

## PuriFan - Saving Lives, Creating Futures-

### **Executive Summary:**

Dysentery, cholera, and typhoid are diseases that we ourselves may never imagine being affected by in our everyday lives, yet, individuals all over the world are killed by these horrific diseases - in fact, diseases related to unsanitary water claims more than 4000 lives in a single day. These people, oftentimes young children, still have bright futures waiting for them- but the inability to provide them with clean water has resulted in the deprivation of that livelihood. Not only do they not have access to sanitary water, but also half of the world is without electricity; a vital power source. Seeing a dire need to provide a solution to both problems, we have created "PuriFan": a revolutionary generator of clean water *and* kinetic energy *without the use of electricity*.

### **1. Mission**

UN statistics have shown that: 663 million people around the world are still going without access to improved drinking sources; at least 1.8 million people use a source of drinking water that is fecally contaminated; and nearly 1,000 children die due to preventable water and sanitation-related diarrheal diseases.

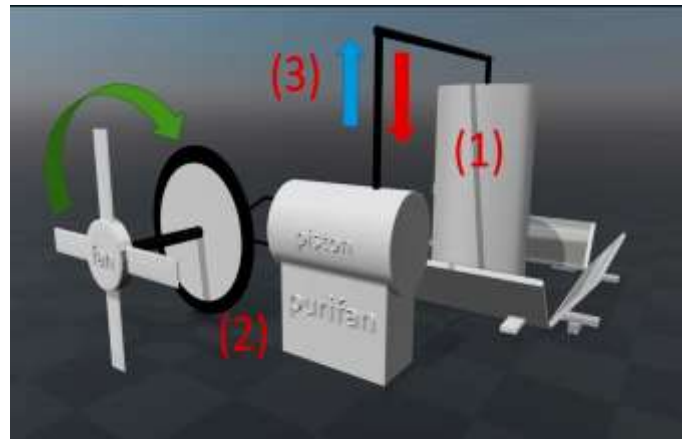
It is clear that the implementation of "PuriFan" in schools could save precious lives.

In short, our objectives are to:

- I. Create a system that produces much-needed clean and accessible drinking water; thereby encouraging schoolchildren to grow under healthier circumstances, and strive for better futures.
- II. Create a generator of kinetic energy that is safe to use in an educational environment.
- III. Create a generator of kinetic energy that does not rely on electricity or fossil fuels for power, making it eco-friendly.
- IV. Provide children in developing countries the opportunity to learn more about science, machinery, and health first-hand.
- V. Allow children to learn in a cool and comfortable environment, which can help them to concentrate more on their studies, and eliminate the risk of dehydration or heat strokes.

### **2. Operation/Product and Services**

"PuriFan" starts operating once you put heated stones (=insulated bricks containing clay, which increases heat retention capabilities) in the unsanitary water that is placed inside a plastic container. (1)The hot stones will boil the dirty water, ridding it of harmful substances and rendering it safe drinking water. (2)As a result of the boiled water, a significant amount of water vapour will be created, which goes on to move the turbine; creating kinetic energy that can be used to cool a classroom by connecting a fan to the turbine. Due to this unique characteristic, the use of electricity is completely unnecessary, making it usable in developing countries. (3)After moving the turbine, the water vapour will move back to the water container where it will naturally go through a process of condensation, turn into a liquid, and join the pool of clean water that is already inside the plastic container. After all of the thermal energy stored in the stones is depleted, users will find that clean, drinkable water has accumulated in the container.



### **3. Market/Industry Analysis**

Our target audience will mainly be large organizations such as the Red Cross, the Médecins Sans Frontières, the UN Foundation, and UNICEF; NPOs that work towards building schools; (ex. "HERO," builds schools in Cambodia; "International Support of School Construction," builds schools in Laos and Nepal;etc. ) and companies that focus on solving problems related to water and the environment. (Kubota Corporations; Ishigaki Company, LTD; Shin Nippon Machinery, LTD, etc.) As of now, many water purifying methods that are used in third-world countries require complicated technology, such as UV radiation emitters and various chemical substances, and some even require the digging of wells. PuriFan will be more effective and generally much better than the current technologies, because it does not require complicated technology-or any electricity- to power it; not to mention that it even generates kinetic energy. Also, with regard to the power generation market in Africa, several companies have released technologies such as solar panels; however, these solar panels are simply too expensive. Thus, we expect our product to have more of a demand in the international market, because it can provide effective solutions to both problems in one package. NGOs such as UNICEF buy simple gadgets at affordable prices, but market research has shown that the more gadgets that they buy, these costs ultimately end up amounting to quite an expense, since it is necessary to buy various gadgets in order to fulfill multiple needs. Therefore, we have developed a more comprehensive device that fulfills multiple needs of the impoverished people, and we propose this product at a reasonable price.

### **4. Marketing/Strategy and Implementation**

By asking for an opportunity to present our product, we expect companies and organizations to better understand our vision and make it easier for us to directly negotiate with them to use our product in the schools that they fund. We will also work with the UN Foundation, which creates partnerships between entrepreneurs and the UN in order to effectively provide solutions to the problems that the UN tackles. Since "Clean Water and Sanitation" is labeled as goal #6 in the Sustainable Development Goals, we are confident that the UN will want to test the potential that PuriFan possesses. We also expect to collaborate with the Médecins Sans Frontières (Doctors Without Borders), which has expressed an interest in providing clean water. In regards to the actual product, we hope to develop larger versions of it, as well as new modules to put on the turbine, instead of limiting the output of the steam energy to the rotation of fans.

