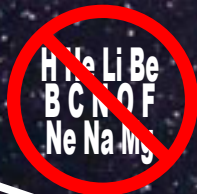


CLOSED MASS



$$\Delta S = (\Delta U + p\Delta V) / T \geq \Delta Q / T \quad \infty$$

yy

mm

dd

hh

mm

ss.mmm

Reset your clocks, this is:

year

month

day

hour

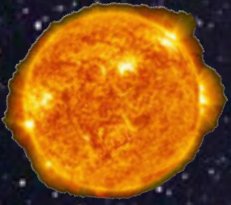
minute

second



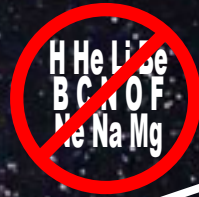
**2016 is passé, it's year 43 in
the Age of Closed Mass**

open energy



CLOSED MASS

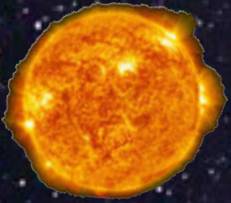
			Be	B	C	N			
			3	4	5	6	7	8	
	Mg	Al	Si	P	S	Cl	Ar	K	
	12	13	14	15	16	17	18	19	
	Ca	Ti	V	Cr	Mn	Fe	Co	Ni	Cu
	20	21	22	23	24	25	26	27	28
	Ga	Ge	As	Se	Br	Kr	Rb	Sr	Y
	31	32	33	34	35	36	37	38	39
	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In
	41	42	43	44	45	46	47	48	49
	Sb	Te	I	Xe	Cs	Ba	La	Ce	Pr
	51	52	53	54	55	56	57	58	59
	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm
	61	62	63	64	65	66	67	68	69
	U	Hf	Ta	W	Re	Os	Ir	Pt	Au
	71	72	73	74	75	76	77	78	79
	Pb	Bi	Po	At	Rn	Fr	Ra	Ac	
	82	83	84	85	86	87	88	89	
	Np	Pu	Am	Cm	Bk	Cf			
	94	95	96	97					



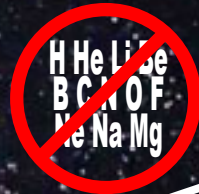
mass
fundamentals:
Resources

$$\Delta S = (\Delta U + p\Delta V) / T \geq \Delta Q / T \quad \infty$$

open energy



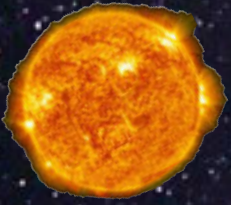
CLOSED MASS



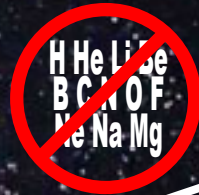
mass
fundamentals:
Resources
Humans

$$\Delta S = (\Delta U + p\Delta V) / T \geq \Delta Q / T \quad \infty$$

open energy



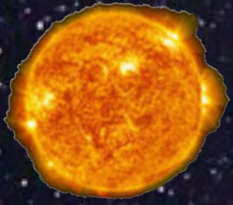
CLOSED MASS



mass
fundamentals:
Resources
Humans
Products

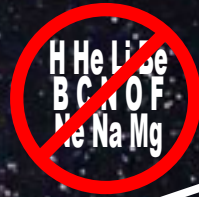
$$\Delta S = (\Delta U + p\Delta V) / T \geq \Delta Q / T \quad \infty$$

open energy



CLOSED MASS

	12	1
c	Ti	V
11	22	2
Ga	Ge	A
31	32	3
Nb	Mo	T
41	42	4
Sb	Te	I
51	52	5
Pm	Sm	E
61	62	6
u	Hf	T
	72	7
	Pb	B
	82	8
		9



mass
 fundamentals:
 Resources
 Humans
 Products
 Emissions

$$\Delta S = (\Delta U + p\Delta V) / T \geq \Delta Q / T \quad \infty$$

the last emigrant - the last import



CLOSED MASS



yy

mm

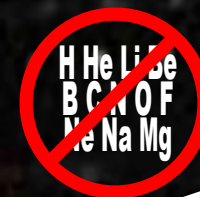
dd

hh

mm

ss.mmm

Let's get this mother
outta here.



closed mass



the last emigrant
the last import

yy

mm

dd

hh

mm

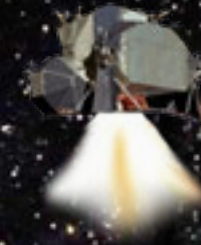
ss.mmm

43 years ago, the last human to travel to another celestial body left with the last minerals - why is it the last?

Because transporting 12 humans to the moon, bringing back 382 kilograms of rocks is considered “humanity’s greatest technological achievement” -

BUT it was fantastically **EXPENSIVE**: humanity’s “greatest commitment of resources ever made in peacetime”.

Closed Mass



years

months

days

hours

minutes

seconds

since blast-off

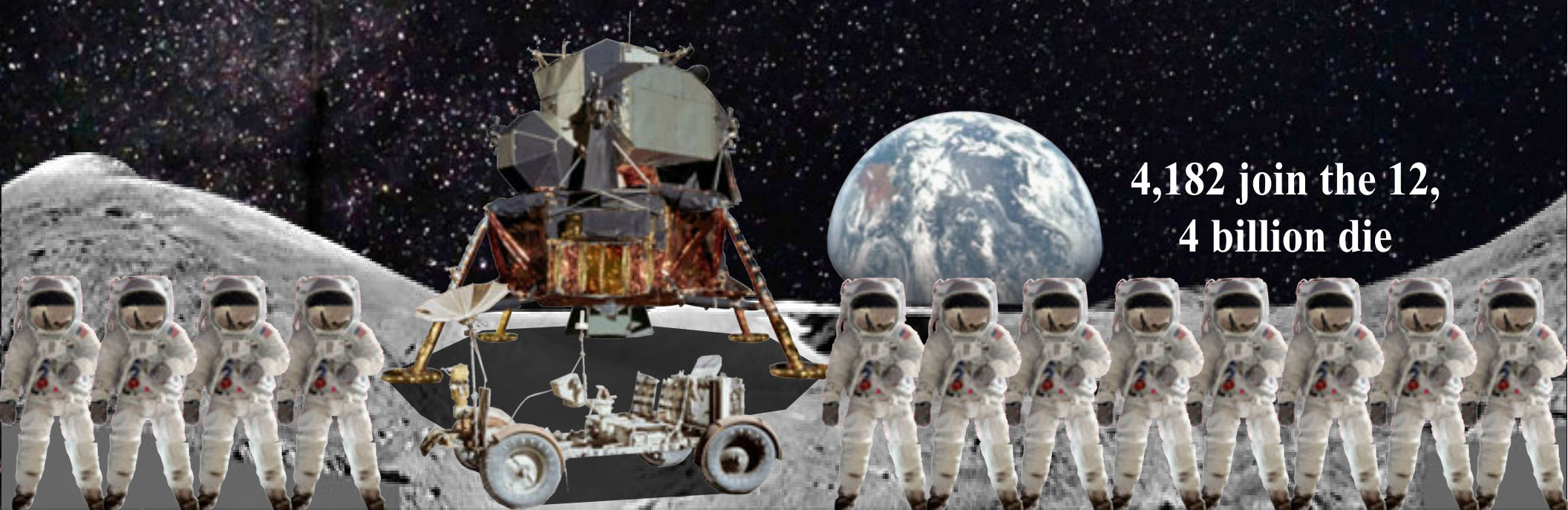
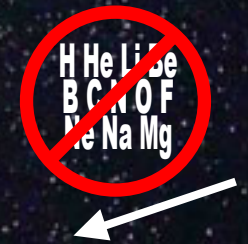


Let's get this mother outta here.

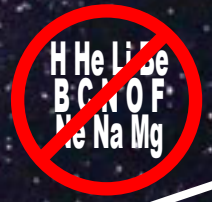
If the entire Gross World Product for 1972 were spent on nothing else - causing nearly everyone, 4 billion to die - only 4,182 humans could go to moon like the 12: getting a 6 hour 45 minute walk, a 15 kilometer lunar rover ride, bringing back 32 kilograms of rocks each.

Because of the stupendous cost, it is very likely humans may never journey to another celestial body again - this has profound implications:

Earth is **CLOSED MASS**: no emigrations, no imports possibly forever...



4,182 join the 12,
4 billion die

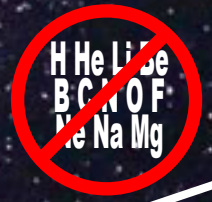


< 2 kg Moon rocks imported to Earth - maybe



There is no Human Mission planned to go back to the Moon, no emigrations.

There is 1 "Sample Return" Mission planned by China: after 45 years a small 2 kg of Moon rocks will be added to NASA's 382 kg imports - maybe.



There is no Human Mission planned to an Asteroid, no emigrations.



< 60 g to 2 kg Asteroid rocks imported to Earth in 7 years - maybe

There is 1 Asteroid Sample Return Mission planned by NASA: 60 grams to 2 kg of rock imported to Earth - 7 years round trip at a cost of \$1 billion plus.



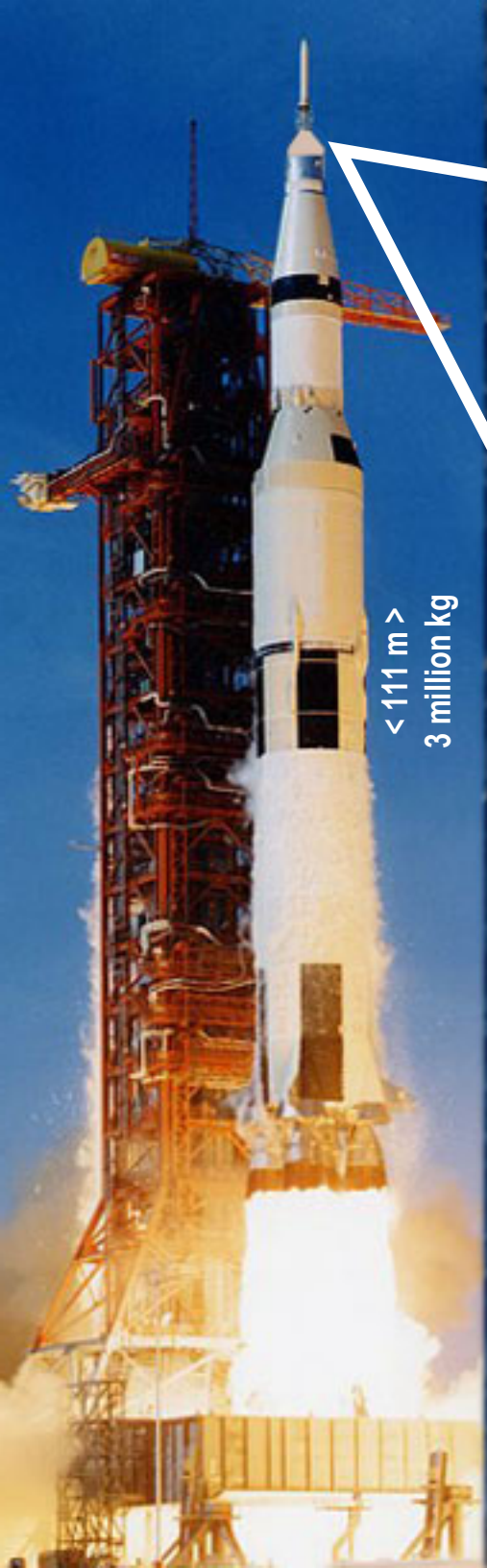
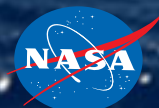
There is no Human Mission planned to Mars, no emigrations.



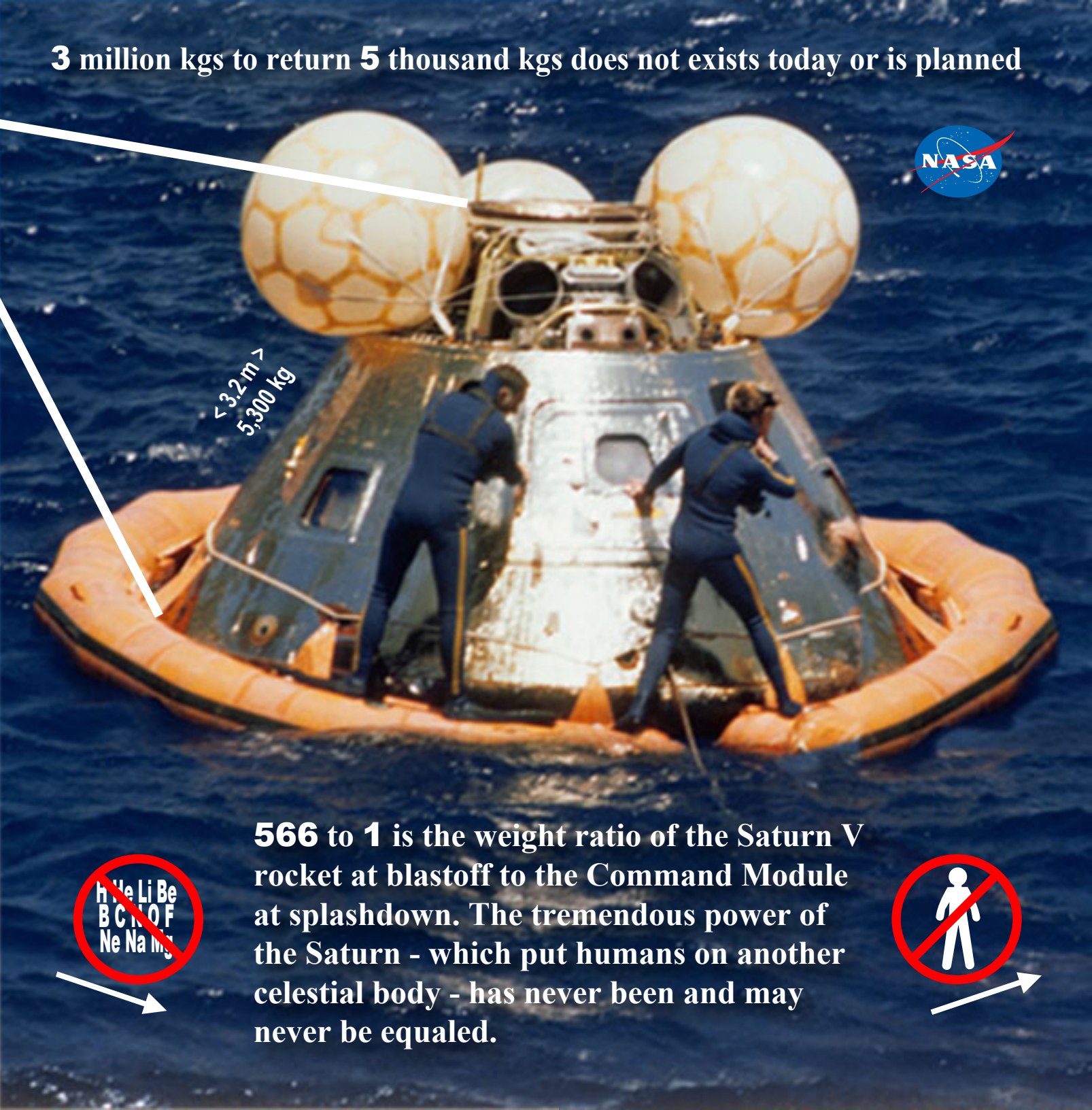
**Mars
Science
Lab
Curiosity**

There is no Mars Sample Return Mission planned, no imports to Earth.

3 million kgs to return 5 thousand kgs does not exist today or is planned



< 111 m >
3 million kg



< 3.2 m >
5,300 kg



566 to 1 is the weight ratio of the Saturn V rocket at blastoff to the Command Module at splashdown. The tremendous power of the Saturn - which put humans on another celestial body - has never been and may never be equaled.



In power, propulsion, payload (to low earth orbit) humanity is in regression - 43 years ago may never be equaled, the cost in mass-energy resources is enormous.

Rocket - payload - height - year

Saturn 140,000 kg 111 m 1972

Shuttle 27,500 kg 56 m 2011

Soyuz 8,200 kg 46 m now



Saturn V



Shuttle



Soyuz

Escaping closed mass - even just 400 kilometers up - is extremely expensive.

The International Space Station is the most costly item ever constructed, \$150 billion. The pressurized volume is only 916 cubic meters, the size of a largish house (below), full occupancy is only 6 people.



The prorated cost per person is \$7.5 million per day, \$2.7 billion per year. The small Soyuz (right) is now the only Station transport -

3 people crammed into 4 cubic meters. The price per person round trip is \$76 million - \$95,000 per kilometer - the most costly journey on or off Earth.

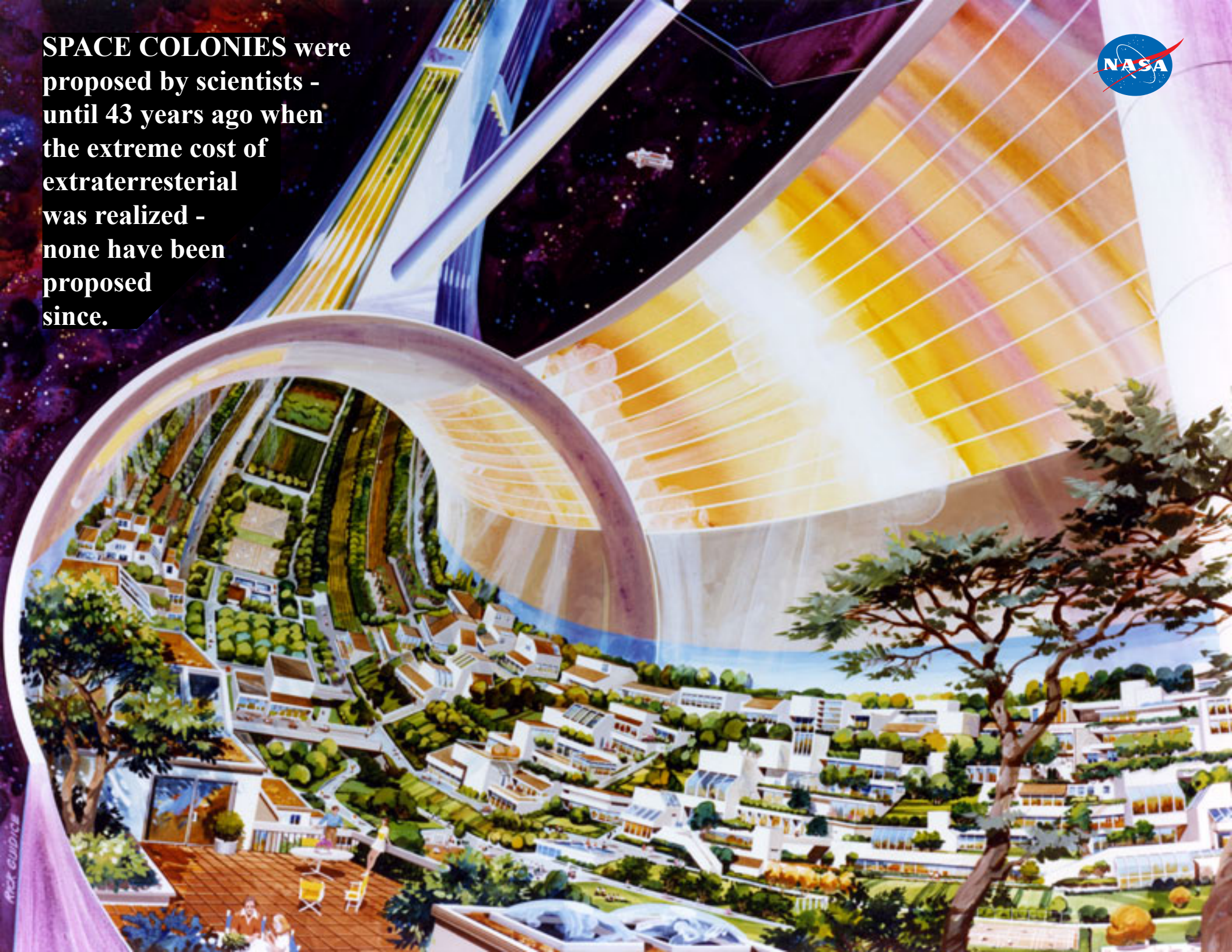


**At \$301 million for a month stay,
the Space Station is extremely cramped
and spartan - this was not predicted...**

**Your 1 mo
bill: \$301
million**



SPACE COLONIES were proposed by scientists - until 43 years ago when the extreme cost of extraterrestrial was realized - none have been proposed since.

