ZenVow: Global Basic Income

A human health generated, time dependent digital currency approach.

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Abstract:

Today money/currency is synonymous of inequality, exploitation, greed and corruption with overall negative Karma [1]. Through deep insight and analysis the truth reveals itself, the fundamental core problem of money today is that it can be hoarded and accumulated indefinitely, this main characteristic allows for it to be passed on from one generation to the next, this somewhat inoffensive characteristic is the root of problems regarding money distribution, it allows and drives inequality by design, rigging the game for new generations that do not have money in the family, thus feeding and motivating exploitation, greed and corruption.

This paper describes a human health generated time dependent digital monetary system based on Decentralized Ledger Block-Chain or centralized Technology. This new form of money allows for **financial inequality** to be a **mathematical impossibility and serves as a base for a Humanitarian Global Basic Income**.

This new system works as a tool to facilitate and incentivize the transition from an era of global crisis, to an era of individual awakening to the reality of global unity and oneness, for the benefit of all [1].

Keywords:

Global basic income, time dependent digital currency, human health generated currency, demurrage currency, blockchain technology.

1. Introduction.

The world's monetary system is governed by paper and digital currencies that have held the same characteristics for several centuries now, such as interchangeable, non-consumable, durability, portability, divisibility, secure, uniformity, limited supply and acceptability [2].

Figure 1. Fiat currency in paper form.

Today Global wealth inequality projections show that 1% of the world population holds more wealth than the bottom 50% and that this number will grow to 60% by 2030 and 74% by 2050 [3]. This phenomena exists because the monetary system architecture allows for it, the inherited characteristics of money allow for hoarding and accumulation of wealth that can be passed from generation to generation, feeding and rising inequality.

Today wealth inequality is probably one of the world's biggest problems, it increases, incentivizes and perpetuates exploitation, greed and corruption. The impact of wealth inequality leads to overall negative outcomes such as social and ecological crisis.

The fundamental characteristics of currency by design is based on a mathematical model that today is being put into question regarding its sustainability on a finite resource planet.

2. Global basic income.

Global basic income is a concept that has been around since the 1970 [4], a concept of giving every person in the world a minimum guaranteed basic income on a regular basis. This proposed idea only focuses on distribution aspect of wealth inequality, it does not mention the necessity to alter the core negative characteristics of money mentioned in the previous paragraph.

3. Demurrage currency.

Demurrage is the name given to the fee related with owning or holding currency over a time period. It is occasionally mentioned to as a carrying cost of money. For commodities like gold, demurrage represents the golds storing and securing costs. For fiat currency, it can represent for example a periodic tax, such as a stamp tax, on currency holdings [5].

Demurrage currency was successfully tested in the Austrian town of Wörgl between 1932 and 1934. Early real life experiments demonstrated that demurrage on money significantly increase the velocity of money in circulation [6].

4. Design approach.

The solution proposed in this paper combines global basic income, time dependent digital currency (demurrage currency derived) and wearable health technology (proof of practice) in order to implement a monitoring/validation system for egalitarian global basic income reward based on human physical and mental health.

5. Time dependent digital currency design.

Time dependent digital currency, is a type of currency with differentiated characteristics from conventional currency. The time dependent digital currency is designed with the purpose of making financial inequality a mathematical impossibility. It can be implemented using decentralized ledger blockchain technology or normal centralized database technology as long as it has a digital component.

5.1 Time dependent digital currency characteristics.

Time dependent digital currency differs from traditional currency in the sense that it has the following characteristics shown in figure 2:
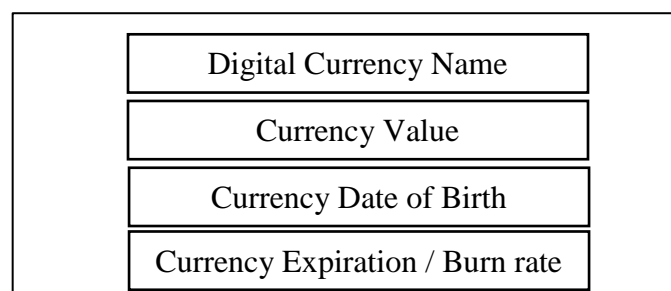
| Digital Currency Name |
| Currency Value |
| Currency Date of Birth |
| Currency Expiration / Burn rate |

