for now but later I will thank her with my actions someday.

Luca and I walked out of the office together. We glanced at eachother with a smile; we could finally see a beam of light.

Dr. Bianchi had arranged perfectly new heat exchangers for us with a remineralization device. The device was finally coming together and our hearts were filled with joy and relief as we got closer to achieving our goal everyday while still working in Maria’s basement. We were soon in our testing phase; Luca was testing the water for its quality. Whether it was good enough to drink or not. With

a few tweaks to the heating system we were able to make perfectly healthy drinkable water, which had no impurities; it was desalinated, remineralized and had perfect pH.

“Here.” We slid a glass of The Watermaker (SDGC) water towards Maria on the same counter where she has been sliding us our liquor all these years.

Her eyes went back and forth between us and the glass as she smiled from ear to ear. She grabbed the glass and gulped down the water in one shot.

“This was the tastiest water I’ve ever had.” She wiped her lips after drowning the whole glass.

“You do know water is tasteless right?” I replied her with a teasing tone. We had done it. It worked, The Watermaker (SDGC) .

“Guys, if we put it out in the open, what are the chances that Marco guy wouldn’t destroy The Watermaker (SDGC) again?” Deep down we all had this concern but it was Maria who voiced it for us.

“I’m going to the station tomorrow to file a complaint, this time I’ll make sure to put Marco’s name on it.” Luca tried to assure Maria so she didn’t have to worry.

“Yes and Dr. Bianchi did give us money to install CCTV’s. We just need to find and appropriate location to install the device.” After hearing my words Maria started to immerse herself in her thoughts.

“I think, it would be best to install it near the decks, people are always there either waiting, getting on or off the ship to go to the city.” Maria finally turned her thoughts into words.

How does Maria always come up with such great ideas? I guess our minds are just made to do the technical work not to find the obvious solutions to a simple problem.

The very next day CCTV’s were installed at our selected location along with the Watermaker (SDGC) , everyone on the island had gathered to give us a helping hand and to celebrate. There was a red ribbon to cut, balloons for the décor and flowers for our chief guest and the biggest support.

I saw Dr. Bianchi getting off of the ship. With a warm smile she made her way towards us. The people of our island were so grateful to her and it showed in the way they welcomed her. My mother handed her the bouquet of flower which she accepted respectfully. As she made her way through the crowd in front of the Watermaker

(SDGC) , she gave the device a long, heartfelt glance before turning around to face the crowd.

“I’m so proud and thankful that I had the opportunity to be able to teach and work with someone like Giuseppe. He had always surprised me with his skills, passion and that great mind of his. Both he and his friend Luca have portrayed immense courage to come together and build a solution for their suffering community from the scratch on their own. This is going to be an example for a lot of my students to do better for their people, for their world. I hope both of them never lose their spirit and good in their hearts.” Dr. Bianchi had poured her heart out in front of the whole island; I could see slight wetness in her eyes behind her glasses.

I handed Dr. Bianchi the scissors to do the honors, she cut the red ribbon, and the device was turned on followed by a wave of loud cheer and claps from the crowd.

We had done it, after a long and hectic journey full of barriers. Luca and I have made water, a basic necessity, readily available to our people through the Watermaker (SDGC) .

Luca and I shared a hug, we both knew that this is just a start; we have to make this useable and drinkable water

available in the taps of each and every home on this island.
But we have to take one step at a time.

J W T

[joules water team](https://www.jwt-jwt.it/)
<https://www.jwt-jwt.it/>

Subject to the NDA, consultancy and appropriate industrial property rights are available

(**INNOVATION** - [Patents and Projects, with relevant BPs and StartKit Commercial Offers](#))

JWTeam

http://www.expotv1.com/ESCP_NUT_Team.pdf

*Offers extensive support on **Energy and Water Cycle**,
verse [IP S DGs /UN](#)*

Bibliography/Conclusion

Any reference to people and things is purely coincidental, as well as creative/imaginative and aimed at the common good (both in fiction and non-fiction/disclosable texts).

The Owners/Inventors of the Editorial rights on the source Intellectual Property believe the contents do not misrepresent the essential objectives, aimed to disclose, but above all promote the official sources cited in the bibliographies. Patents are archived, granted and owned by authors who have issued the necessary editorial permissions. Each patent is well founded (legitimized by the relevant national legal bodies: UIBM/IT, EPO/EU, WIPO/UN, EAPO/RU, CNIPA/CN, InPASS/IN), well understandable to professionals, and usable according to case law in vogue; [JWTeam](#) reviews and oversees the dissemination of [SDGs/UN](#), pronouncing itself with the pseudonym "**Ghost GREEN**".

Watermaker from SDGC (source) :

Patent:

[SDGC](#) , <https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2016162896> (sea and process water solar desalination); [view1](#)

Italy: GRANT

http://www.expotv1.com/LIC/MISE_0001429306_SDGC.pdf, ... mean "INDUSTRY (useful), NEW (no make before), INVENTIVE (teach some things)".