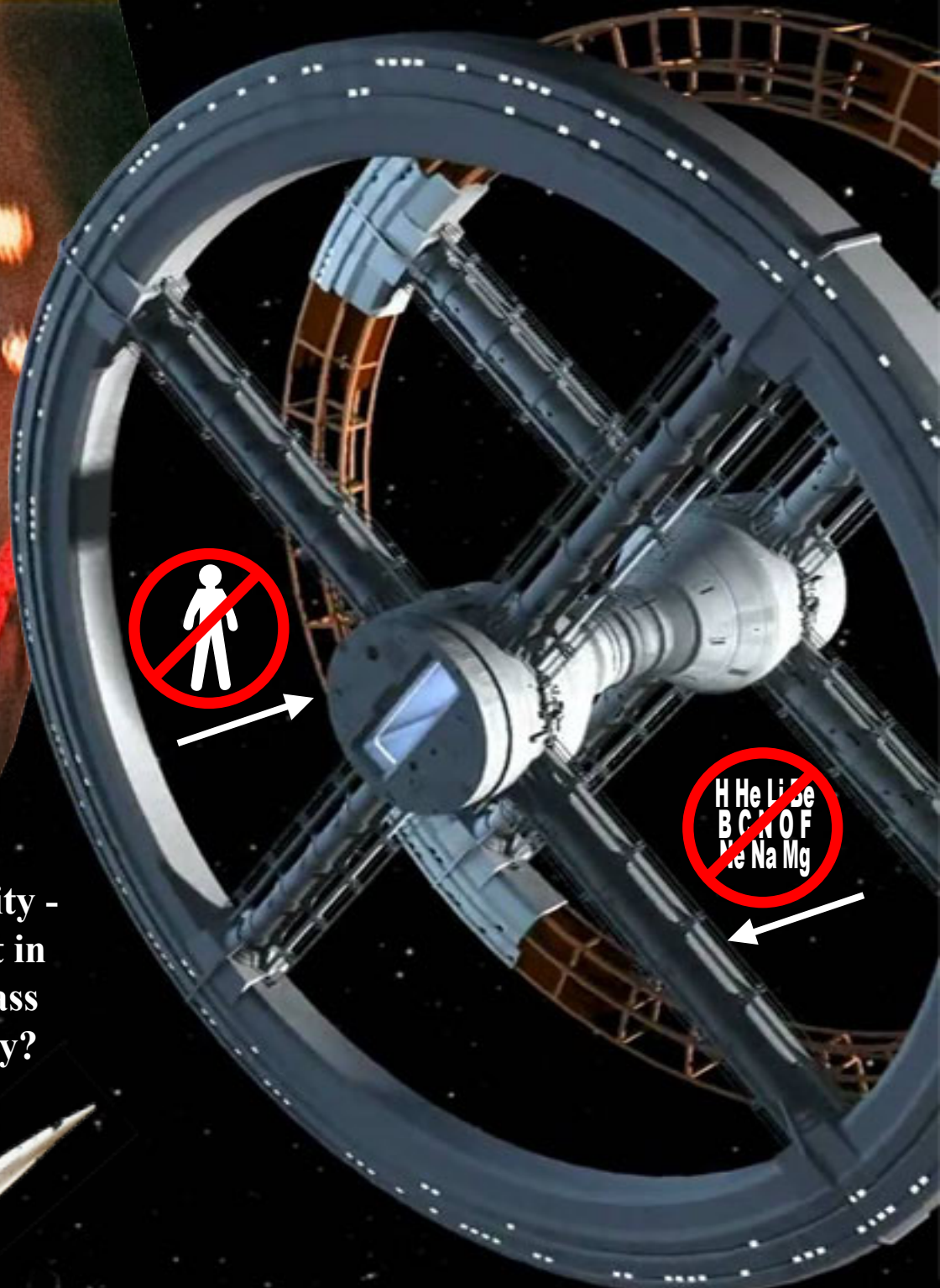
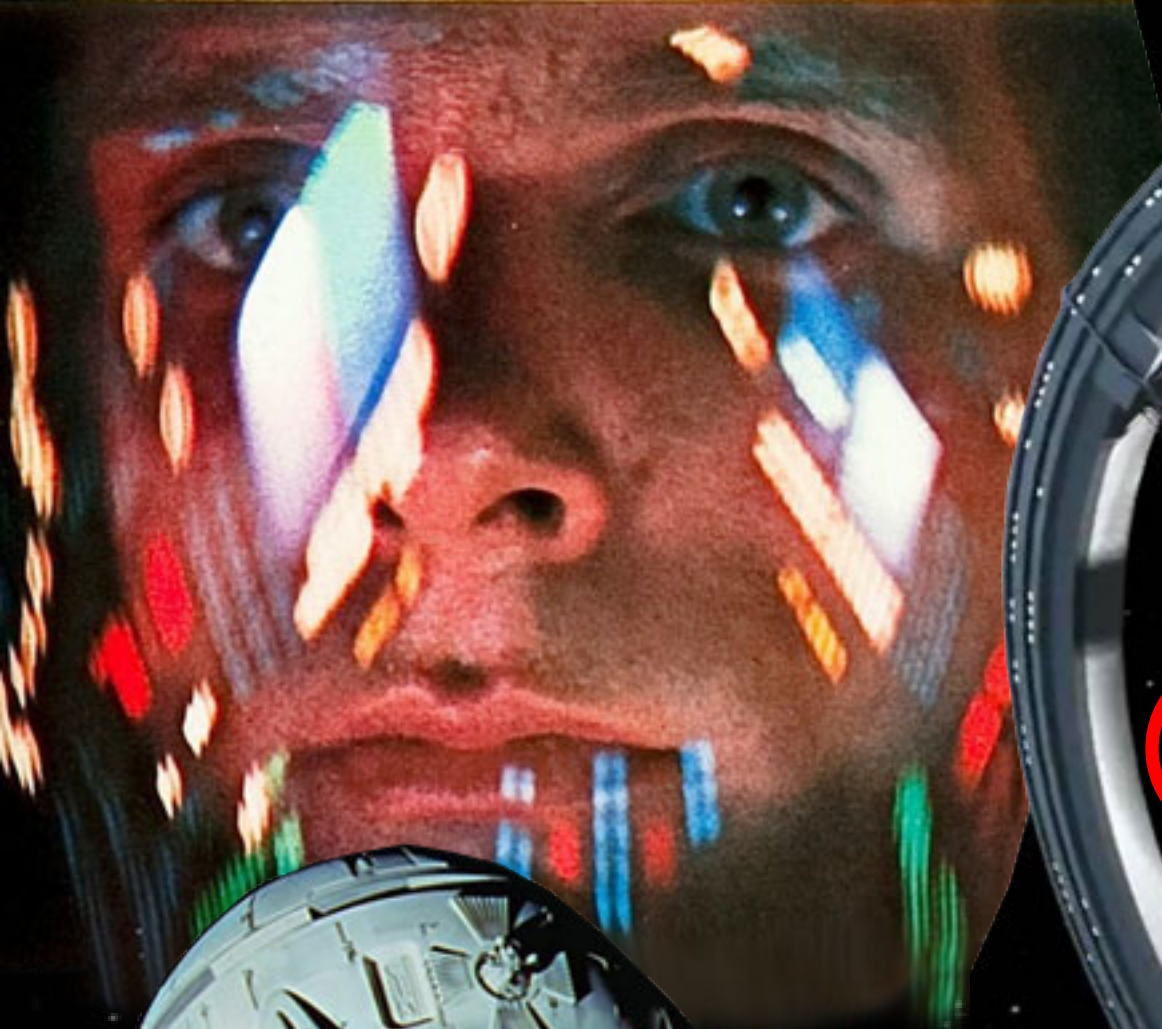


Art: GUDICE



**Last manned
spaceship on
another celestial
body, is this
end, will
there be
no more?**

**Closed mass reality, compare the last emigrant's tiny,
fragile, tin-foil spaceship with popular communications...**



Humanity -
now lost in
open mass
unreality?

~~H He Li Be
B C N O F
Ne Na Mg~~

These are space ships and stations which 1960's scientists thought would be in existence in 2001!

**Extreme popularity -
emigrants, imports, warp drives,
galactic spaceships, beam up and down...**



Humanity - lost in open mass unreality?

All-time most popular - imports,
emigrants - everything is
possible if the force is
with you



~~H He Li Be
B C N O F
Ne Na Mg~~



Humanity - lost in open mass unreality?



All-time most popular -
imports, emigrants,
avatars -
only 138 years
from now

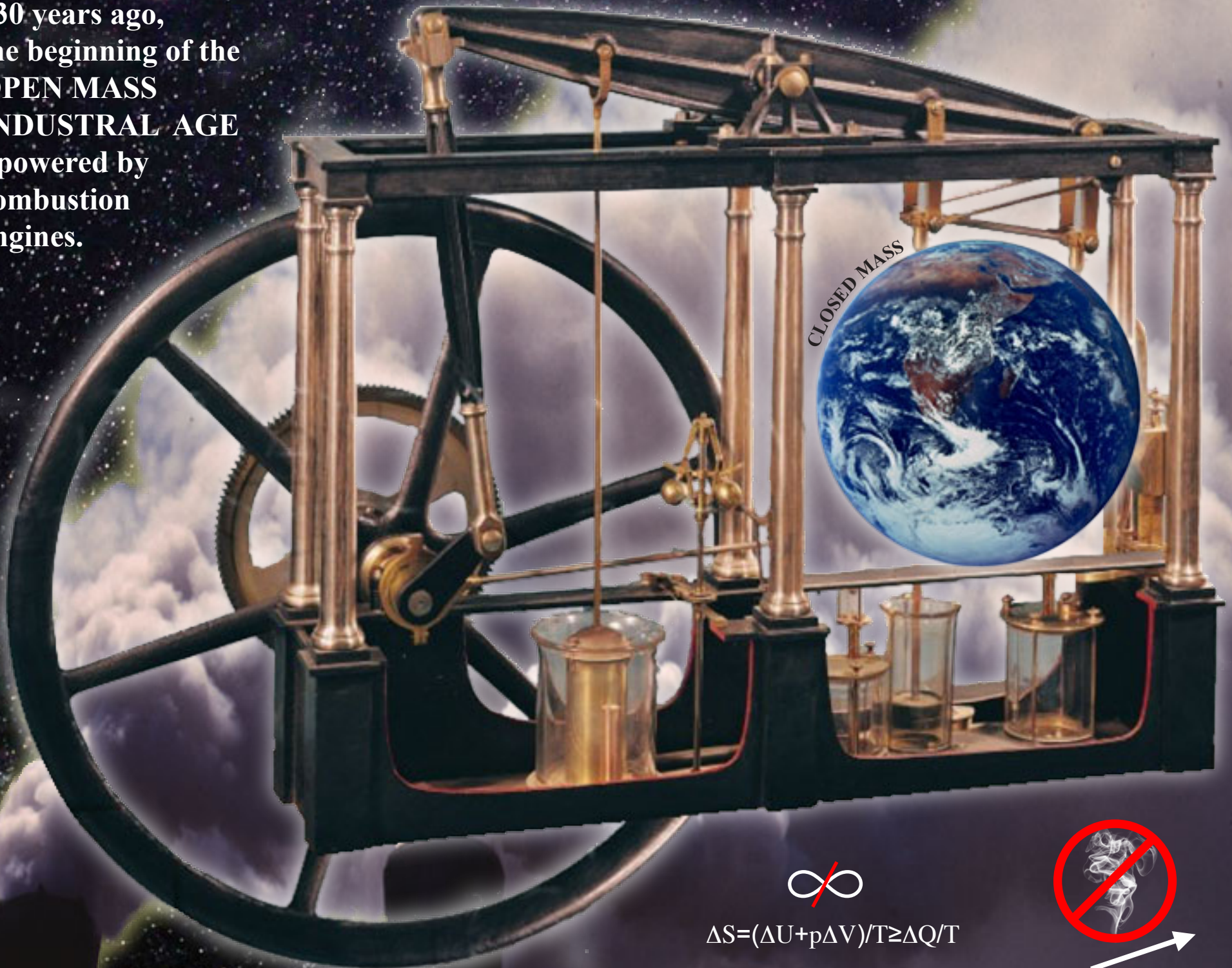


~~H He Li Be
B C N O F
Ne Na Mg~~



Humanity - lost in open mass unreality?

230 years ago,
the beginning of the
**OPEN MASS
INDUSTRIAL AGE**
- powered by
combustion
engines.



$$\Delta S = (\Delta U + p\Delta V) / T \geq \Delta Q / T$$



230 years ago emitting coal-oil-gas-bio
climate changing energy was 100% of
total primary energy supply (tpes).



Humanity has only managed to reduce
emitting energy 8%, today it is 92% tpes.

Humanity - lost in open mass unreality?



SOLAR WIND HYDRO GEO

By 1900 non-emitting solar cells, wind turbines, hydro power, geothermal energy and hydrogen fuel cells were all in use - and there were more electric cars than petrol cars in America.

After 116 years non-emitting solar-wind-hydro-geo energy is now only a tiny 3% of total primary energy supply.

Humanity - lost in open mass unreality?



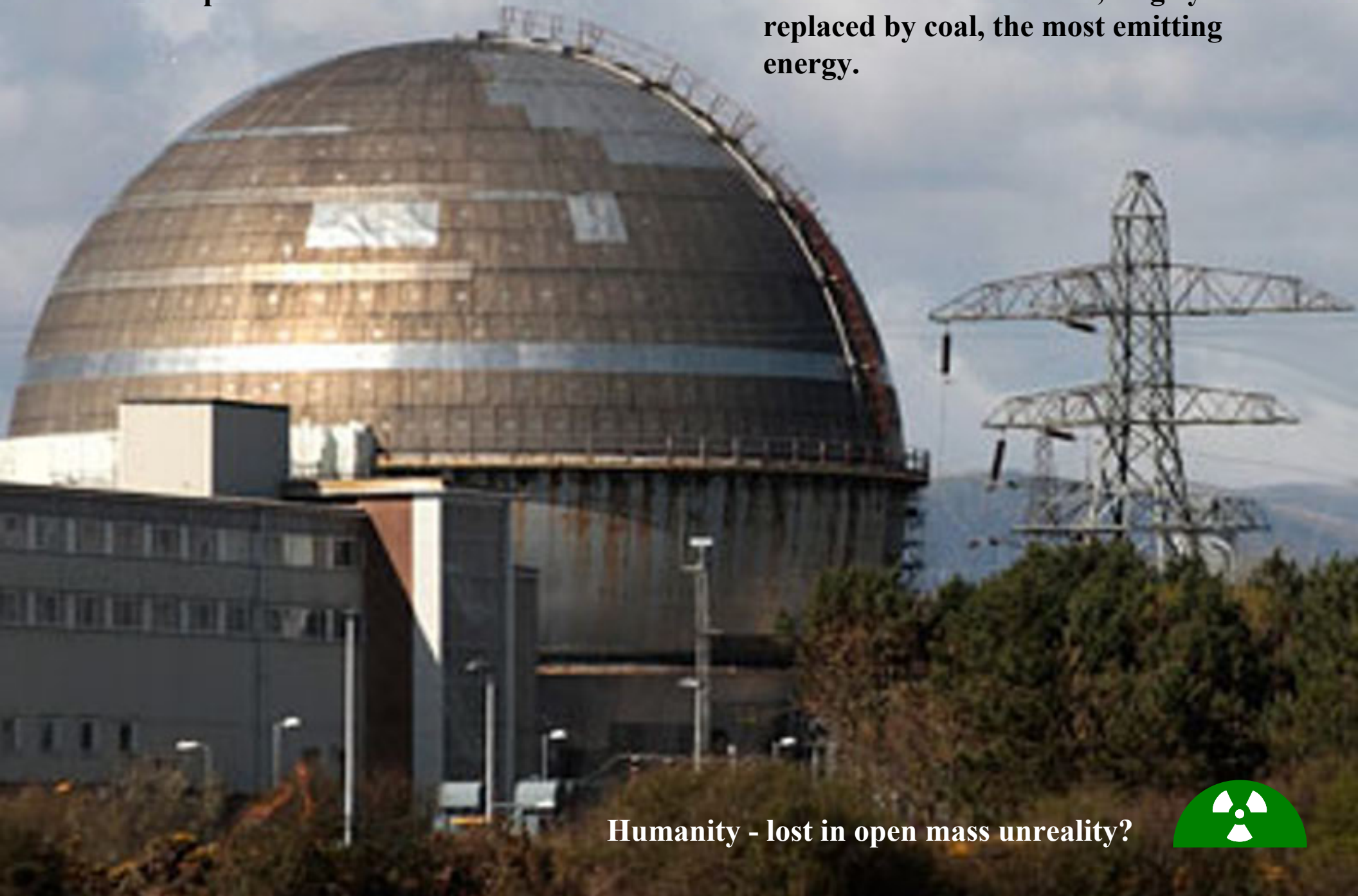
1901

Lifetime guarantee

Detroit
ELECTRIC

60 years ago in 1956 the first industrial scale nuclear non-emitting energy power station opened.

Non-emitting nuclear energy peaked at 6% of total primary energy supply, and now has fallen to 5%, largely replaced by coal, the most emitting energy.



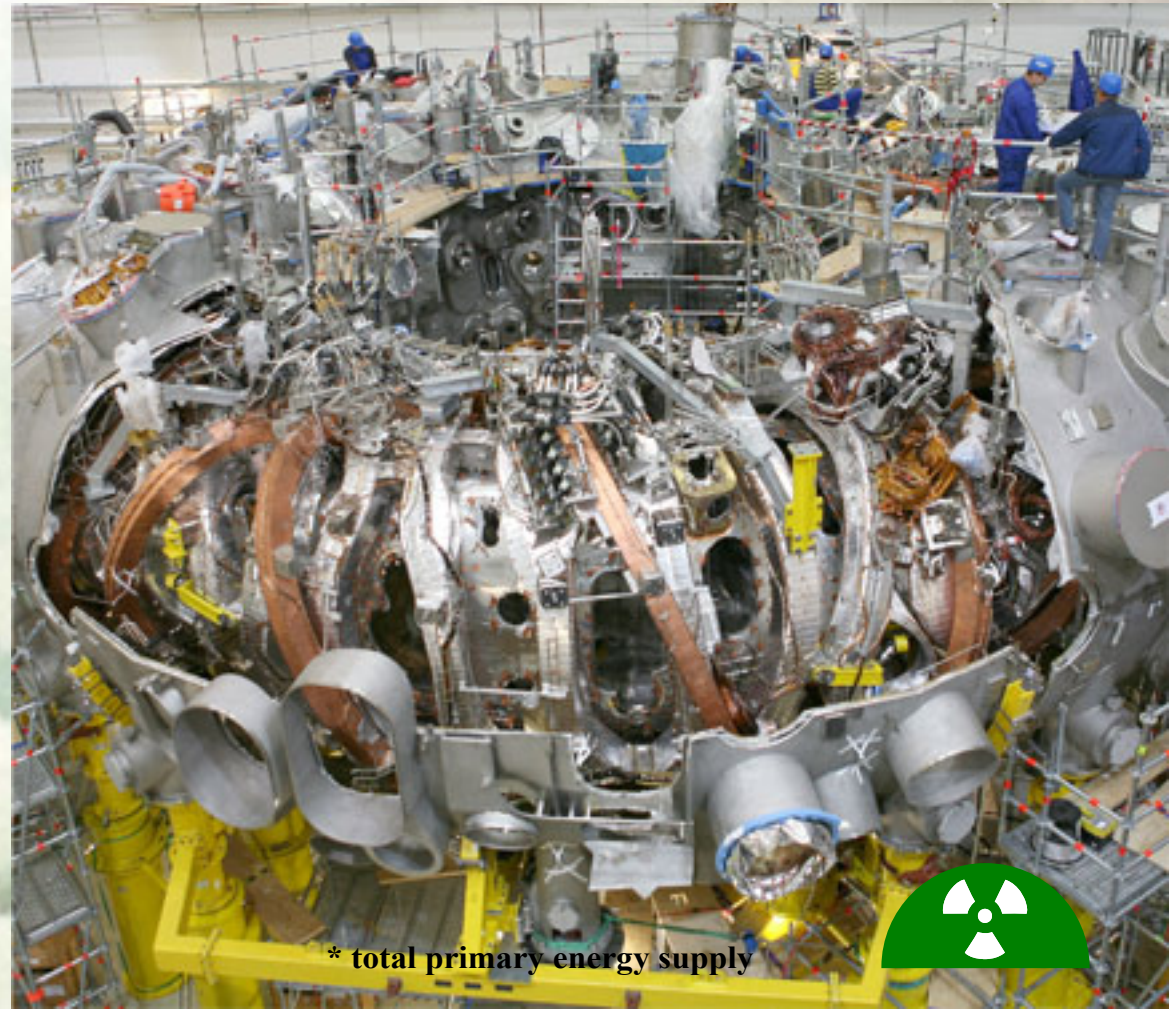
Humanity - lost in open mass unreality?





65 years ago in 1951 nuclear fusion - nuclei colliding to form a new nucleus and release energy - was demonstrated in Operation Greenhouse. 65 years later there are no fusion non-emitting energy power plants, and none planned.