Figure 2. Diagram representation of time dependent digital currency characteristics

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┌─────────────────────────────────────────┐
│                                         │
│   1  ZenVow                             │
│   ─────────────────────────────────     │
│   2018 Creation Date      1% Year Burn Rate │
│                                         │
│   2118 Expiration date                  │
│                                         │
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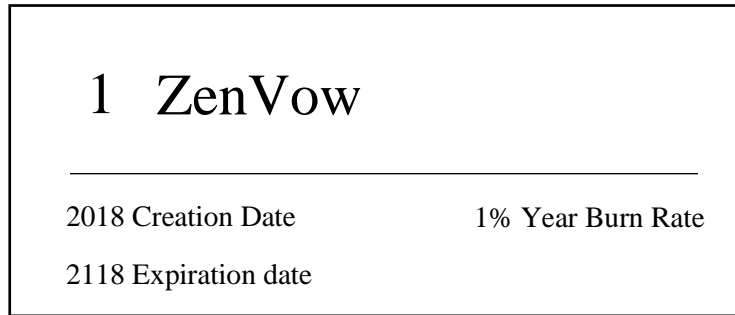
Figure 3. Time dependent digital currency Mock Up example

5.2 Time dependent digital currency value.

The currency value is a positive number that has the following characteristics: value greater than zero, dynamic value characteristics (not a static value such as traditional currency). The value of the currency varies through time, thus the time dependency.

5.3 Time dependent digital currency date of creation.

The date of birth is used to calculate the burn rate, thus giving a lifespan to the currency according to the date of birth to the date of expiration.

5.4 Time dependent digital currency expiration/burn rate.

The currency expiration/burn rate is the main differentiator from normal currency. The word time dependent implies a lifecycle from birth to death of the currency. This is accomplished by using for example the following mathematical equation:

$$K = [0, Max];$$
$$X(K) = X_0 - X_0 \left(\frac{K}{K_{max}} \right)$$

Equation 1. Linear Burn rate example

Where K represents time in seconds, minutes, hours, days, weeks or years. X represents the value of the time dependent digital currency in time, X_0 represents the initial value when the currency was created. The final value of X is dependent on time K, with a reference of K_{max} representing the expiration date of the specific currency.

The equation 1 here represents a linear constant burn rate, but this paper covers all possible burn rates, exponential, logarithmic, and all other possible mathematical curves.

5.5 Example of a coin/note called ZenVow and its value through time.

The date of birth of first coin/note is 2020 with a value of 1 ZenVow coin, the expiration date is 100 years, the first year, 1 ZenVow is valued at 1 ZenVow, the second year the value drops to 0.99 ZenVow according to the formula with K_{max} = 100.

The coin/note will be worthless after 100 years in existence, each year drops the value of the coin 1% according the life expectancy of the coin of 100 years. This example uses a linear constant burn rate. Table 1 also shows coins/notes created in the years 2021 to 2023, and their respective values during time. This time depreciation to zero is the key innovation that will allow for wealth accumulation and inequality to be a mathematical impossibility.

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	...
2020	1	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	...
2021		1	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	...
2022			1	0.99	0.98	0.97	0.96	0.95	0.94	0.93	...
2023				1	0.99	0.98	0.97	0.96	0.95	0.94	...
...					...	...	...	...	...	...	...

Table 1. Coin/note values during 100 year period for ZenVow currency.