5. Finance

| (All Amounts in JPY)                              | Year 1              | Year 2            | Year 3            | Year 4            | Year 5            |
|---|---------------------|-------------------|-------------------|-------------------|-------------------|
| Revenues (a)                                      | ¥690,000            | ¥5,520,000        | ¥8,280,000        | ¥13,110,000       | ¥17,940,000       |
| Product/Service (a=a'*a")                         | ¥690,000            | ¥5,520,000        | ¥8,280,000        | ¥13,110,000       | ¥17,940,000       |
| Units sold (a')                                   | 3                   | 24                | 36                | 57                | 78                |
| Unit price (a")                                   | ¥230,000            | ¥230,000          | ¥230,000          | ¥230,000          | ¥230,000          |
| Production Costs (b=a'*b')                        | ¥219,600            | ¥1,756,800        | ¥2,635,200        | ¥4,172,400        | ¥5,709,600        |
| Unit cost (raw material)(b')                      | ¥73,200             | ¥73,200           | ¥73,200           | ¥73,200           | ¥73,200           |
| water heating tank                                | ¥25,000             | ¥25,000           | ¥25,000           | ¥25,000           | ¥25,000           |
| core heat insulator (heated stone generator/tubes | ¥39,000             | ¥39,000           | ¥39,000           | ¥39,000           | ¥39,000           |
| fan   | ¥5,800              | ¥5,800            | ¥5,800            | ¥5,800            | ¥5,800            |
| drinking tap                                      | ¥2,600              | ¥2,600            | ¥2,600            | ¥2,600            | ¥2,600            |
|   | ¥800                | ¥800              | ¥800              | ¥800              | ¥800              |
| Expenses (c=c1~c4)                                | ¥5,000,000          | ¥4,500,000        | ¥4,900,000        | ¥5,500,000        | ¥7,000,000        |
| Staff Salaries (c1=ci*cii)                        | ¥0                  | ¥3,000,000        | ¥3,900,000        | ¥4,500,000        | ¥6,000,000        |
| No. of office staff (ci)                          | 3                   | 3                 | 3                 | 3                 | 3                 |
| annual salary (cii)                               | ¥0                  | ¥1,000,000        | ¥1,300,000        | ¥1,500,000        | ¥2,000,000        |
| Sales/Marketing (c2)                              | ¥2,000,000          | ¥1,500,000        | ¥1,000,000        | ¥1,000,000        | ¥1,000,000        |
| Rent (c3)   | ¥0                  | ¥0                | ¥0                | ¥0                | ¥0                |
| Development [3months] (c4=c4'+c4'')               | ¥3,000,000          | ¥0                | ¥0                | ¥0                | ¥0                |
| prototype material costs (c4')                    | ¥1,500,000          | ¥0                | ¥0                | ¥0                | ¥0                |
| developer salaries (c4'')                         | ¥1,500,000          | ¥0                | ¥0                | ¥0                | ¥0                |
| <b>Profit/Loss before tax (d=a-b-c)</b>           | <b>(¥4,529,600)</b> | <b>(¥736,800)</b> | <b>¥744,800</b>   | <b>¥3,437,600</b> | <b>¥5,230,400</b> |
| Tax (e)   | ¥0                  | ¥0                | ¥237,840          | ¥1,054,080        | ¥1,600,320        |
| Corporate tax and other related tax               | ¥0                  | ¥0                | ¥111,720          | ¥515,640          | ¥784,560          |
| Stamp duty  | ¥0                  | ¥0                | ¥14,400           | ¥22,800           | ¥31,200           |
| Income Tax  | ¥0                  | ¥0                | ¥111,720          | ¥515,640          | ¥784,560          |
| <b>Net Profit/Loss (f=d-e)</b>                    | <b>(¥4,529,600)</b> | <b>(¥736,800)</b> | <b>¥506,960</b>   | <b>¥2,383,520</b> | <b>¥3,630,080</b> |
| Start-up cost (g)                                 | ¥0                  | ¥0                | ¥0                | ¥0                | ¥0                |
| <b>Free Cash Flow (i=f-g)</b>                     | <b>(¥4,529,600)</b> | <b>(¥736,800)</b> | <b>¥506,960</b>   | <b>¥2,383,520</b> | <b>¥3,630,080</b> |
| Funding Required/dividends paid                   | ¥10,000,000         | ¥0                | ¥0                | ¥0                | (¥10,500,000)     |
| Governmental subsidies                            | ¥300,000            | ¥0                | ¥0                | ¥0                | ¥0                |
| <b>Cash Balance</b>                               | <b>¥5,770,400</b>   | <b>¥5,033,600</b> | <b>¥5,540,560</b> | <b>¥7,924,080</b> | <b>¥1,054,160</b> |

6. Conclusion

PuriFan will undoubtedly change the lives of individuals who are currently unable to access clean drinking water, or to any source of electricity. We can help pave the way for a more sustainable future and potentially save people from being infected with diseases like dysentery, cholera, and typhoid, and prevent a max of around 4000 lives from being taken away, every day. Investors will not be disappointed with the success that we know will come with investing in PuriFan- the best solution to providing energy and clean water.

[Sources: <http://www.un.org/sustainabledevelopment/water-and-sanitation/>, <https://www.pcglobal.org/brighter-future-clean-water/>, <https://www.theguardian.com/global-development-professionals-network/2017/mar/17/access-to-drinking-water-world-six-infographics>, <https://npo-hero.org/projects/>, <http://www.import-ag.jp/>, <https://www.kubota-global.net/>, <http://www.livingwaterafrica.org.uk/water-poverty/>, <http://www.unfoundation.org/what-we-do/campaigns-and-initiatives/>]