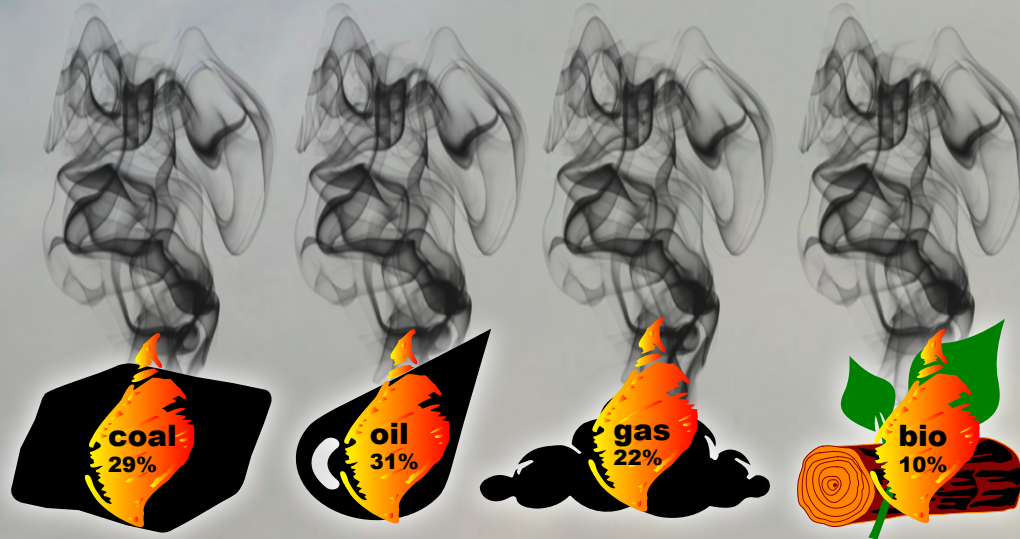
Humanity - lost in open mass unreality?



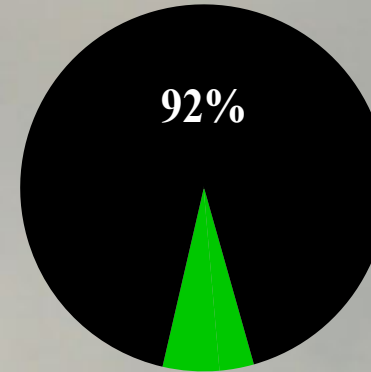
* total primary energy supply



Today, emitting climate changing coal-oil-gas-bio is 92% of total primary energy supply, and rising.



Bio energy as practiced is not sustainable with emission, pollution and health hazards



92% of energy is emitting, climate changing



Humanity - lost in open mass unreality?



1970: 1

2050: 3



yy

mm

dd

hh

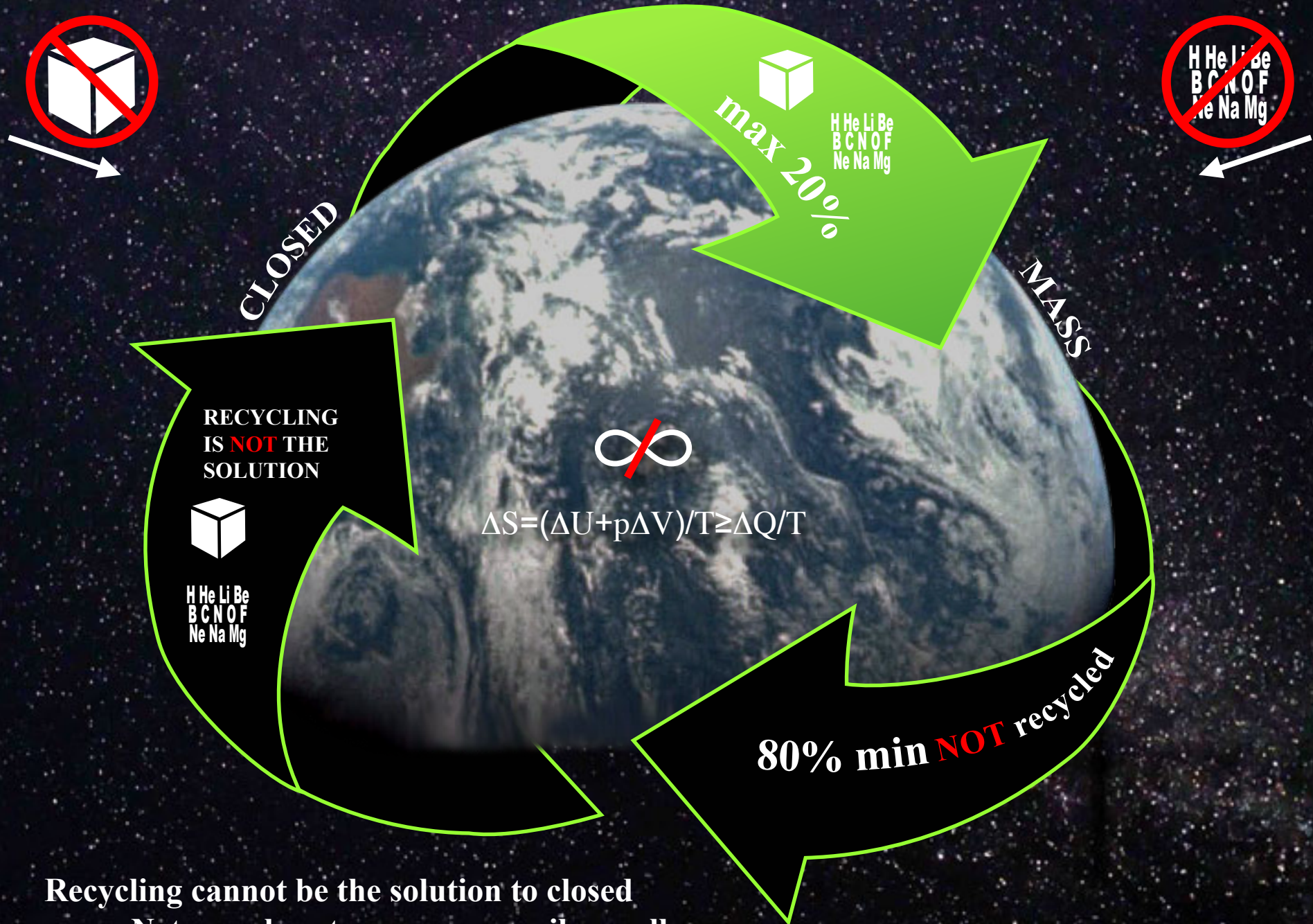
mm

ss.mmm

UN: “By 2050, the equivalent of 3 planets could be required to provide the natural resources needed to sustain current lifestyles” - 1970: 1 planet.



**Closed Mass:
RECYCLING
CAN **NOT** BE THE
SOLUTION**



Recycling cannot be the solution to closed mass. Net recycle rates are necessarily small because of the mass-energy required to recycle and the laws of nature including entropy.

Recycle - humanity, lost in open mass unreality?



H He Li Be
B C N O F
Ne Na Mg



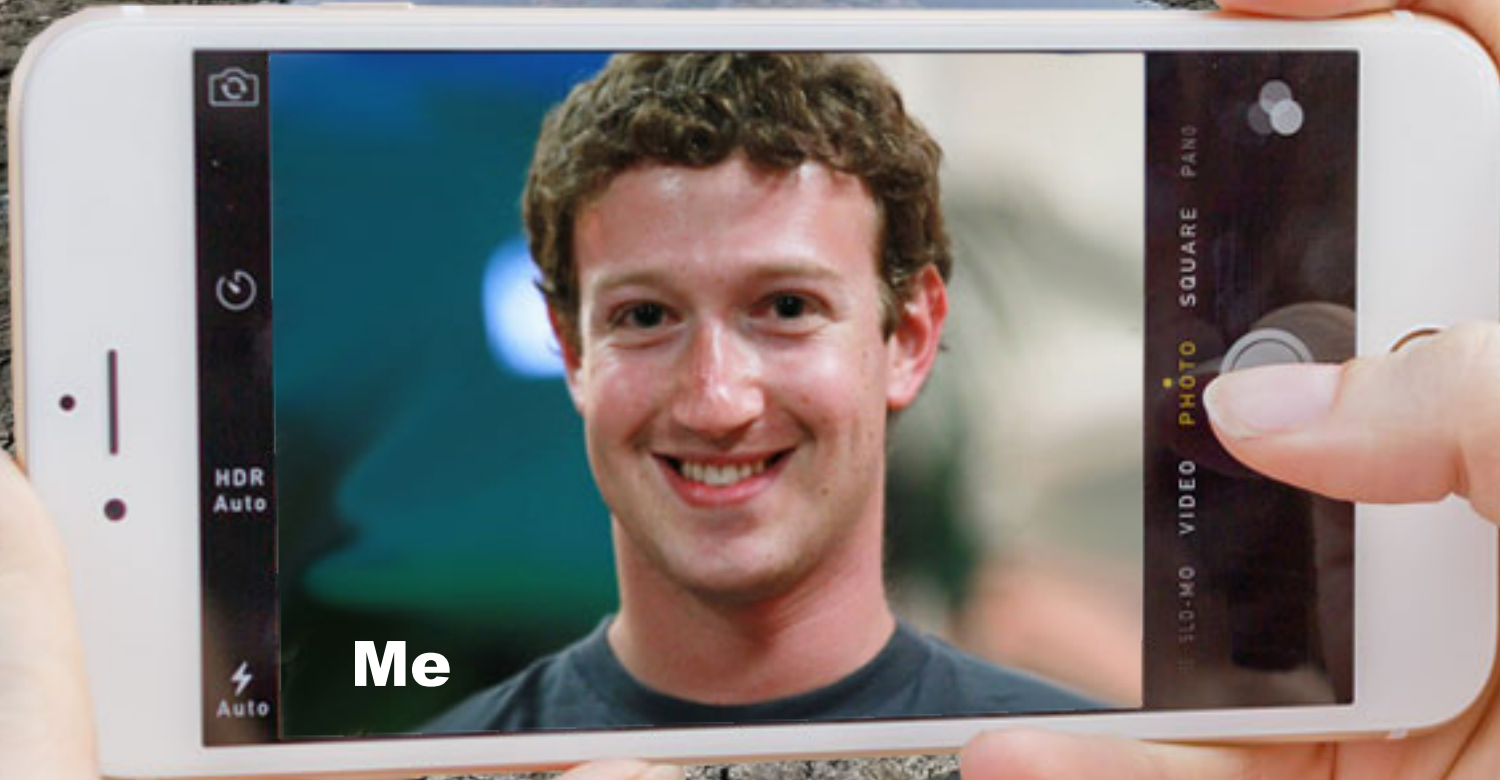
RECYCLE
IS NOT THE
SOLUTION

Humanity - lost in
open mass unreality?

**SMART
PHONE**
the big
thing

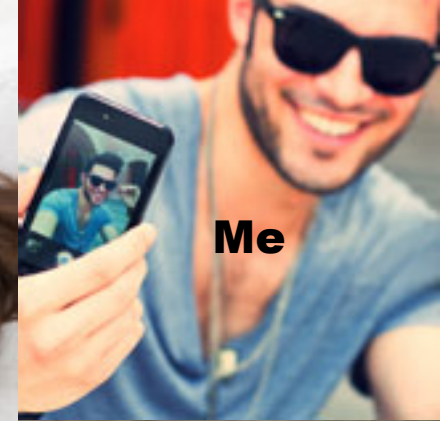
~~society~~ self
me more
new now

From \$799 Buy now



Me

Humanity - lost in
closed mass unreality?

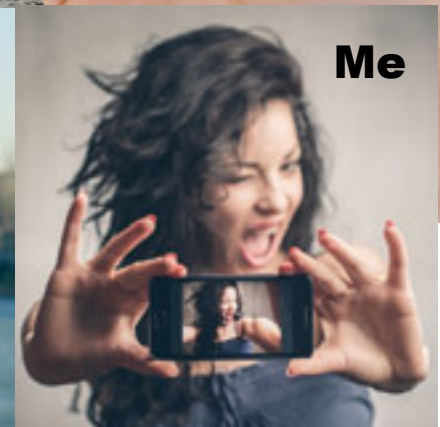
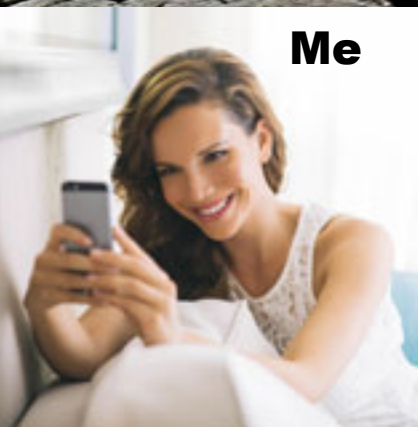


~~society~~ self
me more
new now

From \$799 Buy now



Humanity - lost in
closed mass unreality?



**VIRTUAL
REALITY**

THE
NEXT
BIG
THING

From \$1,799 Buy now

~~society~~ self
me more
new now

Humanity - lost in
open mass unreality?

THE NEXT **BIG** THING

**VIRTUAL
REALITY**

From \$1,799 Buy now

Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar						
Australia	61	2	9777	8600	Brazil	1	5511	3048	4500	Europe	44	20	7330	7500	Germany	49	69	9204	1210	Hong Kong	85
Japan	81	3	3201	8900	Singapore	5	212	1000	U.S.	1	21	18	2000	Copyright	2013	Bloomberg	1	20-M			



~~society~~ self
me more
new now

Humanity - lost in open mass unreality?

**VIRTUAL
REALITY**

~~society~~ self
me more
new now

Humanity - lost in open mass unreality?

**VIRTUAL
REALITY**

~~society~~ self
me more
new now



Humanity - lost in open mass unreality?

VIRTUAL

**sustainable
beautiful world
no climate change
100% clean renewable energy**

The future

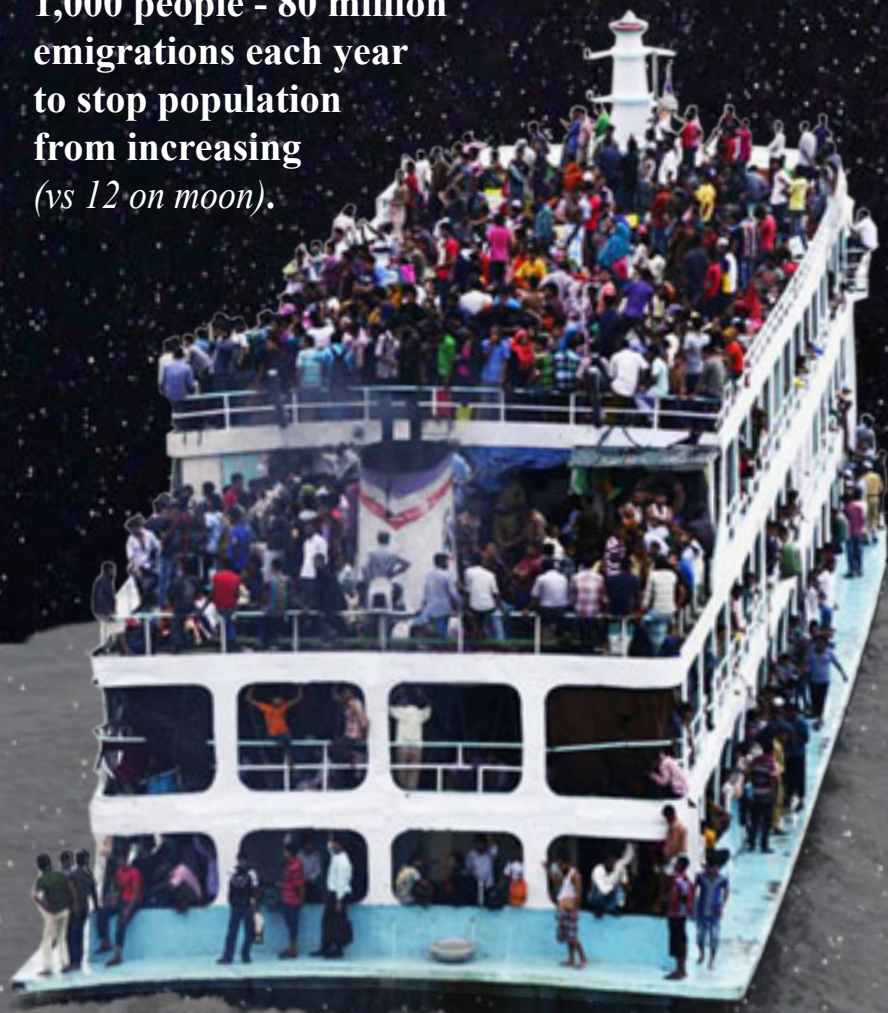
Open mass



Sustainable human development:

IMPORT: 1 space cargo ship arrives on Earth every 48 seconds with 5,000 containers - 3.2 billion containers imported each year to make current consumption sustainable (*vs 382 kg moon rocks*).

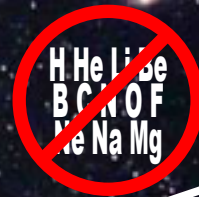
EMIGRATE: 1 space ferry departs Earth every 7 minutes carrying 1,000 people - 80 million emigrations each year to stop population from increasing (*vs 12 on moon*).



CLOSED MASS

$$\Delta S = (\Delta U + p\Delta V) / T \geq \Delta Q / T \quad \infty$$

1972.12.14.22.54.37



the last emigrant

1970: 1



yy mm dd hh mm ss.mmm

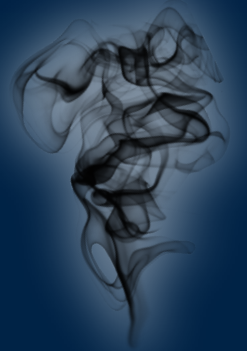
It's foolish to even discuss 3 earths - imports from or emigrations to other planets may never happen - deal with the 1 planet we've got now.

1 Atmosphere



**There is only
1 atmosphere,
emissions from anyone
anywhere become 1 mix of
atmospheric gases that affects all.**

**Climate change
has only 1 cause
and only 1 solution:
greenhouse gas concentrations
in humanity's 1 atmosphere.**



Climate change - humanity's greatest 'achievement'

of climate changing emissions since 1870.

Blowing up 1 Eiffel Tower every 8 seconds is the current rate of global emissions - every 8 seconds humanity's CO2 emissions equal the weight of 1 Eiffel tower;

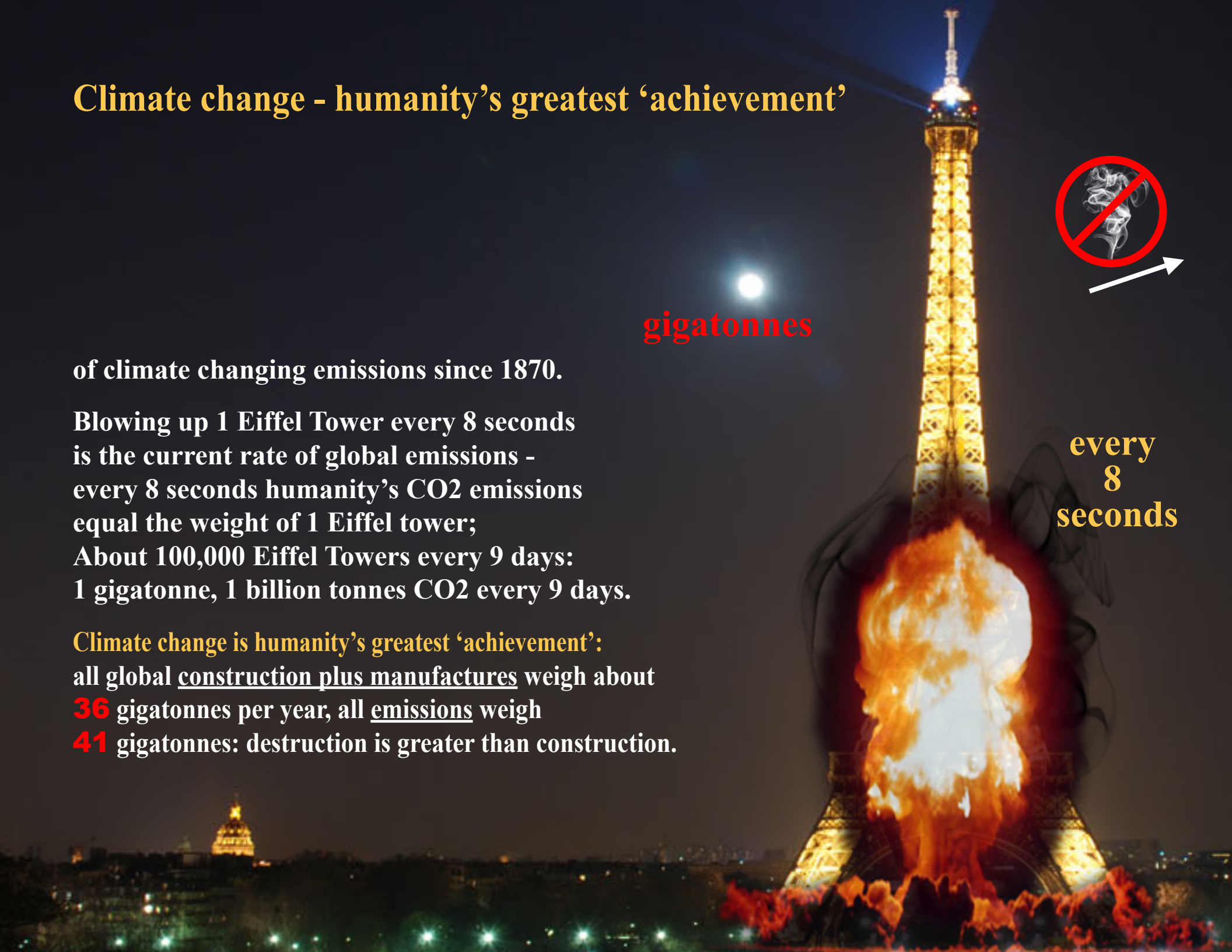
About 100,000 Eiffel Towers every 9 days:
1 gigatonne, 1 billion tonnes CO2 every 9 days.