6. Human generated time dependent digital currency – ZenVow rewards.

Today fiat money is disproportionally unevenly distributed, with alarmingly growing rates of inequality worldwide [3] and represents an abstract mathematical model with no connection to nature. Human health generated time dependent digital currency introduces a connection between

currency and the biological human life. The ZenVow reward will be distributed according to live feedback system that reads global income rates in real time and rewards uses accordingly. The human generated time dependent digital currency system is designed to converge to mean income value through time, and makes financial inequality a mathematical impossibility as time goes by. With time the model will eventually distribute the same daily ZenVow rewards to users, making it an egalitarian distribution system that reacts in real time according to all user's income.

The world income disparity average by country today is in an order of magnitude around 314 between minimum daily income (Burundi 0.55 USD average daily income) and the maximum (Switzerland 173USD average daily income). In order to balance this inequality, a live function with feedback needs to be implemented in order to fairly distribute currency among human populations around the world (Table 2 shows 6 of the 194 countries in the world, there average life expectancy, daily income, population and yearly income).

	Country Name	Life Expectancy (Years)	Income (USD day	Population	Income (USD Year)
1	Afghanistan	63.67	1.3419	35,530,081	489.78
2	Angola	61.55	4.8697	29,784,193	1,777.45
3	Albania	78.35	9.8819	2,873,457	3,606.90
4	United Arab Emirates	77.26	94.7388	9,400,145	34,579.67
5	Argentina	76.58	29.3969	44,271,041	10,729.86
6	Armenia	74.62	8.4598	2,930,450	3,087.81
…	…	…	…	…	…

Table 2. World population, life expectancy, income data, 2017 from 6 countries out of 194

	World Average Life Expectancy 2017 (Years)	World Average daily income 2017 (USD)
Average	71.63	22.00
Minimum	51.84	0.55
Maximum	83.98	173.64

Table 3. World average income, minimum and maximum values from all countries in the world

The daily Global Basic Income (equation 2.) represents the mean value necessary to balance income for all the populations in the world, this value has to be individually/periodically updated in order to adjust for feedback on the systems new information. Users in poverty (lower daily income) receive a higher daily ZenVow reward, because they are the populations that really need it, just like the Hospital Urgency Triage system, the most urgent patients will received treatment

first, not so urgent patients receive treatment later, just like the Manchester Triage System (MTS) [7]. For Global Basic income to be implemented we need a Dynamic Inequality Triage System (DITS), hopefully with time all the inequality triage index will distribute the same income to every person, as soon as the convergence period has finished.

The Global basic daily income (ZenVow reward) will be handed out for the practice of scientifically proven healthy behaviors such as breathing, sports, fitness, yoga, meditation and general physical human activity, using the ZenVow sensor, a wearable device with embedded **proof of practice technology** [1].

This technology allows for the monitoring and validation of the intended healthy activities. It is important to hand out rewards for positive healthy behaviors and not just free money. This will incentivize good health practices, and will work as a preventive medicine enforcer [10].

	Breathing Practice	**Meditation Practice**	**Yoga / Fitness Practice**	**Physical Activity**
1 Person	25%	25%	25%	25%

Table 4. Global basic daily income distribution example not definitive distribution

If for any reason the user is not able to practice healthy activities such as sports, yoga, meditation or fitness exercises, the system will reward the user with 100% of daily rewards just from breathing exercises alone. This can be activated for example by presenting a doctor's prescription recommending no physical activity. Breathing is one of the most common and simple functions that all humans have that can be accurately monitored and measured with very cheap sensors.

According to World Bank statistics in 2017, 82% of the world population earn an average income below 22 USD and 18% above this value.
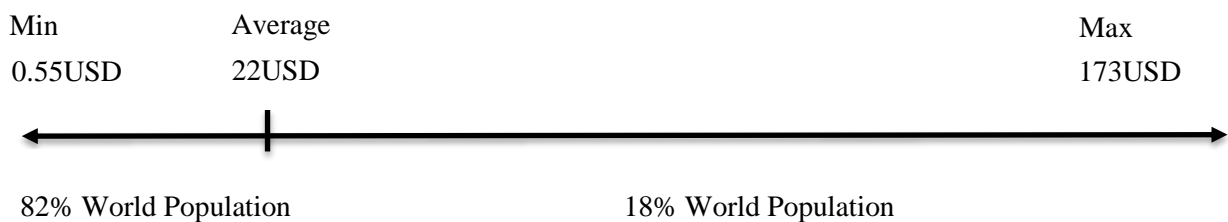
Min   Average   Max