Abstract/Description - Patent:

SDGC, <https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2016162896>

Full Intellectual Property

http://www.expotv1.com/ESCP_Patent.htm

Full JWTeam Service –

http://www.expotv1.com/PUB/JWT_Service_EN.pdf

Summary – Applications (to SDGs)

SDGC

<https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2016162896>

Water – great efficiency in DESALINING with renewable sources. **SDGC** is dedicated to desalination (of sea water, brackish water or bodies of water to be reclaimed), has the advantage of using only renewable energy and with performance indices comparable to Reverse Osmosis (dependent on fossils); the system is scalable from small to large installations, offering the possibility of implementing distributed **& pervasive** and counteracting critical logistics issues (often a serious problem). An infrastructural supply of "fresh" water towards the general plant engineering industry and in particular that for the production of hydrogen. Drastic action towards the Inorganic load, contributing to the performance on " **Water cycle** ".

Project:

SDGC – Solar Desalination Geoassisted Continuous

Objective : Launch an assembly and testing site (procedures and manuals) for the production of SDGC

tanks (of assorted cuts and functions, reclamation of water bodies or production for food purposes).

Target: Prefabricated and container companies, hydromechanics , financial investors, operators in the fresh water sector, purification operators

The project aims to activate a production site, from design to assembly (pro delivery and rapid assembly), with the development of production-oriented procedures agreed with the client (based on the available inputs) and the destinations of the outputs produced. The solutions rely on standard products from the water management and prefabricated market (including containers), assembled and tested with a view to optimizing distillation using solar energy and support from thermal gradients. In collaboration with internal and external laboratories, it will act as remote support for the installations in charge (EPC - Engineering , Procurement and Construction).

Summary: This invention talks about how a machine can remove salt from sea water, salt water or water that comes from factories. This machine can use energy that comes

from the sun, wind or underground. To remove salt from water, you need to make the water turn into steam and then turn it back into water (all at usual thermal conditions, for example how dew is produced). We plan to proceed as follows:

- put the water in a closed tank where the steam will be produced;
- heat the water near the surface, so it produces more steam;
- causes the steam to become water again, encountering colder surfaces (expanded metal arranged in a fan), adjacent to parts to which they will release the heat to even colder but liquid parts, fueling the convective motions in the liquid part, which then traces and reiterates the process;
- collects the condensed water, without salts, in suitable reservoirs and from which it is taken.

The machine is a well-insulated tank, into which water is introduced in continuous processes. Inside the tub there are devices that heat the water to make it steam. There are also means that turn the steam back into water and that collect the water without salt, transferring the energy by-passing critical areas (the key to conservation and reduced

need for energy). These means are made like this:

- the tank is filled with water up to a certain point (approximately $2/3$), so the condensation process is completed in the empty space above;
- the half -radiators, which heat the water , are close to the surface of the water and will be powered by natural sources (possibly supported by heat pumps);
- the means that create water vapor are on the surface of the water and heat in a limited way, inside the water, thus giving off a lot of heat;
- from the proposed reservoirs, the condensed water (which arrives by gravity and free of any salt) is taken from the coldest surfaces encountered, similar to the temperature regimes of storm processes in the tropics.

The machine uses the available renewable energy well , both solar and environmental conditions, fueling convective motions, both in the aerial and liquid parts, taking care not to lose energy, thanks to adequate insulation and prepared exchangers; The machine can use both energy that comes from the sun, wind or underground, and energy that comes from other sources. This machine is used to make clean (distilled) water, useful for many things: for factories, for plants, for animals and also for people (suitably integrated with the

desired salts for drinking and nothing for industries, which they like even less – hard waters). This machine can help remove countless impurities resulting from many industrial and anthropic processes in general. In an indirect way, therefore, to remedy many ongoing social disparities in many communities .

[SDGs / UN_en - SDGs / UN_it Full Strategy to](#)
[1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 SDGs/UN](#)
[http://www.expotv1.com/ESCP Hello.htm](http://www.expotv1.com/ESCP>Hello.htm)

2/2

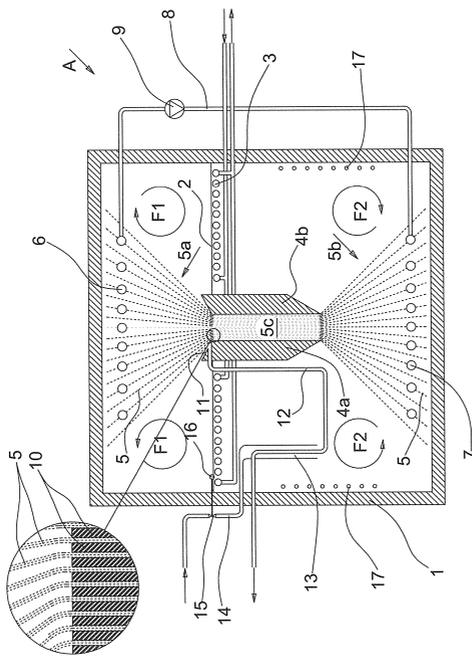


Fig. 2

International Application Status Report

Received at International Bureau: 14 June 2016
(14.06.2016)