Climate change is humanity's greatest 'achievement':
all global construction plus manufactures weigh about **36** gigatonnes per year, all emissions weigh **41** gigatonnes: destruction is greater than construction.

gigatonnes



**every
8
seconds**





World Meteorological Organization

The **red** line is long lived atmospheric greenhouse gas concentrations which - because of man-made emissions - are relentlessly rising unabated, and at an accelerating rate.

In the last 35 years atmospheric energy imbalance (more in than out) has risen from **1.7** to **3.0** watts per square meter radiative forcing – a huge **75%** increase.

This is the equivalent of **4** Hiroshima atom bomb explosions every second now, **400,000** Hiroshimas every day, a monumental amount of heat added.

Radiative forcing - watts per square meter (W/m²)



Long lived greenhouse gases

This data is from the World Meteorological Organization, the world GHG authority.



4.7 billion Hiroshima energy equivalents were added from 1980 to now

550
500
Equivalent
450
abundance
400
(ppm CO₂-eq)
350

1980 1990 2000 2010 2020 2030 2040 Years



World Meteorological Organization

Radiative forcing - watts per square meter (W/m²)



4.7 billion Hiroshimas

1.5°C locked now

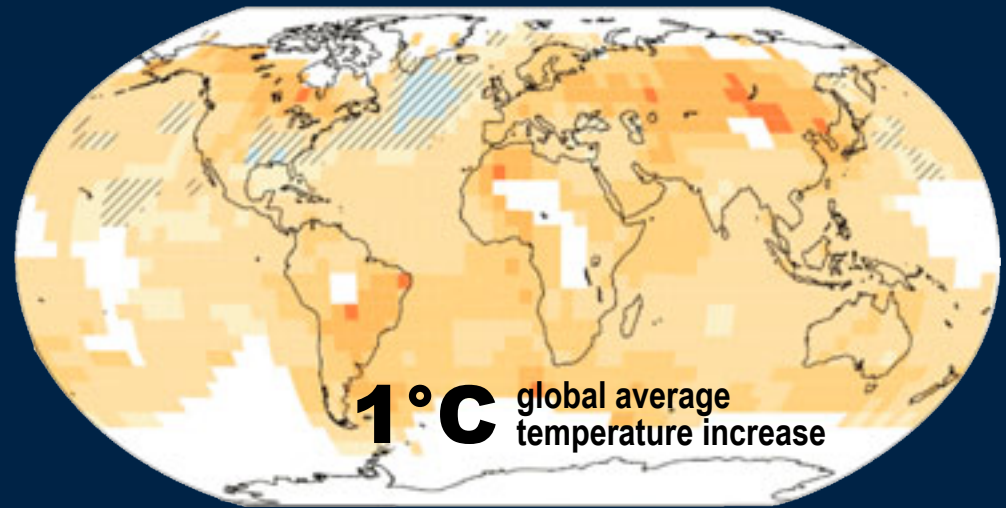
1°C locked

Long lived greenhouse gases

A result of the tremendous energy added is that **1.5°C** average global temperature increase above pre-industrial levels (global warming) is now locked into the atmosphere.

Because of potential catastrophic irreversibilities scientists recommended no more than **1°C** -

which is the surface global warming we have today.



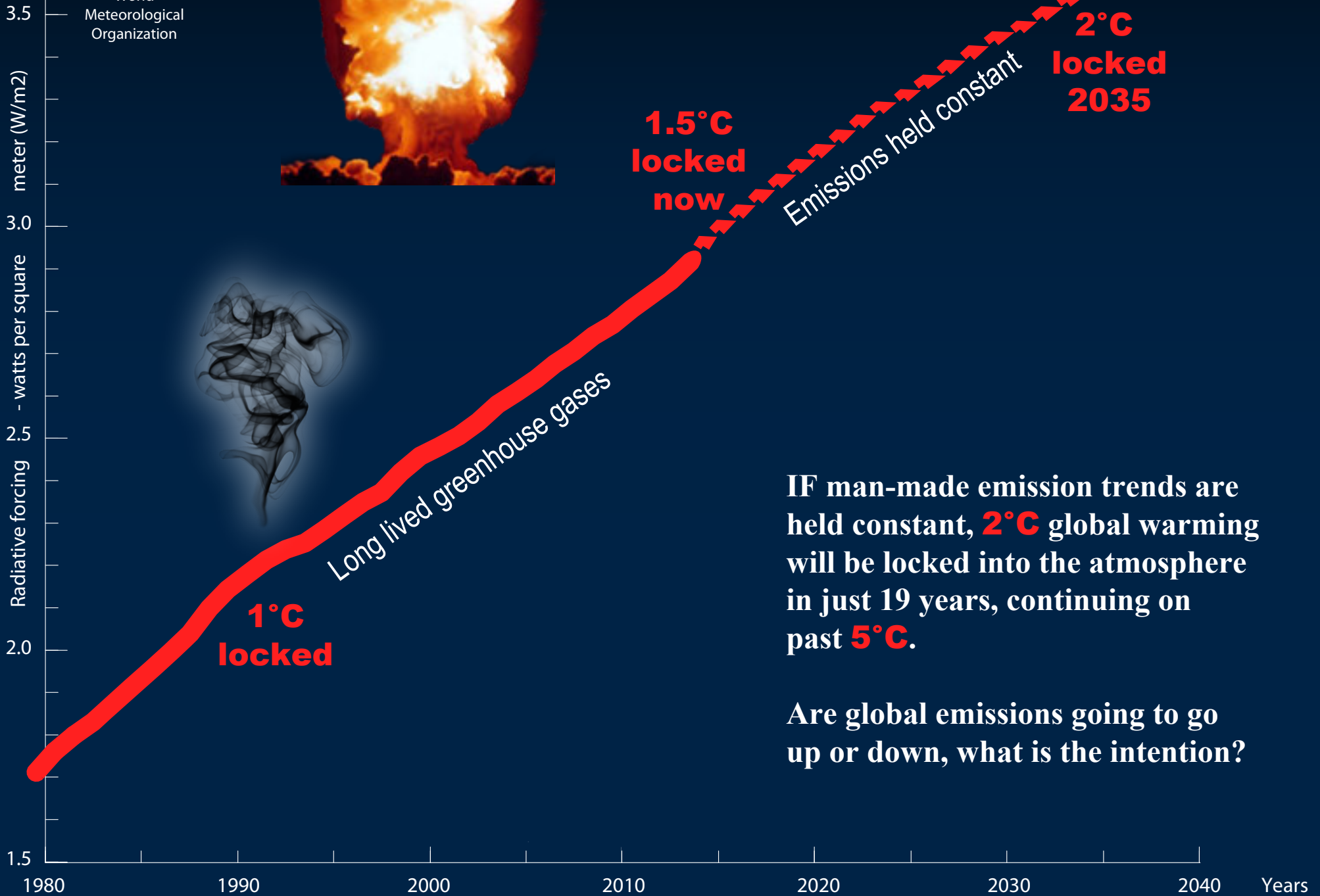
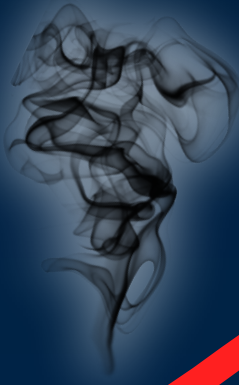
1°C global average temperature increase

Greenhouse gas CO₂eq emissions per year (CO₂eq/yr)

1.5 2.0 2.5 3.0 3.5 1980 1990 2000 2010 2020 2030 2040 Years



World Meteorological Organization



IF man-made emission trends are held constant, **2°C** global warming will be locked into the atmosphere in just 19 years, continuing on past **5°C**.

Are global emissions going to go up or down, what is the intention?



United Nations
Framework
Convention on
Climate Change

United Nations Paris 2015 Agreement

UNFCCC Objective: stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system...
Climate change represents a serious and potentially irreversible threat to human societies and the planet...
This Agreement... aims to strengthen the global response to the threat... by... holding the increase of the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C... (To this end Parties (196 nations) aim to reach global peaking of greenhouse gas emissions as soon as possible... and to undertake rapid reductions thereafter in accordance with the best available science)

meter (W/m²)

Radiative forcing - watts per square

1.5

1980

This data is from UNFCCC the world authority on global climate agreements.

Long lived greenhouse gases

UN 2015 Climate Agreement intentions are that the relentless rise in greenhouse gas emissions will continue unabated for at least the next 14 years.

Intended emissions

Global emissions will increase with no “peaking” and no reduction until at least 2030, rising from **54** gigatonnes of CO₂ equivalent in 2014 to **57** GtCO₂eq in 2030.

By the science emission limit, after 2030 humanity can emit only a further **250** GtCO₂, and limit global warming to below **2°C** - which all nations agree is the goal.

59
58
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54
53
52
51
50
Greenhouse gas CO₂eq emissions per year (CO₂eq/yr)
year



United Nations
Framework
Convention on
Climate Change

United Nations Paris 2015 Agreement

UNFCCC Objective: Stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system... Climate change represents a serious and potentially irreversible threat to human societies and the planet... This Agreement... aims to strengthen the global response to the threat... by... holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C... To this end, Parties (196 nations) aim to reach global peaking of greenhouse gas emissions as soon as possible... and to undertake rapid reductions thereafter in accordance with the best available science

3.5
3.0
2.5
2.0
1.5

Radiative forcing - watts per square meter (W/m²)

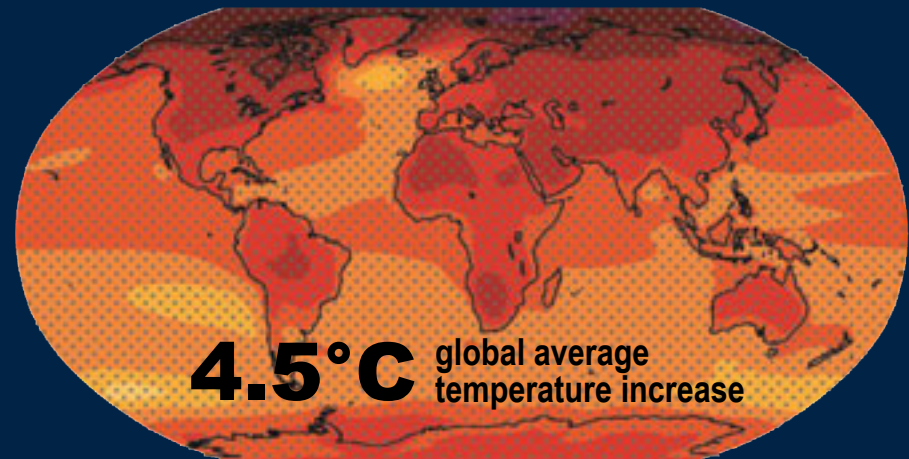
Long lived greenhouse gases

IF the annual emission rate of 2030 is held constant, an unprecedented action - the remaining limit of **250** GtCO₂ will be emitted in only **21** years:

Intended emissions

on to 4°C +
2°C locked 2037

In 2037, dangerous **2°C** will be locked into the atmosphere - causing a billion refugees, millions of deaths and potential catastrophic irreversibilities - continuing past **4°C**, the end of human life on earth as we know it.



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Greenhouse gas CO₂eq emissions per year (CO₂eq/yr)

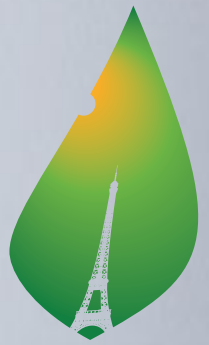
1980 1990 2000 2010 2020 2030 2040 year



1990

Best global media

2040



Radiative forcing in watts per square meter (W/m²)

3.5 -

Nations approve landmark climate accord in Paris **New York Times**

3.0 -

Paris climate deal, nearly 200 nations sign in end of fossil fuel era **theguardian**

2.5 -

Paris climate deal is 'best chance to save planet' **BBC**

Even "the world's best" media communicated victory, success, optimism, hope, achievement, security - is the public well served?



SECRETAIRE EXECUTIVE COORD

PRESIDENT

SECRETAIRE



In politics and press, baseless optimism and unjustified hope dominate, lulling everyone into false security and inaction - when the opposite is urgently required.



UN Agreement
**Optimism,
Hope,
Security**



One way



or another



**Climate change
will destroy
our children's
future - because
nothing is being
done to stop it.**



Paris Agreement: 2°C plus will cause a billion refugees completely destroying civilization everywhere.

Food and water supply in the South will collapse, and no one will be safe.





CLIMATE

CHANGE

PEACE

& WAR

a billion refugees



Paris Agreement
4°C plus

Climate Change



3.5
3.0
2.5
2.0
1.5

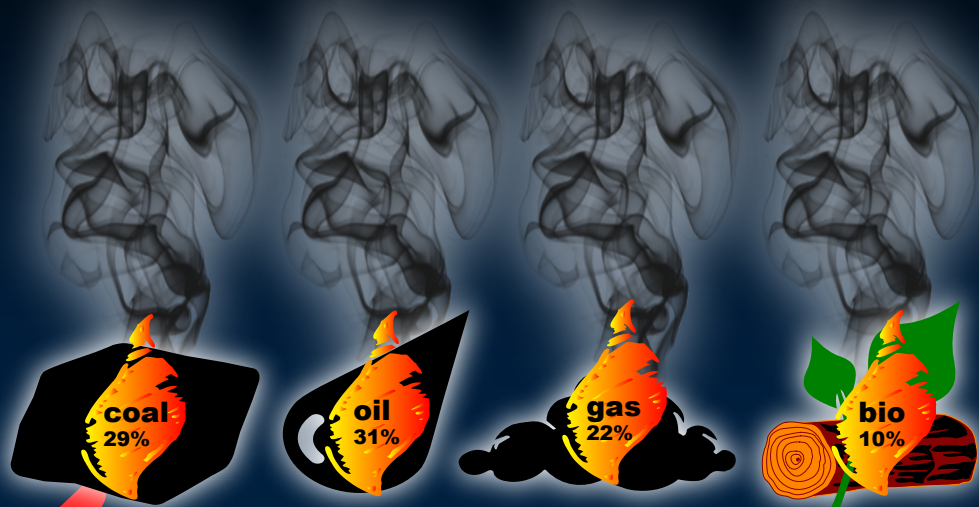
Radiative forcing - watts per square meter (W/m²)

1 cause
1 solution:
greenhouse gas
atmospheric
concentrations

Long lived greenhouse gases

1980 1990 2000 2010 2020 2030 2040 year

Cause - Solution



The science solution to stop catastrophic **2°C+** is simple, directly address cause now:

Emitting coal-oil-gas-bio energy is the principal source of climate changing greenhouse gas atmospheric concentrations.

Coal is the most emitting fuel followed by oil, gas - and bio energy which as practiced is not sustainable with emission, pollution and health hazards.

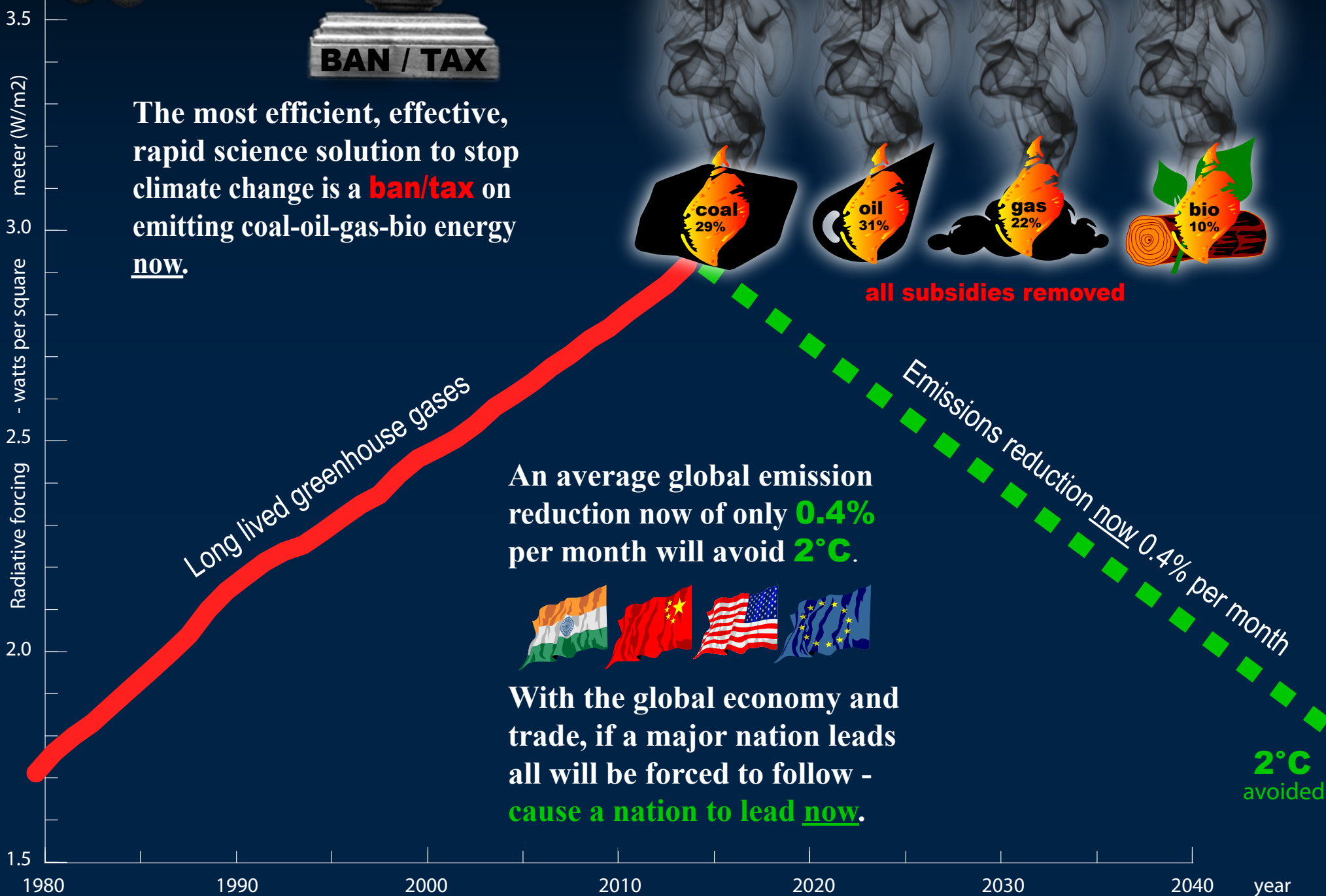
BAN / TAX THE CAUSE

BAN / TAX

The most efficient, effective, rapid science solution to stop climate change is a **ban/tax** on emitting coal-oil-gas-bio energy now.



all subsidies removed



An average global emission reduction now of only **0.4%** per month will avoid **2°C**.



With the global economy and trade, if a major nation leads all will be forced to follow - **cause a nation to lead now**.