0.55USD   22USD   173USD

82% World Population   18% World Population

Diagram 1. Average world population income in USD and percentage from 2017

The daily Global Basic Income (ZenVow rewards) will be handed out according to the following formula calculated individually from person to person:

Personal daily income < =22 USD:

$$ZenVow(personal\ income) = \frac{\left|\left(\left(\dfrac{(b-a)*(personal\ income - world\ \min income)}{world\ \text{average}\ income - world\ \min income}\right) + a\right) - b\right| + a}{10}$$

Personal daily income > 22 USD:

$$ZenVow(personal\ income) = 1$$

Equation 2. ZenVow inequality distribution hypothesis.

Personal daily income < 22 USD:

$$ZenVow(0.55USD) = \frac{\left|\left(\left(\dfrac{(50-10)*(0.55-0.55)}{22-0.55}\right) + 10\right) - 50\right| + 10}{10} = 5\ ZenVow$$

Personal daily income >= 22 USD:

$$ZenVow(\ 173USD\ ) = 1\ ZenVow$$

Equations 3. ZenVow distribution rate examples for upper and lower daily income values.

Min	Average		Max
0.55USD	22USD		173USD

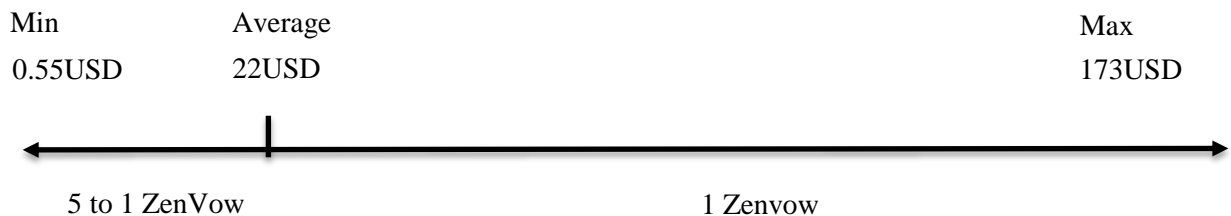
5 to 1 ZenVow   1 Zenvow

Diagram 2. ZenVow Distribution according to Inequality Triage Equation.

The min and max for the ZenVow rewards is a dynamic value that will start off with a range of {10, 50} representing the Dynamic Inequality Triage System, where b=50 a=10 and max inequality disparity is 5 fold (this initial value of 5 will suffer alteration, and is set to 5 in order to exemplify the difference in reward for Burundi and Switzerland, 5 and 1 ZenVow daily rewards respectively

this was calculated by dividing and rounding 82%/18% real world inequality weights by average in USD).

The following table shows the results of the ZenVow rewards according to the feedback formula.

	Country Name	Life Expectancy	Income (day)	Population	ZenVow Reward (day)
1	Afghanistan	63.67	1.3419	35,530,081	4.8
2	Angola	61.55	4.8697	29,784,193	4.2
3	Albania	78.35	9.8819	2,873,457	3.2
4	United Arab E.	77.26	94.7388	9,400,145	1.0
5	Argentina	76.58	29.3969	44,271,041	1.0
6	Armenia	74.62	8.4598	2,930,450	3.5

Table 4. World average ZenVow rewards for 2020

A daily user's Global Basic Income (ZenVow rewards) value will be affected by the extra ZenVow rewards he has received in the past, thus this calculation needs to be recalculated periodically in order to recalculate the ZenVow reward in accordance to the user's income, plus the ZenVow rewards previously received. This feedback calculation will be done periodically (daily, weekly, monthly or annually depending on the ZenVow adoption rates).

$$ZVincomefeedback = \left(\frac{(country\ population - \ ZVadoption) * income + ZVadoption * (ZVreward + income)}{country\ population} \right)$$

Equation 4. ZenVow impact distribution feedback

ZVincomefeedback is the new income status of the user that has previously received ZenVow rewards in addition to the user's normal income. Country population is the amount of population in the user's country. This approach will only be temporary, because in this early stage we will not have access to all data from governments about users annual income, this will be the final solution eventually, when we have all personal data from a person's income, the formula will automatically compare all income data from all users and adjust ZenVow rewards accordingly. ZVadoption is the adoption number of users, we hope to target 1.2 to 2.4 billion in 7 to 10 years.