Information valid as of: 13 September 2016 (13.09.2016)

Report generated on: 28 September 2023 (28.09.2023)

(10) Publication number: (43) Publication date:
(26) Publication language:

WO 2016/162896 13 October 2016 (13.10.2016)
English (EN)

(21) Application number: (22) Filing date: (25)
Filing language:

PCT/IT2016/000090 11 April 2016 (11.04.2016) Italian
(IT)

(31) Priority number(s): (32) Priority date(s): (33)

Priority status:

MI2015A000505 (IT)09 April 2015 (09.04.2015)

Priority document received (in compliance with
PCT Rule 17.1)

(51) International Patent Classification:

B01D 5/00 (2006.01); B01D 1/00 (2006.01); B01D 1/30
(2006.01); C02F 1/14 (2006.01)

(71) Applicant(s):

LAVANGA, Vito [IT/IT]; Via Terrazzano 85 I-20017 Rho
(MI) (IT) (for all designated states)

(72) Inventor(s):

LAVANGA, Vito; Via Terrazzano 85 I-20017 Rho (MI)
(IT)

FARNE', Stefano; Via Trasimeno 40/14 20128 - Milano
(MI) (IT)

(54) Title (EN): METHOD FOR THE CONTINUOUS
DESALINIZATION AND DEVICE FOR THE
IMPLEMENTATION OF SAID METHOD

(54) Title (FR): PROCÉDÉ POUR LA
DÉSALINISATION CONTINUE ET DISPOSITIF POUR
LA MISE EN ŒUVRE DUDIT PROCÉDÉ

(57) Abstract:

(EN): This invention refers to a method and a device for desalinating sea water, brackish water or from industrial processes. The device is suitable to use renewable energy sources such as solar or geothermal energy. The device is of the type that includes a tank (1) for the containment of the water to desalinate, in which there are heating means fitted to cause the evaporation of said water to desalinate, cooling means fitted to favour the subsequent condensation of the steam and means fitted to the collection of the condensed water and it is characterized in that: said tank (1), fitted to contain said water to desalinate, is filled up to a certain level (2); said heating means, for evaporating said water include a first heat exchanger (3), immersed in the water to desalinate and positioned nearby said level (2); said cooling means (5a), fitted to cause the condensation of the steam, are in heat exchange connection with the heating means (5b), immersed in said water to desalinate, said heat exchange simultaneously causing: a) the reduction of the temperature of said means (5a), therefore the suitable

conditions for the condensation of the steam; b) the increase in temperature, into the depths, of said water to desalinate.

(FR): La présente invention concerne un procédé et un dispositif de désalinisation d'eau de mer, d'eau saumâtre ou provenant de processus industriels. Le dispositif est approprié pour l'utilisation de sources d'énergie renouvelable, telles que l'énergie solaire ou géothermique. Le dispositif est du type comprenant un réservoir (1) pour le confinement de l'eau à dessaler, dans lequel se trouvent un moyen de chauffage conçu pour provoquer l'évaporation de ladite eau à dessaler, un moyen de refroidissement conçu pour favoriser la condensation ultérieure de la vapeur et un moyen conçu pour collecter l'eau condensée, et est caractérisé en ce que : ledit réservoir (1), conçu pour contenir ladite eau à dessaler, est rempli jusqu'à un certain niveau (2); ledit moyen de chauffage, conçu pour provoquer l'évaporation de ladite

eau à dessaler, comprend un premier échangeur de chaleur (3) immergé dans l'eau à dessaler et positionné à proximité dudit niveau (2); ledit moyen de refroidissement (5a), conçu pour provoquer la condensation de la vapeur, est en liaison d'échange thermique avec le moyen de chauffage (5b) immergé dans ladite eau à dessaler, ledit échange de chaleur provoquant simultanément : a) la baisse de la température dudit moyen (5a), et par conséquent les conditions appropriées pour la condensation de la vapeur; b) l'augmentation de la température, dans les profondeurs, de ladite eau à dessaler.

International search report:

Received at International Bureau: 12 September 2016
(12.09.2016) [EP]

International Report on Patentability (IPRP) Chapter II of
the PCT:

Not available

(81) Designated States:

AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH,
BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU,
CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD,
GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP,
KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY,
MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA,
NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO,
RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV,
SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,
VN, ZA, ZM, ZW

European Patent Office (EPO) : AL, AT, BE, BG, CH,
CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE,
IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO,
RS, SE, SI, SK, SM, TR

African Intellectual Property Organization (OAPI) : BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG

African Regional Intellectual Property Organization (ARIPO) : BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW

Eurasian Patent Organization (EAPO) : AM, AZ, BY, KG, KZ, RU, TJ, TM

Declarations:

Declaration made as applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate

Declaration of inventorship (Rules 4.17(iv) and 51bis.1(a)(iv)) for the purposes of the designation of the United States of America.