CLIMATE CHANGE

is caused by greenhouse gas atmospheric concentrations



BAN/TAX

gigatonnes CO₂

These are humanity's climate changing emissions put in the atmosphere since 1870, they will cause **1.5°C** global warming - and are rapidly increasing, 1 gigatonne every 9 days.*

gigatonnes CO₂

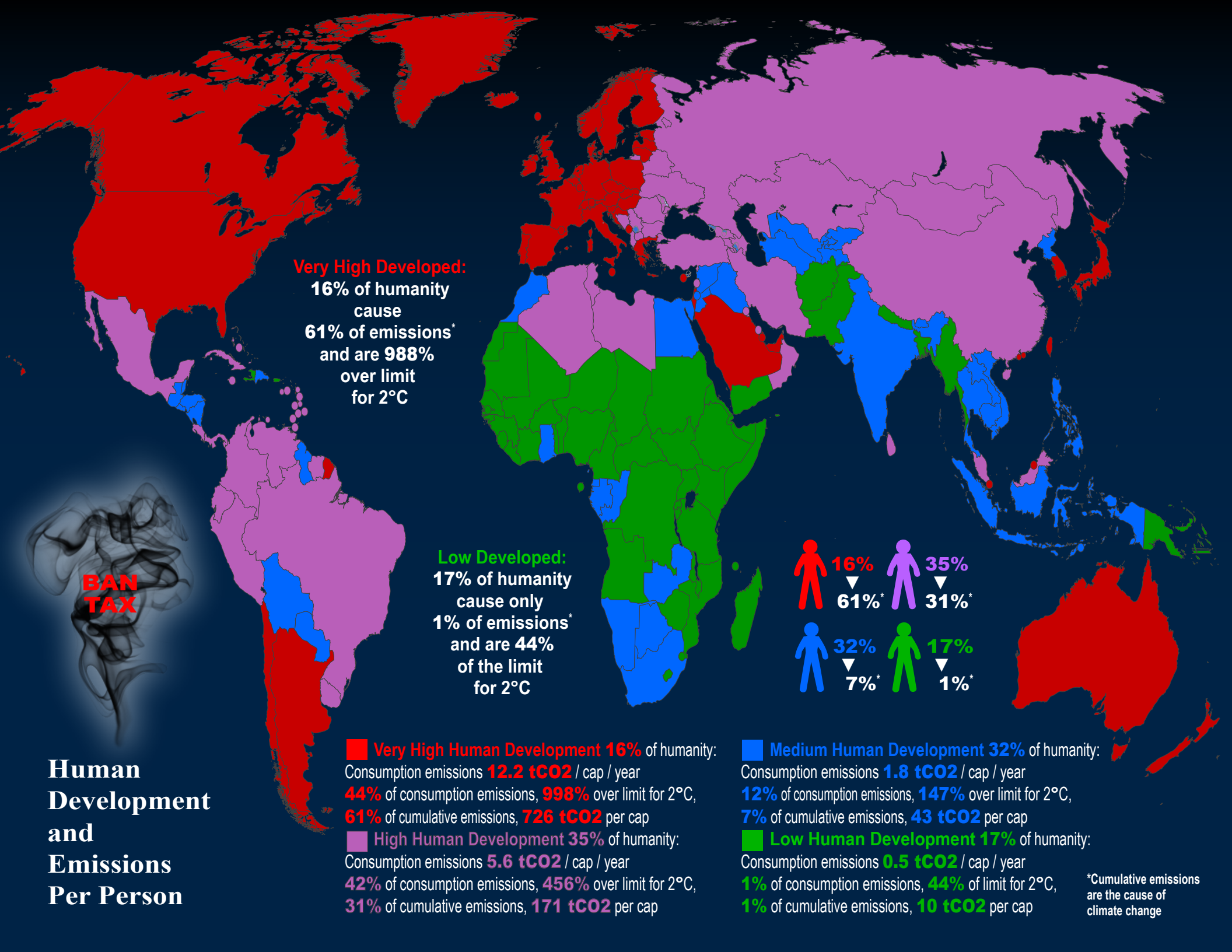
This is what science concludes humanity can still emit and stay below **2°C** global warming. If nothing more is done than the Paris Agreement, **2°C** will be locked into the atmosphere in 2037, only 21 years, then on past 4°C, the end of human life on earth as we know it.*

-0.3

% per month

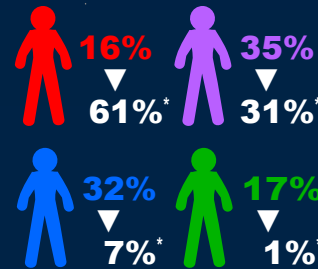
This is the average global emission reduction rate per month required to stay below **2°C**, increasing with inaction. Global and national GHG emissions are estimated every few months, the %/mo will be adjusted up or down with action or inaction - setting the emitting energy tax rate.*

* IPCC, >66% probability, cumulative emission limit for 2°C: 1,000 GtCO₂ in 2011; with intergenerational equity, excluding unproven negative emissions, no overshoot, warming does not stop at 2100. HSfound@gmail.com



Very High Developed:
16% of humanity
 cause
61% of emissions*
 and are **988%**
 over limit
 for 2°C

Low Developed:
17% of humanity
 cause only
1% of emissions*
 and are **44%**
 of the limit
 for 2°C



**BAN
TAX**

Human Development and Emissions Per Person

Very High Human Development 16% of humanity:
 Consumption emissions **12.2 tCO₂ / cap / year**
44% of consumption emissions, **998%** over limit for 2°C,
61% of cumulative emissions, **726 tCO₂ per cap**

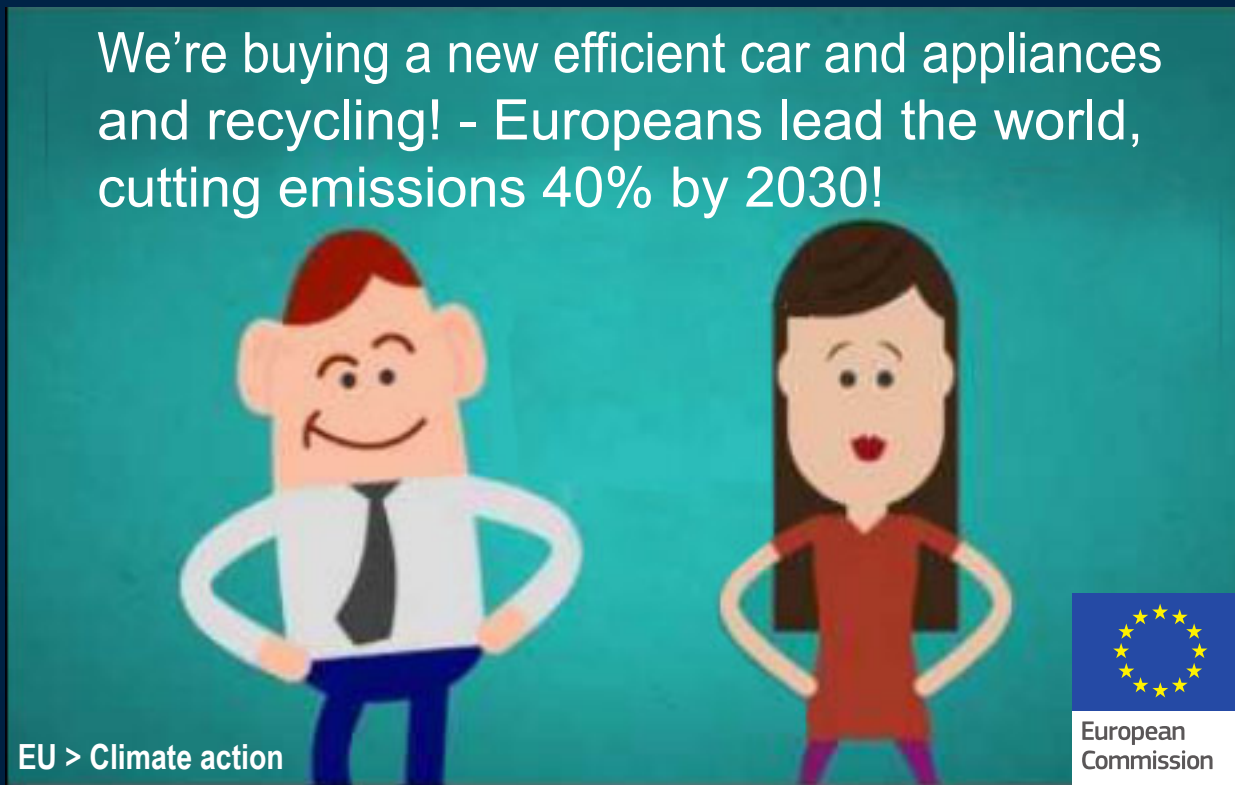
High Human Development 35% of humanity:
 Consumption emissions **5.6 tCO₂ / cap / year**
42% of consumption emissions, **456%** over limit for 2°C,
31% of cumulative emissions, **171 tCO₂ per cap**

Medium Human Development 32% of humanity:
 Consumption emissions **1.8 tCO₂ / cap / year**
12% of consumption emissions, **147%** over limit for 2°C,
7% of cumulative emissions, **43 tCO₂ per cap**

Low Human Development 17% of humanity:
 Consumption emissions **0.5 tCO₂ / cap / year**
1% of consumption emissions, **44%** of limit for 2°C,
1% of cumulative emissions, **10 tCO₂ per cap**

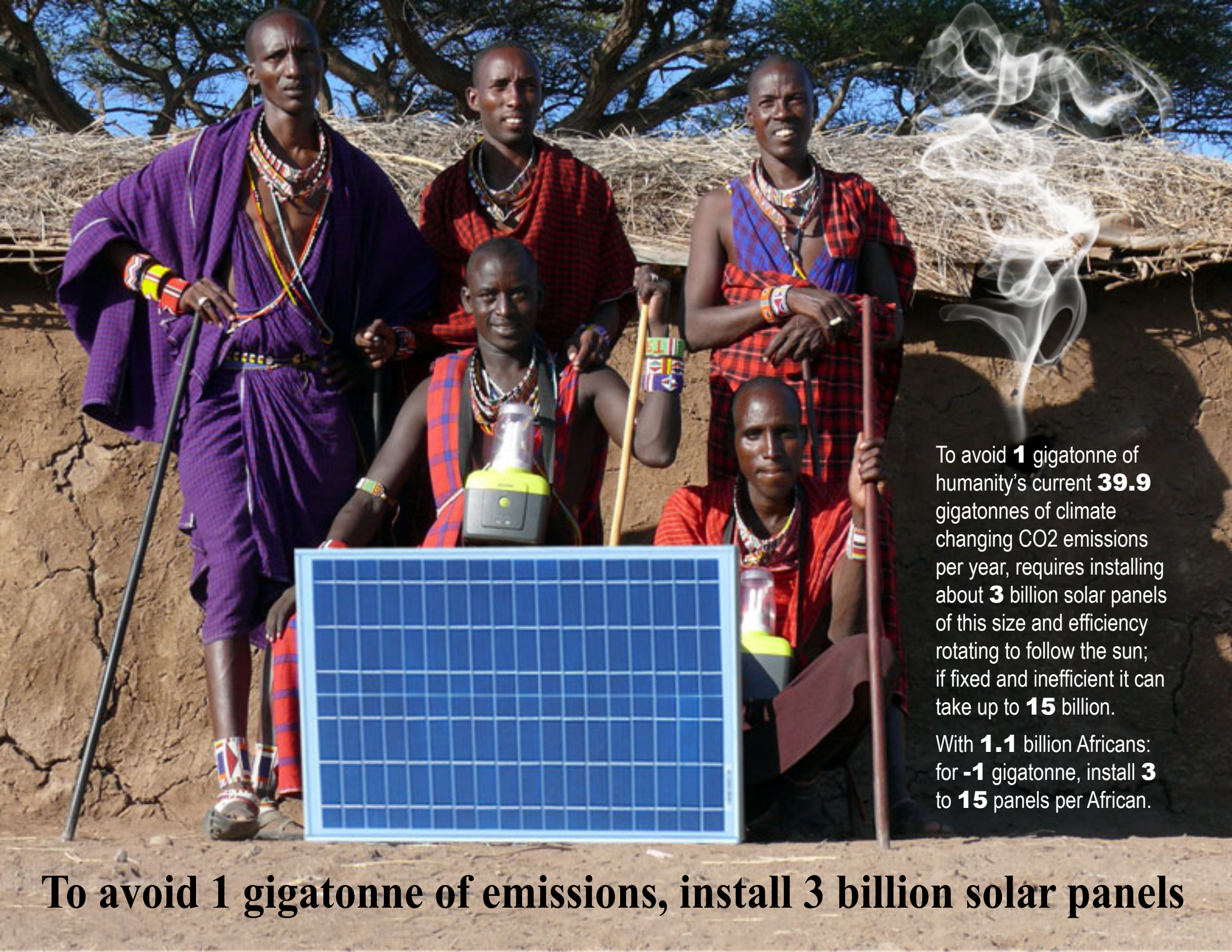
*Cumulative emissions are the cause of climate change

EU's intended emission reduction delays 2°C by 1 day per EU country



- EU's intended emission reduction for Paris sounds huge - "40% emission reduction by 2030 compared to 1990" - calculated it is extremely small, 4 GtCO₂. Per EU country this amounts to only a 1 day delay in the onset of 2°C global warming. **1 day** delay, by the highest developed.
- To be on-limit for 2°C, Europeans should reduce their emissions now **0.7%** per month, the average for the last 5 years is **0.1%**.

- In the last 25 years, EU28 emissions from consumption of goods and services (efficient cars, appliances, etc.) decreased only **13%**.
- At the same time EU emitting coal-oil-gas-bio energy decreased only **4%**, and is now **82%** of EU's total primary energy supply (tpes).
- EU non-emitting nuclear energy is **13.9%** tpes, solar-wind-hydro-geo energy is only **4.2%** tpes.

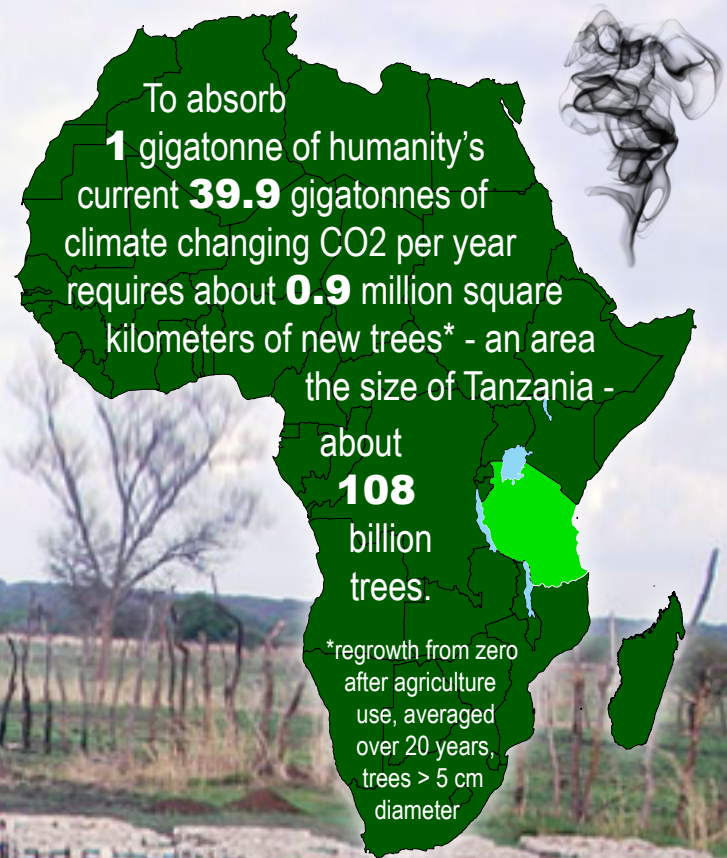


To avoid **1** gigatonne of humanity's current **39.9** gigatonnes of climate changing CO2 emissions per year, requires installing about **3** billion solar panels of this size and efficiency rotating to follow the sun; if fixed and inefficient it can take up to **15** billion.

With **1.1** billion Africans: for **-1** gigatonne, install **3** to **15** panels per African.

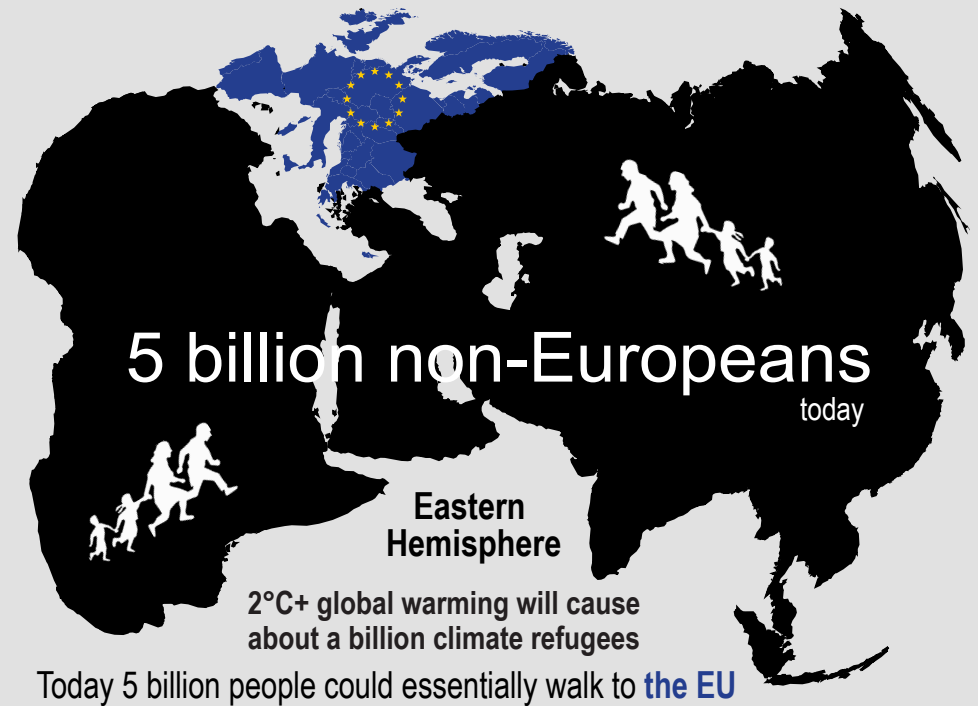
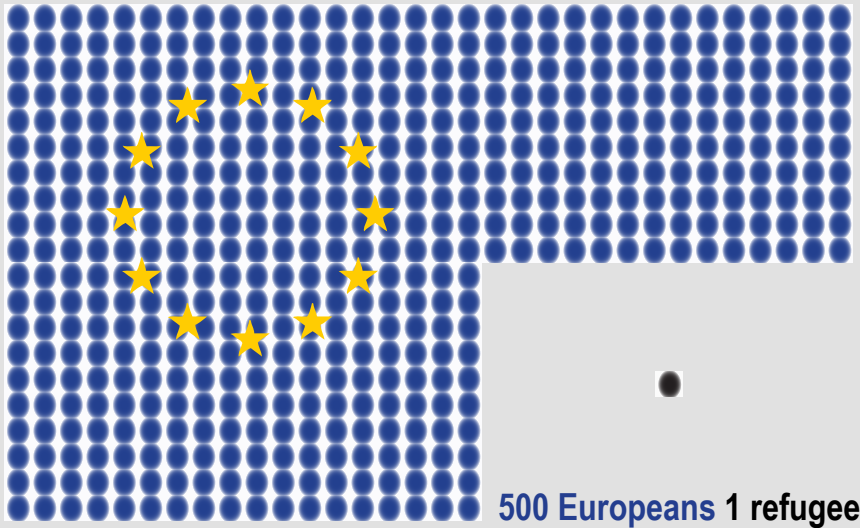
To avoid 1 gigatonne of emissions, install 3 billion solar panels

To absorb 1 gigatonne of emissions,
plant 108 billion trees - an area the size
of Tanzania



A Billion Climate Refugees **Infograph Europe**

In 2015 one million refugees came into the EU: population 508 million.



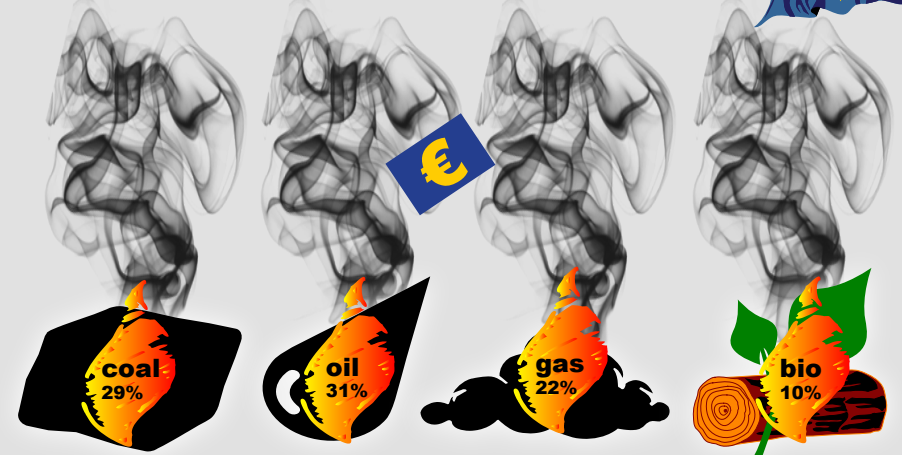
The Paris 2015 UN Climate Agreement intentions are no emission peaking or reduction for at least 14 years, with dangerous 2°C global warming locked into the atmosphere in 21 years, and rising.