4.1 ZenVow Time dependent digital currency adoption rates.

By our calculations we have projected 1.2 to 2.4 billion users in 10 years adopting this form of global basic income. These calculations were made by simulating smartphone adoption rates worldwide shown in Plot 2. Plot 2 also shows the impact of the ZenVow rewards globally.

4.2 ZenVow Time dependent digital currency burn rate.

The time dependent digital currency burn rate of the ZenVow currency should be the average life expectancy of World Global Population (71 years) and will represent a dynamic value during time to adjust for this average fluctuations during time. Because of urgency in solving the inequality problem, we have considered a burn rate of 2% a year, meaning that a coin generated today, will be worthless in 50 years from now. The other option would be 100 years but with that burn rate convergence would take more time, and in a world where 800 million people are starving [9], 100 years is not a responsible option.

4.3 ZenVow Time dependent digital currency market capitalization.

The total market capitalization of a time dependent digital currency will be stable in the long run, and will be directly correlated with user adoption. If adoption goes to zero the coins value will automatically go to zero after the time period of the burn rate is arrived. More analysis of the impacts of the system is being simulated for 100 to 1000 years, the results of these simulations will be shared in a next paper.

7. World Population statistics Plot.

The next plot shows all world country populations, income and life expectancy in 2017 according to World Bank Statistics [8].
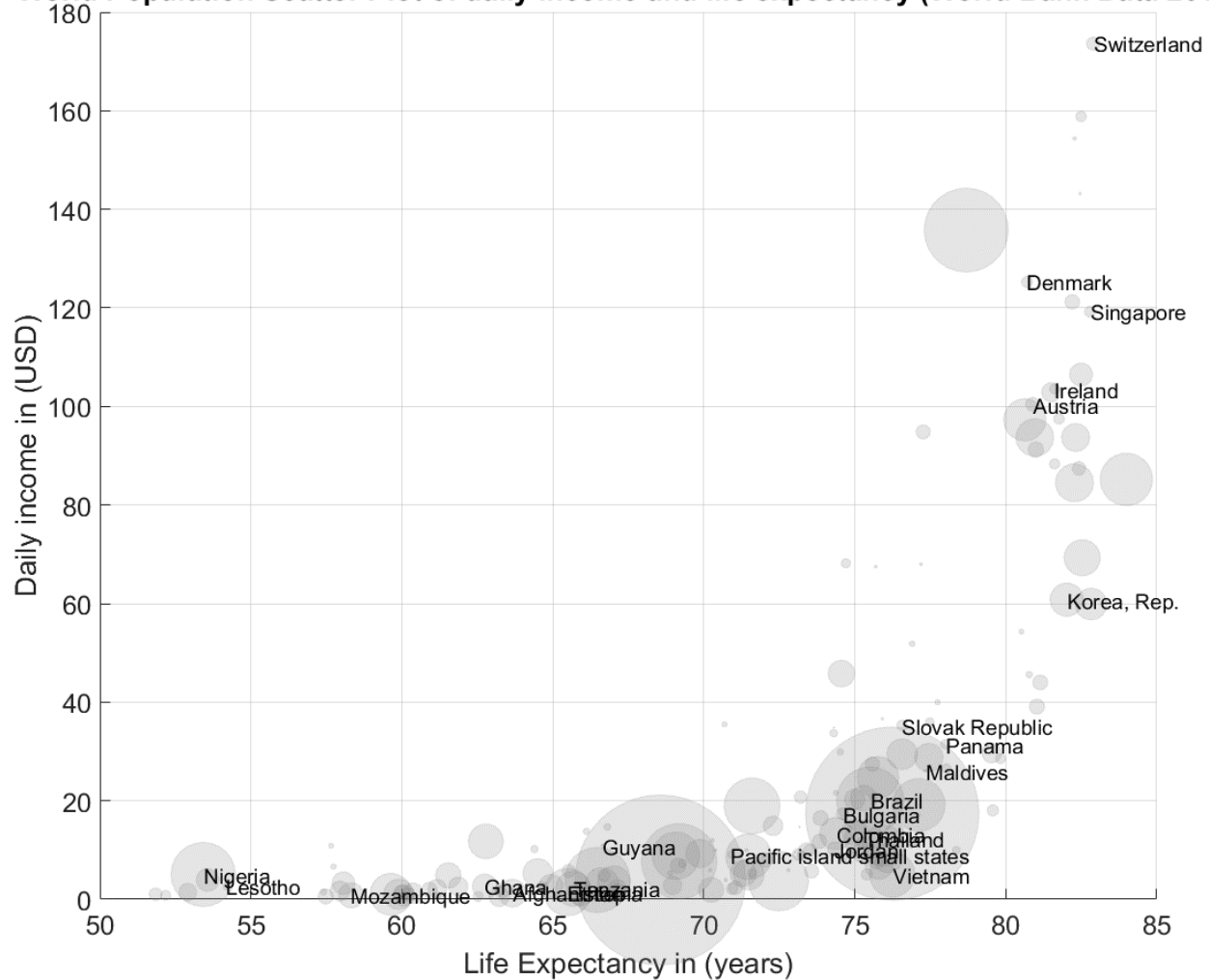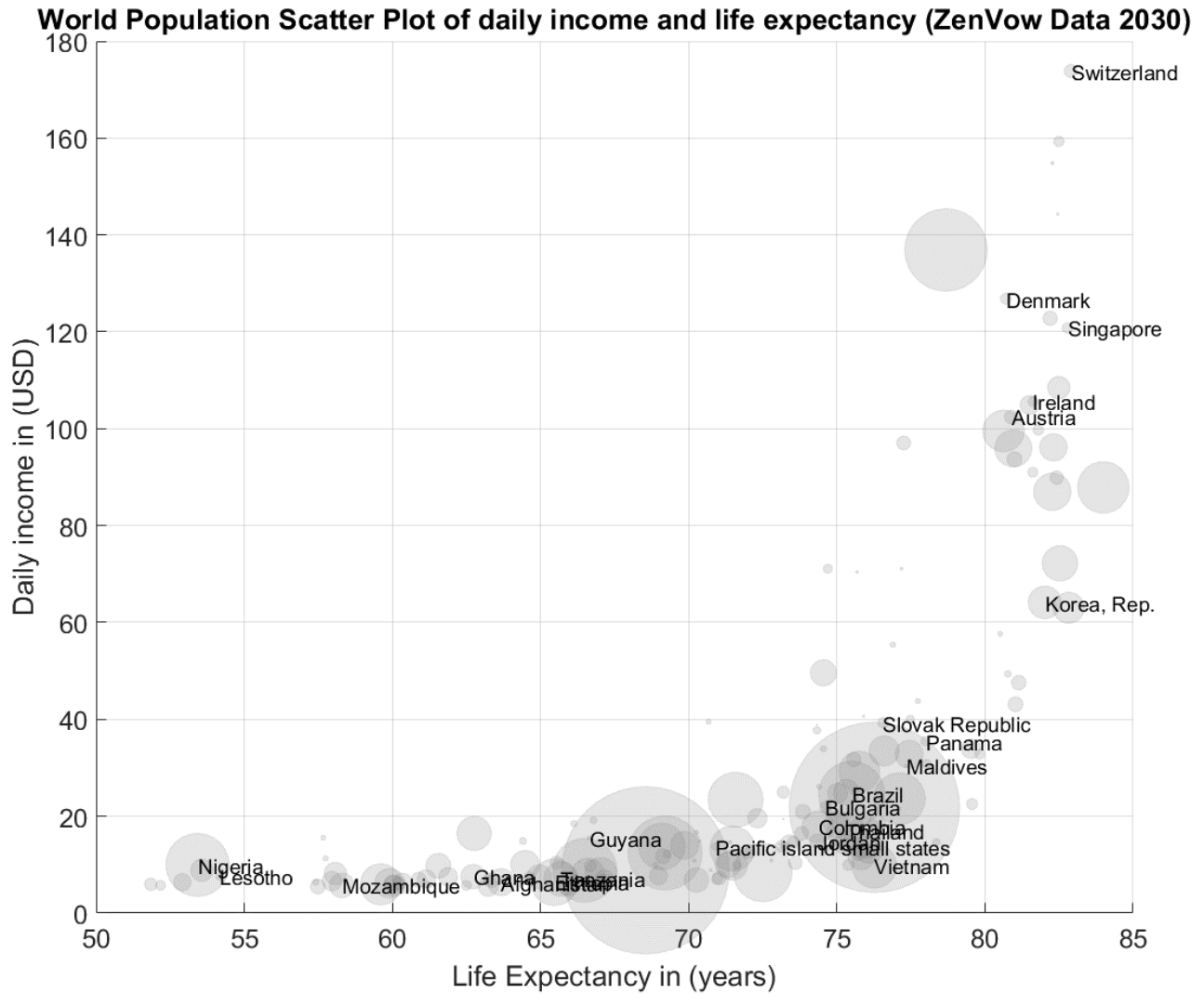