2°C+ will cause about a billion non-European Southern Eastern Hemisphere climate refugees: for every household of 4 Europeans there are potentially 8 refugees, either to be taken in or (somehow) kept away.



To stop climate change and a billion refugees is simple: address cause now. Climate change has one cause and solution, greenhouse gas atmospheric concentrations. Ban-tax coal-oil-gas-bio emitting energy now, the principal source of GHG emissions.

CAUSE TAX - all subsidies removed



Ban / tax the principal cause of climate change, emitting energy.

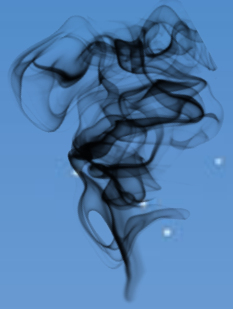
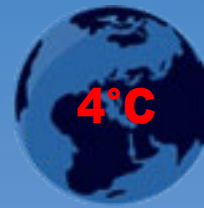


CLIMATE CHANGE
will destroy
your grandchild's
future because
nothing is being
done to stop it -
BAN / TAX
coal-oil-gas-bio
emitting energy
NOW.

Together
we can
save the
world.

**DB EXPORT
BREW TROLEUM**
biofuel from natural beer waste

What kind of world will we pass on?



My child, when you're just 27 years old, 2°C global warming will be locked in the atmosphere by emissions - nobody's going to stop it from happen. I'm passing on to you a catastrophically compromised world - I'm not going to tell you or help you, I'm going to enjoy my life.

Change this now:

Tell children, tell everyone: by our unabated, relentlessly rising climate changing greenhouse gas emissions we are passing on:

dangerous 2°C global warming locked into the atmosphere in only 21 years* - causing a billion refugees, millions of deaths and potential catastrophic irreversibilities - continuing on past 4°C, the end of human life on earth as we know it.

The solution is to directly address cause now: ban / tax emitting coal-oil-gas-bio energy, the principal source of emissions.

*UN Paris 2015 Climate Agreement intentions

The image depicts a stark, desolate landscape with cracked, dry earth under a hazy, orange-brown sky. Two emaciated children stand on either side of a large, dark, irregularly shaped rock. The child on the left is looking down at the rock, while the child on the right has their hand to their face in a pensive or distressed pose. The overall scene conveys a sense of environmental devastation and human suffering.

**Climate
change -
humanity's
greatest
achievement**

**BAN / TAX
EMITTING
ENERGY
NOW**



CLIMATE CHANGE
will destroy our
children's future
because nothing is
being done to stop it.

BAN / TAX
coal-oil-gas-bio
emitting energy
NOW.

CLOSED MASS

the fundamentals:

Resources

Humans

Products

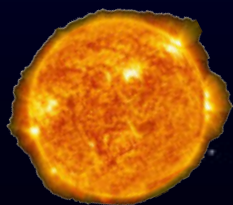
	12	1
c	Ti	V
11	22	2
Ga	Ge	A
31	32	3
Nb	Mo	T
41	42	4
Sb	Te	I
51	52	5
Pm	Sm	E
61	62	6
u	Hf	T
	72	7
	Pb	B
	82	8
		9

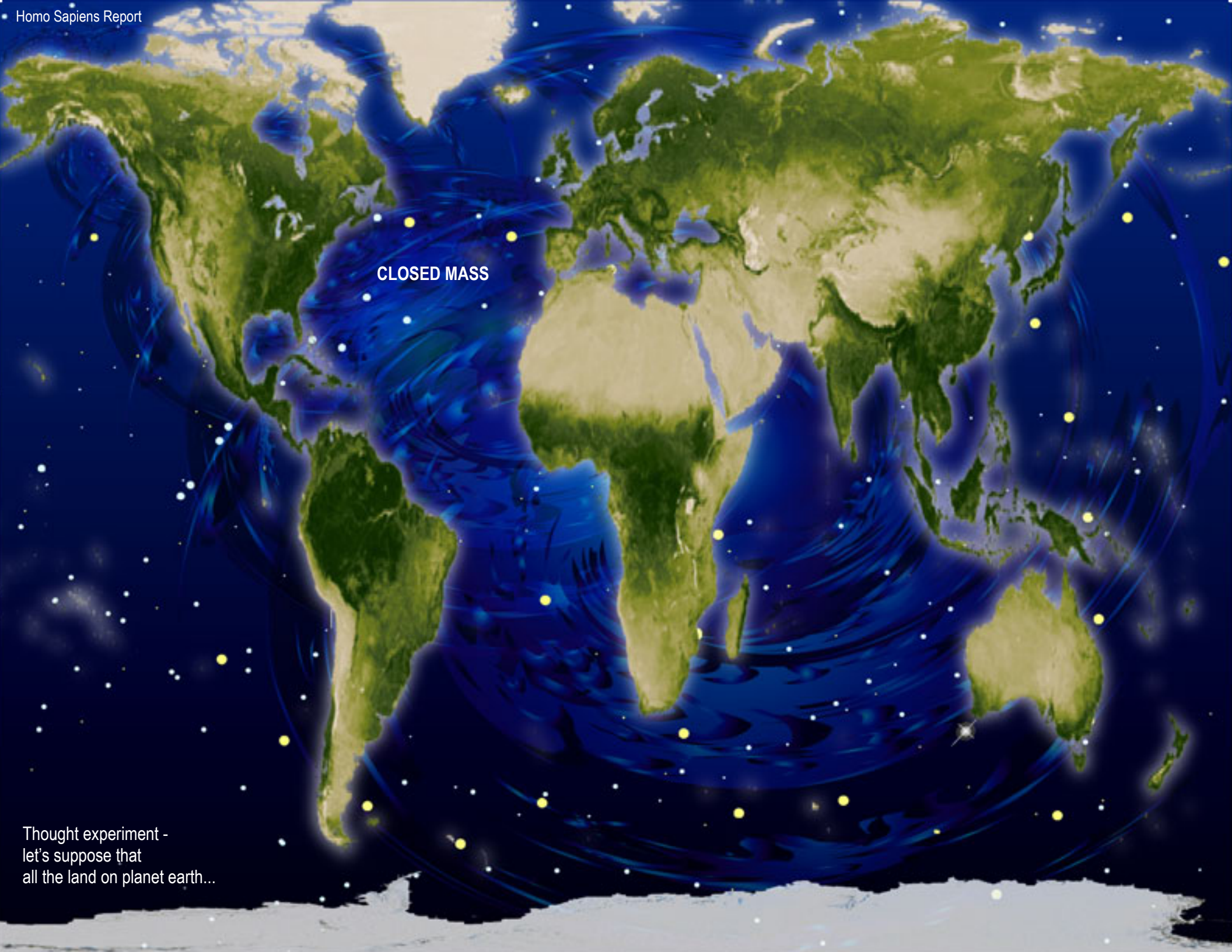


**BAN
TAX**



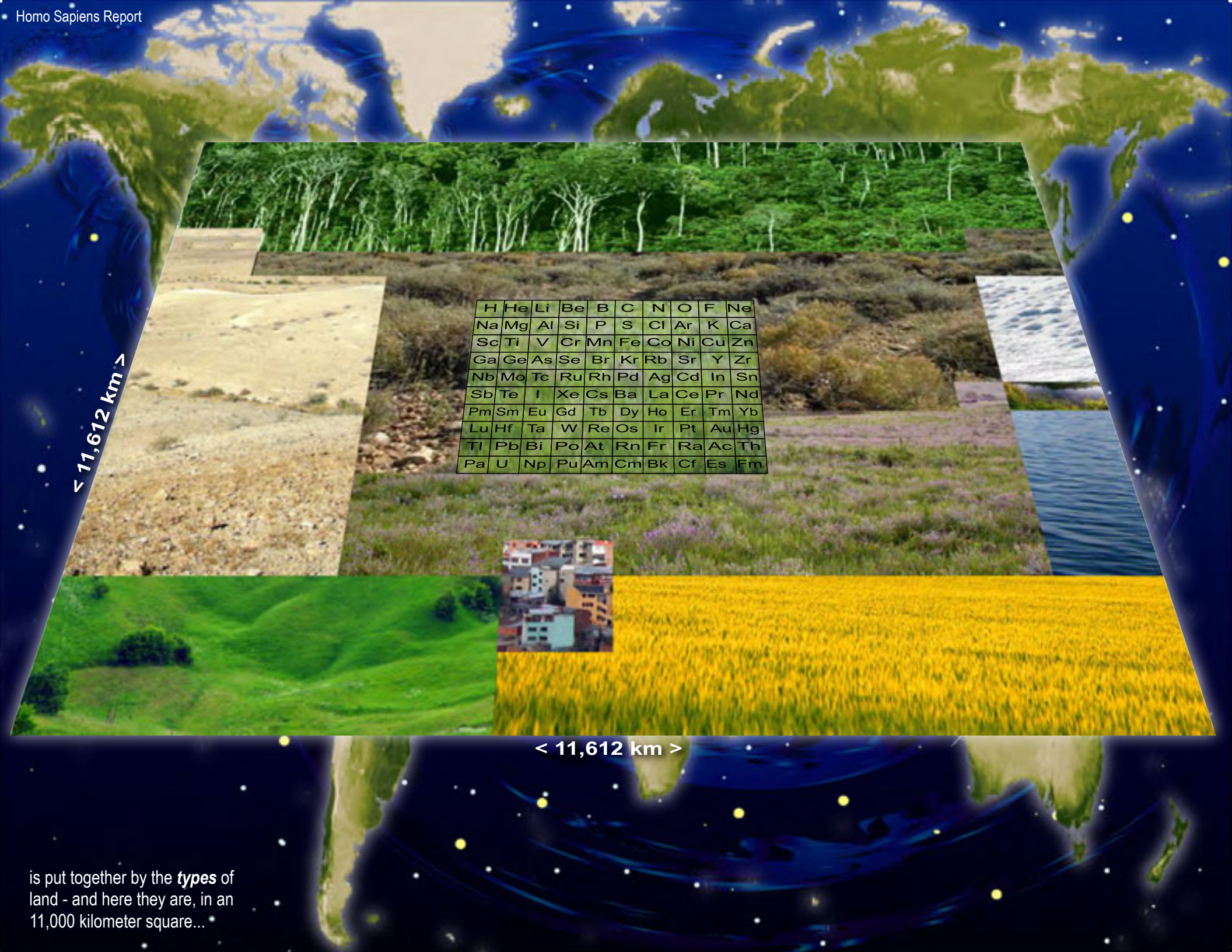
$$\Delta S = (\Delta U + p\Delta V) / T \geq \Delta Q / T \quad \infty$$





CLOSED MASS

Thought experiment -
let's suppose that
all the land on planet earth...



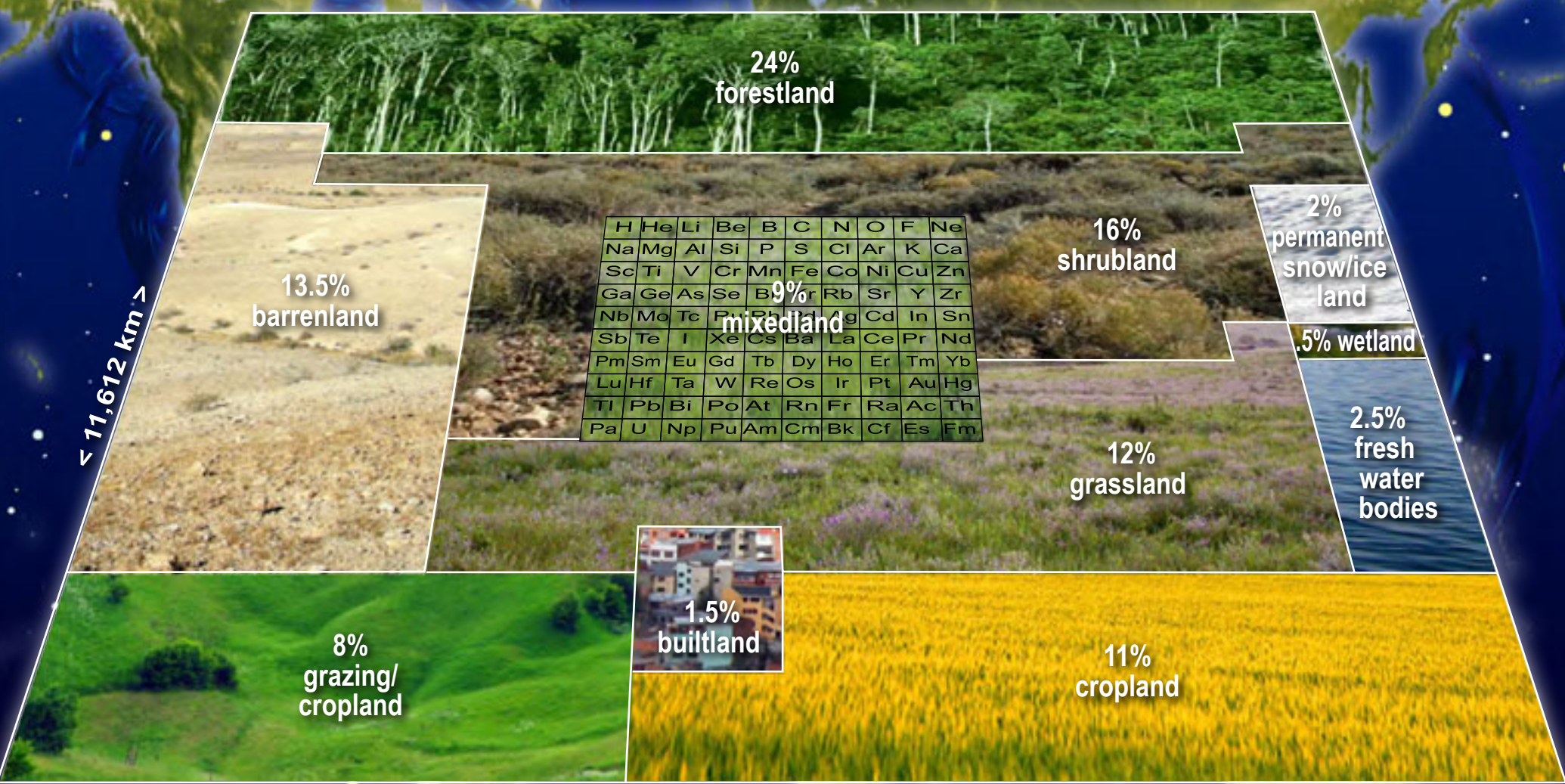
< 11,612 km >

H	He	Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar	K	Ca
Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn
Ga	Ge	As	Se	Br	Kr	Rb	Sr	Y	Zr
Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn
Sb	Te	I	Xe	Cs	Ba	La	Ce	Pr	Nd
Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb
Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg
Tl	Pb	Bi	Po	At	Rn	Fr	Ra	Ac	Th
Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm



< 11,612 km >

is put together by the **types** of land - and here they are, in an 11,000 kilometer square...



< 11,612 km >

The most important areas for humans are 19% crop and grazing land, 2.5% fresh water, 24% forest, and the whole periodic table of elements - the natural **Resources**. Now if all these land types are divided equally...



Each of 7.5 billion humans gets equal land and fresh water.

< ? miles, ?? feet >
< ? kilometers, ?? meters >

H	He	Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar	K	Ca
Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn
Ga	Ge	As	Se	Br	Kr	Rb	Sr	Y	Zr
Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn
Sb	Te	I	Xe	Cs	Ba	La	Ce	Pr	Nd
Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb
Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg
Tl	Pb	Bi	Po	At	Rn	Fr	Ra	Ac	Th
Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm

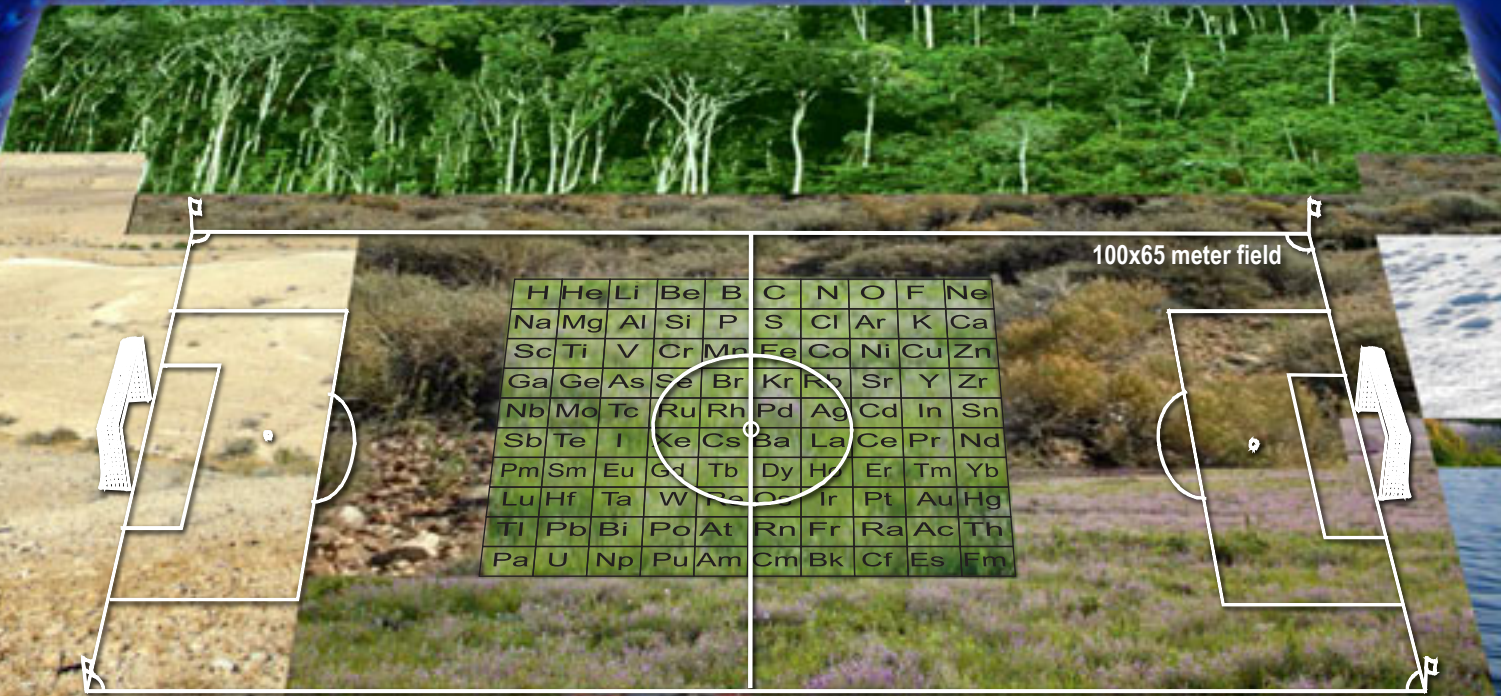


< ? kilometers, ?? meters per person >
< ? miles, ?? feet >

How much land would each human get?



< 140 meters >

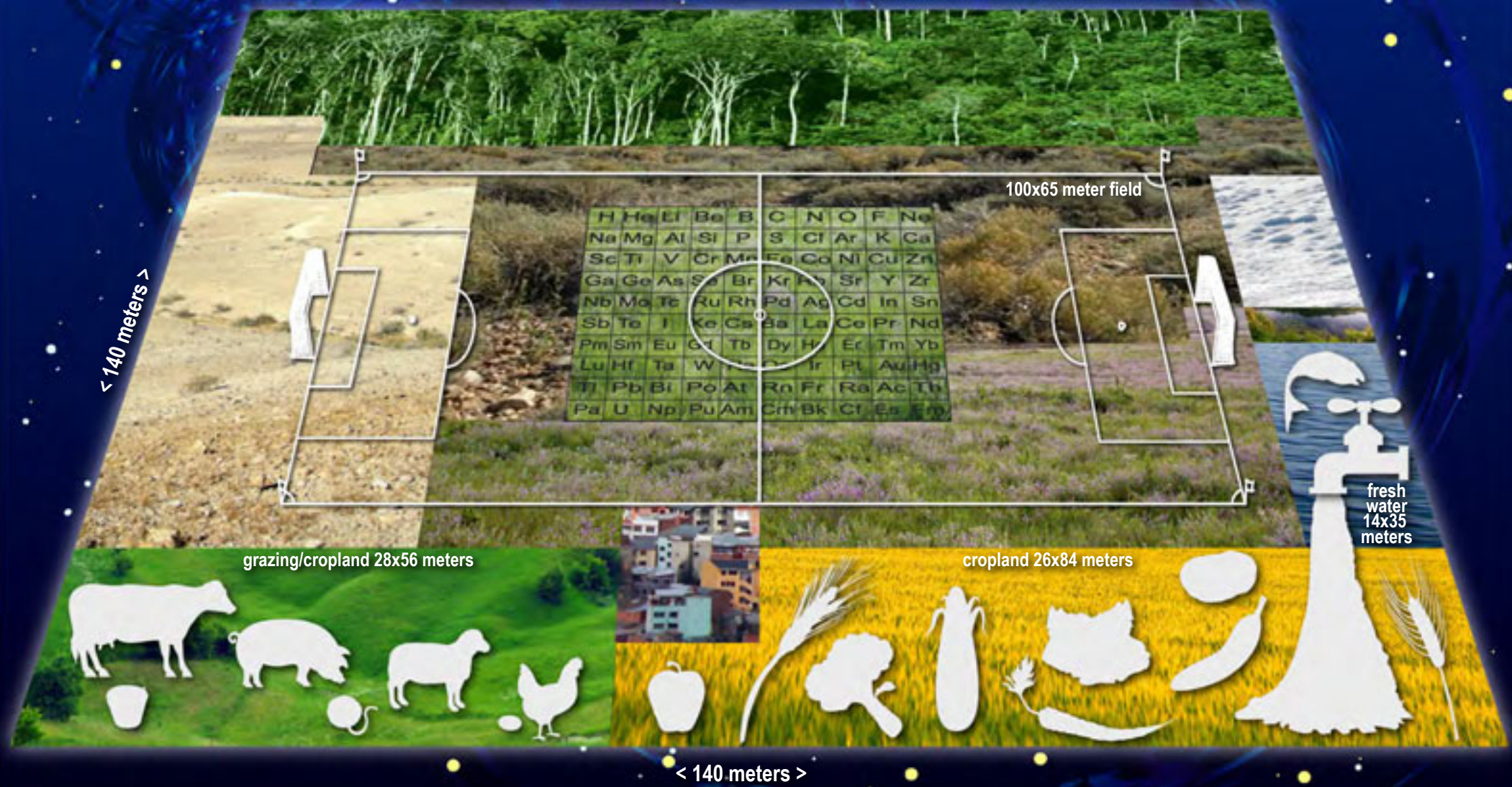


100x65 meter field



< 140 meters >

Each of us would get LESS THAN 3 football fields of land and fresh water, less than 140 by 140 meters total. Our "fair share" is not very much. Here is why:



First, out of just 30 by 140 meters of crop land, grazing land and fresh water each of us must get all of our food, all of our water. Then...



< 140 meters >

100x65 meter field

Resources
made into
Products
+P -R

fresh
water
14x35
meters

grazing/cropland 28x56 meters

cropland 26x84 meters

< 140 meters >

Out of our 3 fields we must get ALL the natural Resources required to make ALL our Products, including our House and everything in it; all our Transport, our bicycle, our automobile and its fuel...



< 140 meters >

HOME

SHOPS

100x65 meter field

NEW

SALE

MORE

BUY

NOW

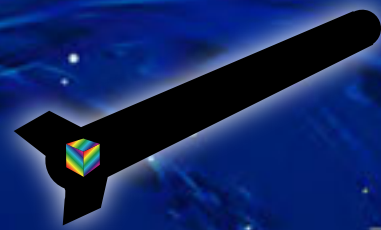
fresh water
14x35 meters

grazing/cropland 28x56 meters

cropland 26x84 meters

< 140 meters >

Out of our land we must get all the Resources to make our share of shops and all the Products in them; our share of roads, bridges, tunnels, pipes, wires, polls, sewers...



< 140 meters >



fresh water
14x35
meters

grazing/cropland 28x56 meters

cropland 26x84 meters

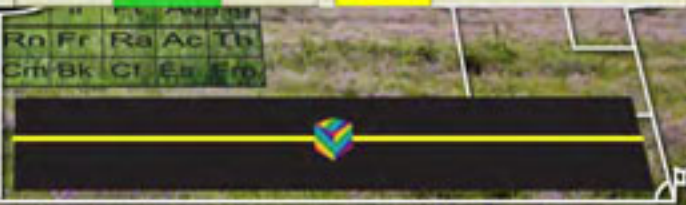


< 140 meters >

...the materials to make our share of offices and schools and everything in them; our share of trucks, trains, ships, planes, military equipment...



INDUSTRIES



> 140 meters >

grazing/cropland 28x56 meters



cropland 26x84 meters



< 140 meters >

...our share of industries, factories, Product manufacturing; our share of mining - extractions of minerals, chemicals, metals, fossil fuels, wood, biomass... The total includes our share of ALL Resources and Products, including from the seas...



< 20,089 km >

< 11,612 km >



< 11,612 km >

< 20,089 km >

The seas are **twice** the land - so our share is **6** fields of ocean - but humans get only a **few percent** of Resources and Products from the seas, and as we'll see this will **not** increase...



Homo Sapiens: organism that can know what is true, right, lasting

In turning to the past and spacetime perspectives, **Homo Sapiens** - fully modern humans as intelligent as we are - have existed for a very long time, at least **130,000 years**.

Unsustainable, industrialized, mass production humans have existed only a very, very brief 230 years, 1/565th of the time of Homo Sapiens.

Homo Sapiens Spacetime Perspective:
13.7 billion years - Universe
4.6 billion years - Planet
3.8 billion years - Living Organisms
13 million years - Family Hominidae
130,000 years - Species Sapiens

Homo Sapiens Development
1> 130,000 years: Hunter-Gatherers
2> 12,000 years: Cultivator-Herders
3> 230 years: Industrial-Producers

HunterGatherer





3 variables H P R

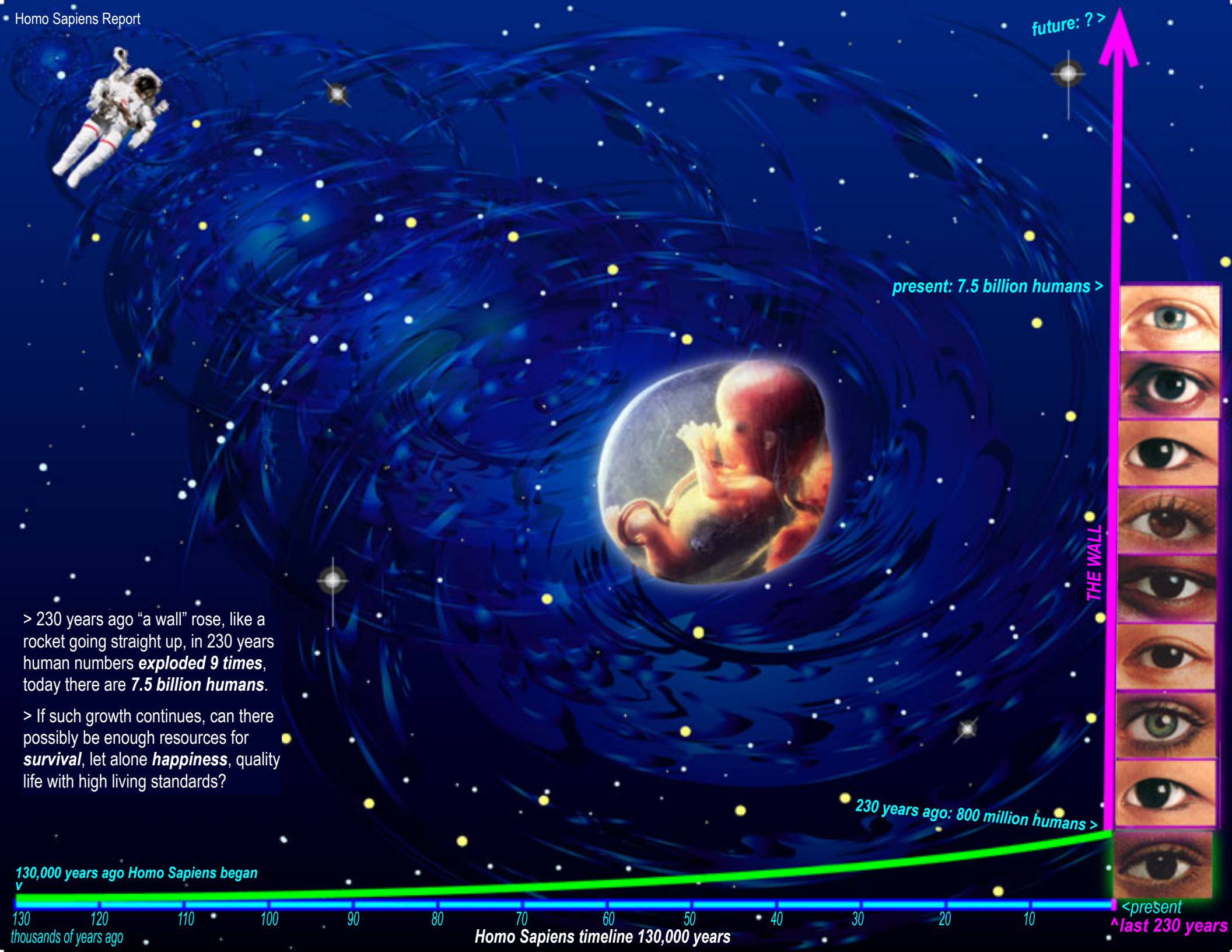
First **+H**, the making of *Humans*:

> 130,000 years ago Homo Sapiens began and by **230 years ago** just before industrialization, there were only **800 million Humans**, a number which - given **R**, the Resources of the planet, was and is sustainable.

230 years ago: 800 million humans >

130,000 years ago Homo Sapiens began





> 230 years ago “a wall” rose, like a rocket going straight up, in 230 years human numbers **exploded 9 times**, today there are **7.5 billion humans**.

> If such growth continues, can there possibly be enough resources for **survival**, let alone **happiness**, quality life with high living standards?

130,000 years ago Homo Sapiens began



230 years ago: 800 million humans >

present: 7.5 billion humans >

future: ?? >

THE WALL



<present
^ last 230 years



130,000 years to increase from making 1 product unit to 2 - sustainable

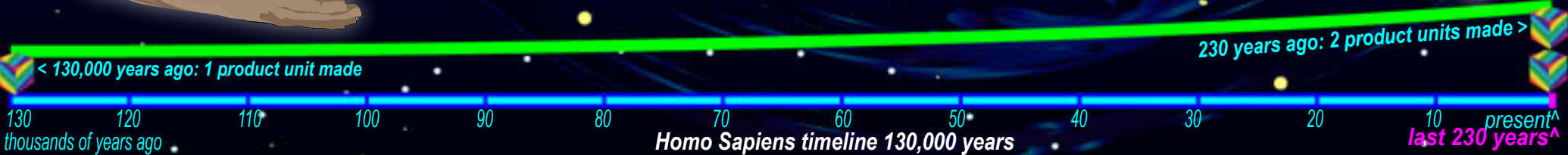


3 variables **H P R**

Second **+P**, the making of **Products**:

> 130,000 years ago when Homo Sapiens began, using only their muscle power and food energy the average human could make 1 "Product unit" per unit of time.

> By 230 years ago using additional animal muscle or wind or water mill power, the average human made 1 additional "Product unit": *it took 130,000 years to increase from making 1 Product unit to 2...*





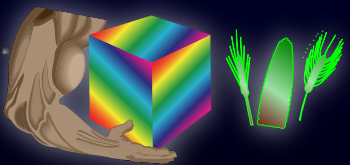
$$\Delta S = (\Delta U + p\Delta V) / T \geq \Delta Q / T$$

130,000 years to increase from 1 product unit to 2;
230 years: 2 to 220 increase
= unsustainable

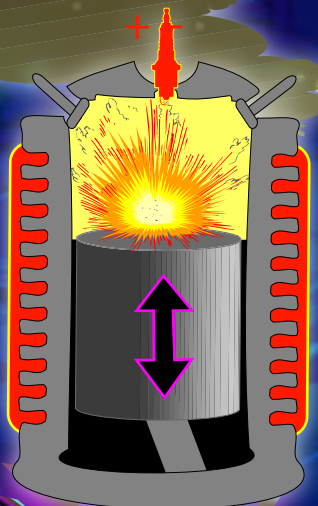


Beginning 230 years ago an even more awesome wall rocketed to unimaginable heights as new, giant **engines, motors and turbines** powered by coal, oil, gas, uranium, biomass, sun, wind, water, geothermal were invented and set in motion.

- > The **Revolutionary Industrial** result is that today in just 230 years, **Product making - and Resource degradation - exploded an astonishing 220 times.**
- > This growth rate is **not sustainable.**
- > Using **non-emitting energy** will NOT solve the problem. Using ANY form of energy, **Product making diminishes** material Resources because of the laws of nature including entropy.



engines
motors
turbines



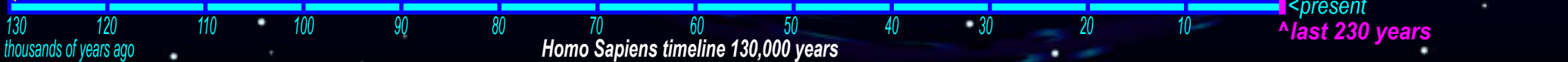
H	He	Li	Be	B	C	N	O	F	Ne
1	2	3	4	5	6	7	8	9	10
Na	Mg	Al	Si	P	S	Cl	Ar	K	Ca
11	12	13	14	15	16	17	18	19	20
Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn
21	22	23	24	25	26	27	28	29	30
Ga	Ge	As	Se	Br	Kr	Sr	Y	Zr	
31	32	33	34	35	36	37	38	39	40
Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn
41	42	43	44	45	46	47	48	49	50
Sb	Te	I	Xe				Cs	Pr	Nd
51	52	53	54	55	56	57	58	59	60
Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb
61	62	63	64	65	66	67	68	69	70
Lu	Hf	Ta	W	Re	Os	Pt	Au	Hg	
71	72	73	74	75	76	77	78	79	80
Tl	Pb	Bi	Po	At	Rn	Fr	Ra	Ac	Th
81	82	83	84	85	86	87	88	89	90
Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm
91	92	93	94	95	96	97	98	99	100

THE ROCKET
THE WALL

220 X

230 years ago: 2 product units made >

< 130,000 years ago: 1 product unit made





CLOSED MASS



Human numbers are increasing. We are now 7.5 billion - and a stunning **80 million** humans will be added this year, and 80 next year and the next.

> In about 40 years, human numbers will increase by not 1 billion, not 2...

now
7.5 billion

resources are not increasing
human numbers are increasing

+H

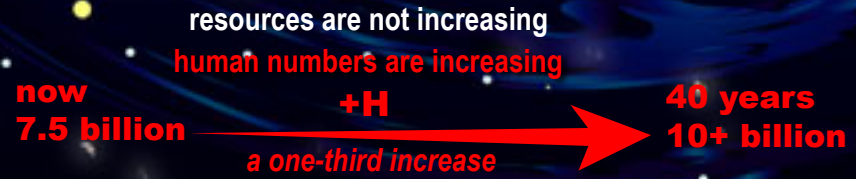
**40 years
?+ billion**

This year
80 million humans
will be added to
the planet's 7.5 billion -
that's like adding a
country the size
of Germany -
with no
discussion.



CLOSED MASS

Human numbers will increase by about 3 billion, maybe 4 billion - about a **one-third increase** in human population - which means that...

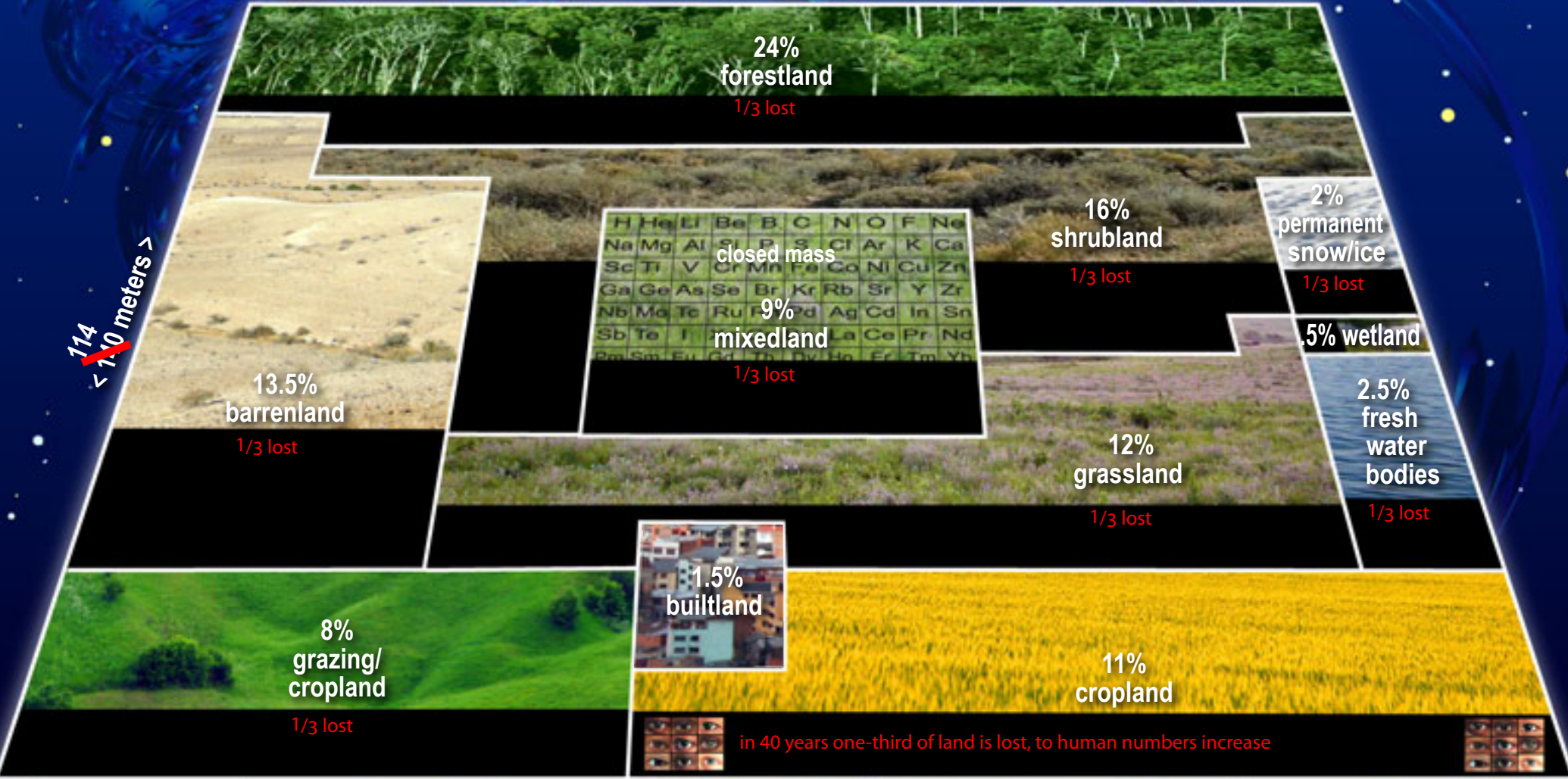




now
3 fields

40 years
2 fields

~~114~~
< 110 meters >



~~114~~
114
< 110 meters >

We will lose a third of our cropland, a third of grazing land, 1/3 of our fresh water, 1/3 of our forests, minerals, 1/3 of everything, every resource - even a third of our share of sunlight, in just 40 years. But...



now
7.5 billion

one-third increase

40 years
10+ billion

+H



+P -R.
products are increasing
resources are decreasing

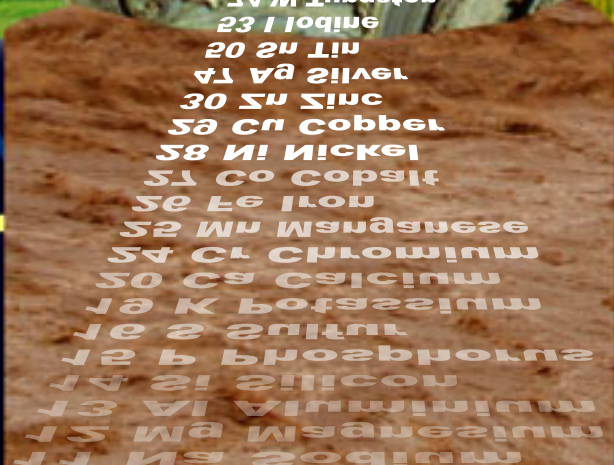


40 years
1 football field



1 km underground,
5 km of tunnels
for lowly copper
Cu 29

< 140 meters >



To make **Products** we extract, degrade, lessen and loose into the **seas** mineral and biological **Resources**. We stripmine our planet, depleting the reachable upper earth crust of metals, fertilizers, soils, the whole periodic table of elements.

And: every year as humans mine ever deeper, it takes ever **more Materials** and **Energy** to extract ever **fewer Resources**.