Plot 1. Data from 2017 regarding population income in USD and life expectancy in years

In Plot 1 we can observe several countries living below the extreme poverty line with a daily income below 1.25USD per day.

7.1 World plot after 10 years of ZenVow rewords.

The next plot shows income upgrade by ZenVow rewards after 10 year adoption from 2020 to 2030 all over the world in 194 countries, all poor countries get significant upgrades to daily income helping overcome extreme poverty.

Plot 2. Data from 2030 regarding population income in USD and life expectancy in years

8. Global Health Expenditure in relation to Gross World Product

According to World Bank data from 2000 to 2015 the Global Health Expenditure in relation to the Gross World Product has grown from 8.6% to 9.9% from 2000 to 2015 representing an increase from 3 Trillion USD to 7.5 Trillion USD in the 15 year period. This trend is putting a strain on Governments Health spending and represents almost 10% of WGP. This data is represented in the following charts:
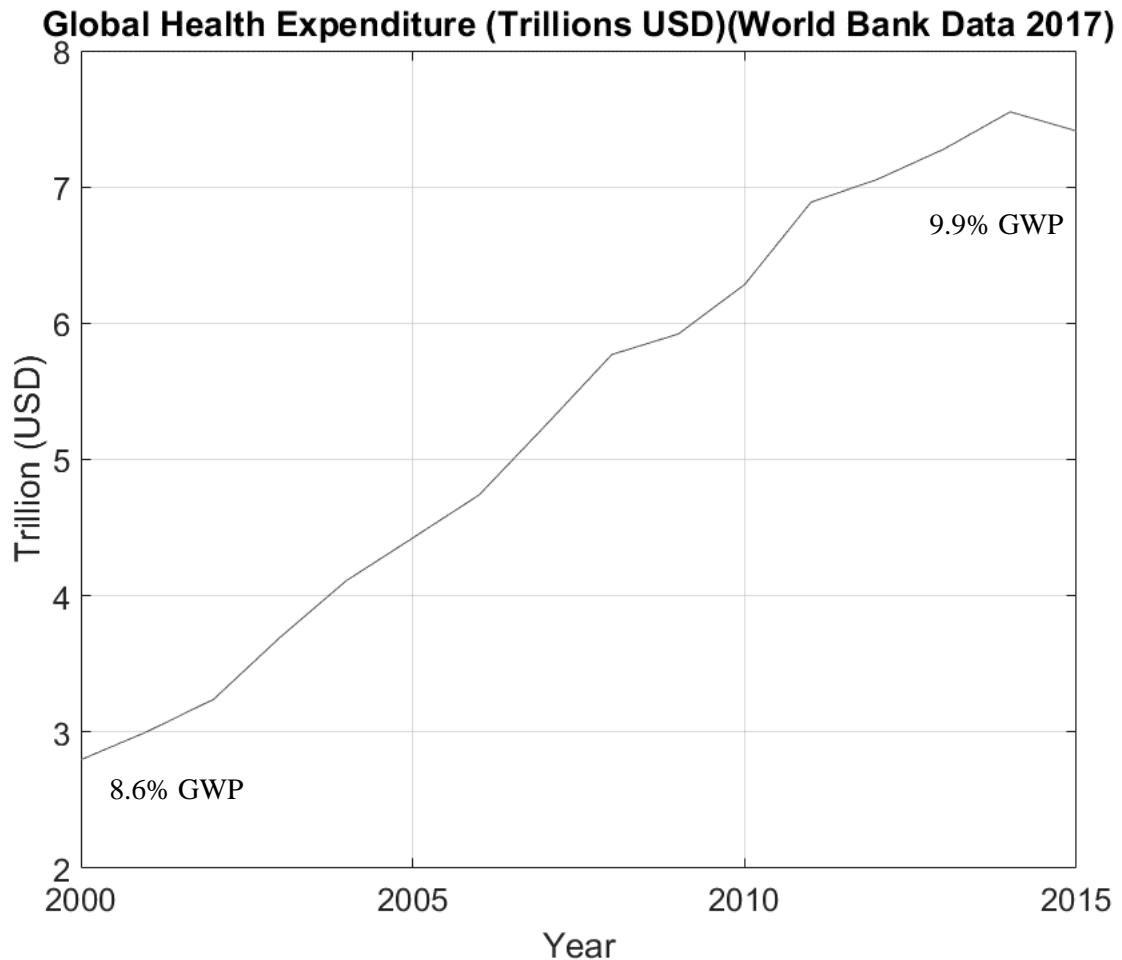
Plot 3. Data from the year 2000 to 2015 regarding Global Health Expenditure in relation to GWP

The lack of General human physical activity like walking, running, fitness and overall sports have been shown to increase Health Care springing [11]. For this reason the need to financially incentivize General human physical activity with Human Health Generated Digital Currencies in order to reduce Health Care spending and increase overall health should be perused.

9. ZenVow rewards Physical Distribution.

The reward distribution system is composed by the ZenVow meditation pad (optional) and ZenVow sensor (mandatory), this later monitors breathing, sports and fitness, yoga, meditation and general human physical activity in "Kilojoules" (mathematically derived by using the sensors data and artificial neural networks). Both devices designed in a way to create an interactive experience that will motivate users and engage them in long term practice in order to reap the most health benefits [1].

Figure 2. ZenVow Sensor (mandatory), proof of practice technology.

Figure 3. Zenvow meditation pad (optional), proof of practice technology.

9.1 ZenVow sensor costs.

The ZenVow sensor costs around 8 USD per unit to manufacture, this means that for 2.4 Billion units it would cost 19.2 billion USD. To cover all world population it would cost almost 60 Billion USD for 7.4 billion individual ZenVow sensor units.

10. Long term implications.

The long term implications of human generated time dependent digital currency is a redefinition of property and ownership, by design the concept will change personal and social psychology. Hopefully this new understanding and expansion of consciousness will allow a transition from an era of competition to an era of collaboration, from an era of possession to an era of access. We will witness a change in lifestyle, with growing numbers of digital nomads. More long term impacts of this system will be published in the upcoming paper. Civilization 2.0 is coming!

11. Acknowledgements.

The ZenVow project is inspired by a variety of very different philosophies and personalities, and would have not been possible without there insight, this list mentions just a few:

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12. License.

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13. References.

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