+P -R
products are increasing
resources are decreasing

40 years
1 football field

< 140 meters >

H	He	Li	Be	B	C	N	O	F	Ne	
1	2	3	4	5	6	7	8	9	10	
Na	Mg	Al	Si	P	S	Cl	Ar	K	Ca	
11	12	13	14	15	16	17	18	19	20	
Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	
21	22	23	24	25	26	27	28	29	30	
Ga	Ge	As	Se	Br	Kr	Rb	Sr	Y	Zr	
31	32	33	34	35	36	37	38	39	40	
Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	
41	42	43	44	45	46	47	48	49	50	
Sb	Te	I	Xe	Y	Zn	Fe	La	Ce	Pr	Nd
51	52	53	54	55	56	57	58	59	60	
Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	
61	62	63	64	65	66	67	68	69	70	
Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	
71	72	73	74	75	76	77	78	79	80	
Tl	Pb	Bi	Po	At	Rn	Fr	Ra	Ac	Th	
81	82	83	84	85	86	87	88	89	90	
Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	
91	92	93	94	95	96	97	98	99	100	

40 years
PRODUCTMAKING

2X ENERGY-MATTER in
=
1X RESOURCES out

↑ earth crust - the most valuable materials are in the first meters

↑ earth crust - the easily accessible has been / will be removed

H	He	Li	Be	B	C	N	O	F	Ne	
1	2	3	4	5	6	7	8	9	10	
Na	Mg	Al	Si	P	S	Cl	Ar	K	Ca	
11	12	13	14	15	16	17	18	19	20	
Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	
21	22	23	24	25	26	27	28	29	30	
Ga	Ge	As	Se	Br	Kr	Rb	Sr	Y	Zr	
31	32	33	34	35	36	37	38	39	40	
Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	
41	42	43	44	45	46	47	48	49	50	
Sb	Te	I	Xe	Y	Zn	Fe	La	Ce	Pr	Nd
51	52	53	54	55	56	57	58	59	60	
Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	
61	62	63	64	65	66	67	68	69	70	
Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	
71	72	73	74	75	76	77	78	79	80	
Tl	Pb	Bi	Po	At	Rn	Fr	Ra	Ac	Th	
81	82	83	84	85	86	87	88	89	90	
Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	
91	92	93	94	95	96	97	98	99	100	

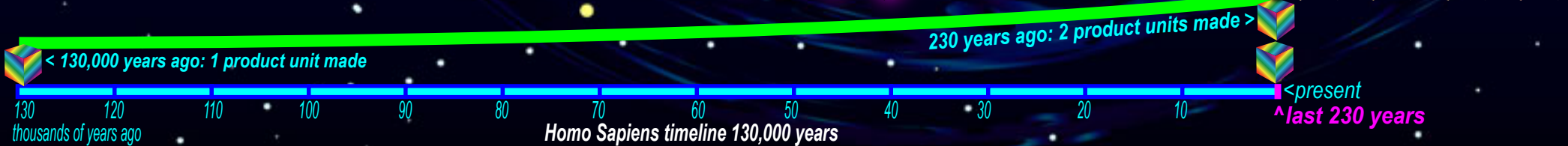
> In 40 years so much of every easily reachable resource will be diminished that, compared to today, it will take at least **double** the energy and materials to extract the same amount of resources - **if** they still exist. So...



220 X

Remembering that it took 130,000 years to increase from making 1 product unit to 2, here are the 220 product units of today...

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100





Simple math shows that **40 years from now Products will quadruple, increasing 400% to an astounding 880 units. So...**

880 X

40 years from now



Homo Sapiens timeline 130,000 years

^ 130,000 years ago: 1

^ 230 years ago: 2 units

^ present: 220 units

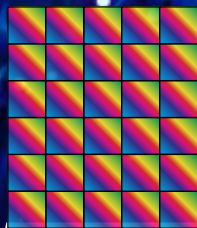
40 years from now: 880 ^



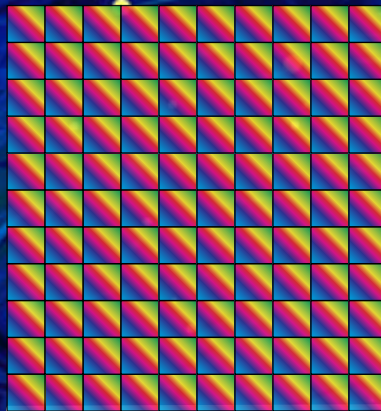


Products made from Resources (relative units)

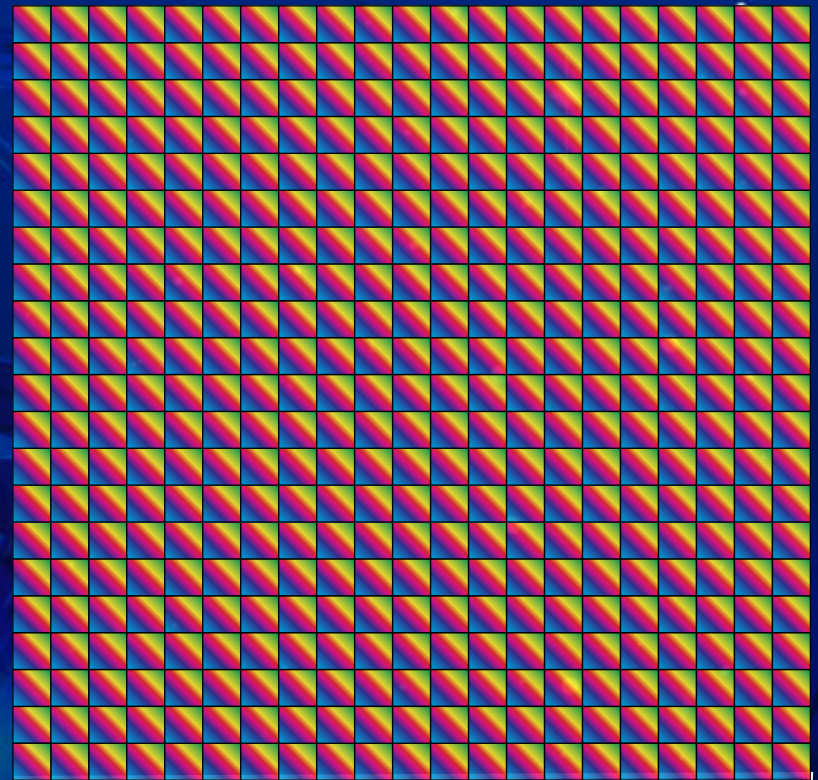
2



60



220



880 product units

1 Human



230 years ago

24 football fields*

< 395 m >



40 years ago

6

< 198 m >



< 198 m >

present

3

< 140 m >



< 140 m >

40 years from now

2

< 114 m >



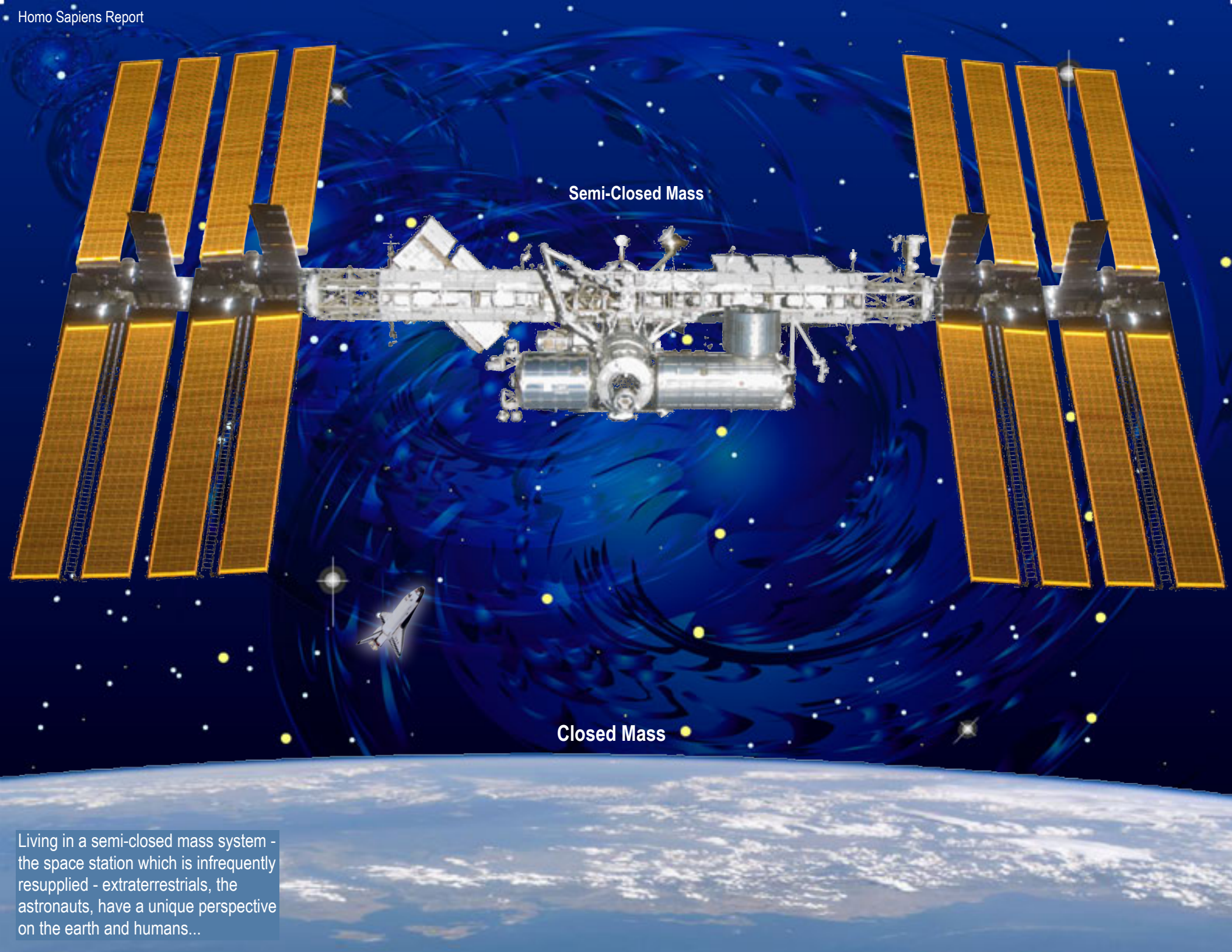
< 114 m >

*Resources per Human (1 football field = 100x65 m)

CLOSED MASS
this can't continue
it will destroy everyone's future!

< 395 m >





Semi-Closed Mass

Closed Mass

Living in a semi-closed mass system - the space station which is infrequently resupplied - extraterrestrials, the astronauts, have a unique perspective on the earth and humans...

Terrestrials take the Earth for granted, Extraterrestrials cannot.

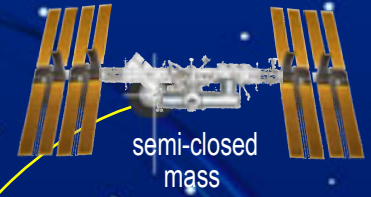
> For every **1 kg** of anything brought up to the spacestation, **80 kgs** of mass-energy are required.

> **1 day** of solid food for **1** astronaut takes **47 times** the energy in the food just to bring the food up to the station.

closed mass



80



nothing can be taken for granted

1 to 47



$$\Delta S = (\Delta U + p\Delta V) / T \geq \Delta Q / T \quad \infty$$

there is no free lunch



Problem
+P +H = -R
Solution
-P -H = R.

These extraterrestrials have learned a great deal about human survival and happiness - in the finite environment of a spacecraft, and down on planet earth...



present
7.5 billion
humans
v

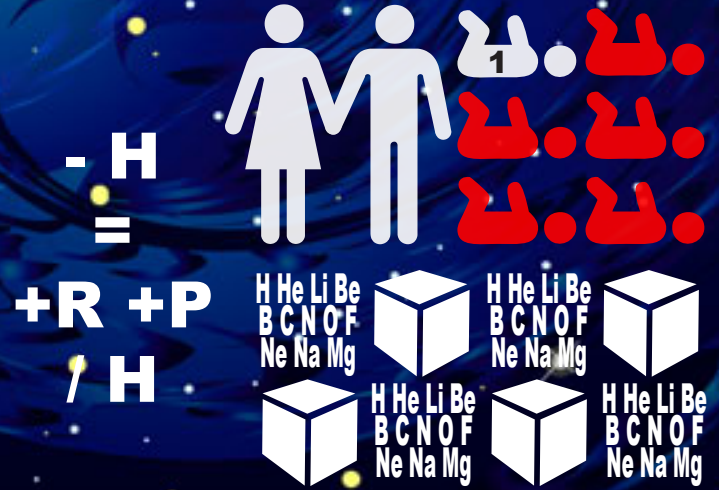
1
- H
=
+R +P
/ H



+H = overwhelmed!

-H SOLUTION

- 1> Global contraception: -H: fulfill desire for fewer offspring, end all unwanted pregnancies, presently only half global are.
- 2> 0 or 1 offspring +R+P / H: more resources per human for a better, happier life and future - resources are limited, diminishing rapidly.
- 3> 97 offspring instead of 100 -H: with a global growth rate of 102%, 3 less and the "Pop will Drop".



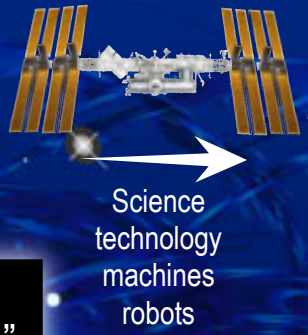
130,000 years ago Homo Sapiens begin

230 years ago ^
800 million humans



<present
^last 230 years

GLOBAL POLICY
 "There must be ever more offspring: to work, to pay pensions, to support their parent's retirement."



present
7.5 billion humans



$$- H + \text{robot} = +R + P / H$$



Fewer humans, more robots - less work, more leisure, more happiness, more security - 0 or 1 offspring + robots for a quality, happy life.

$$- H + \text{robot} = +R + P / H$$

THE WALL

The above policy is nonsense:

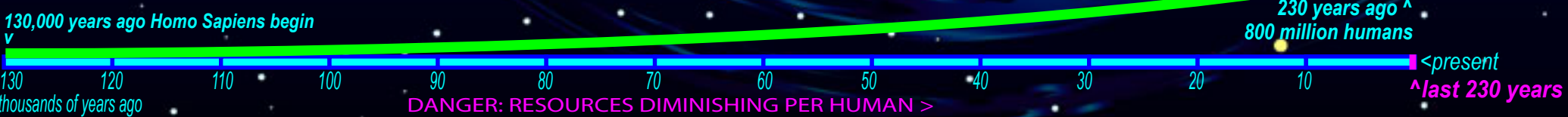
- 1> Robots. More workers are not necessary: science and technology will continue to invent more machines-robots to make products, fewer not more humans are needed.
- 2> Provide own retirement. Using machines-robots on average each human can easily work enough to provide their own "pension", the products and resources which are the real support of their retirement.



All humans aspire to the same global product-rich life. Fewer humans means more products per human.

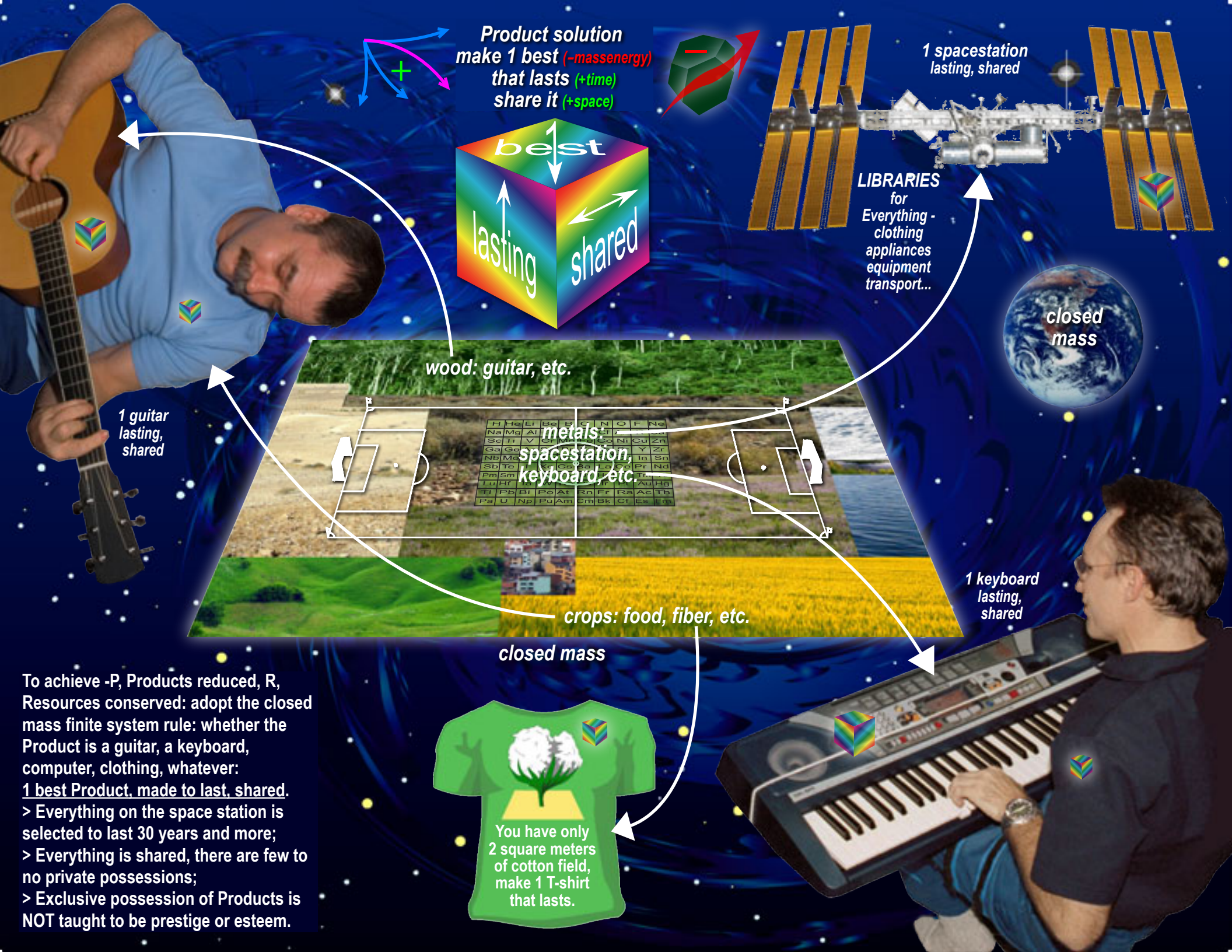


H He Li Be
B C N O F
Ne Na Mg

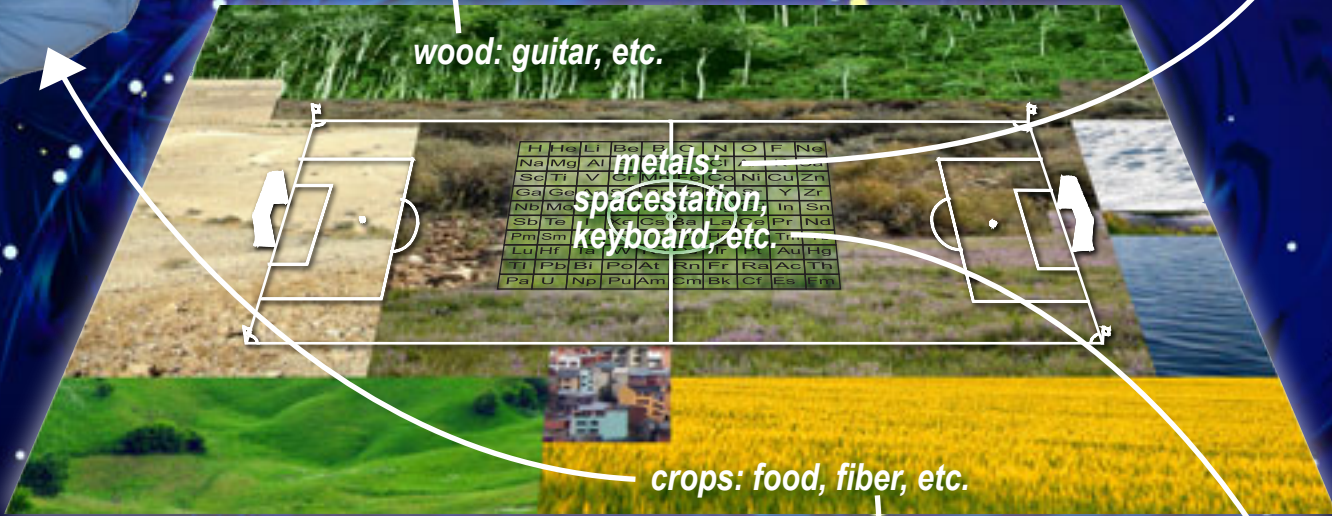
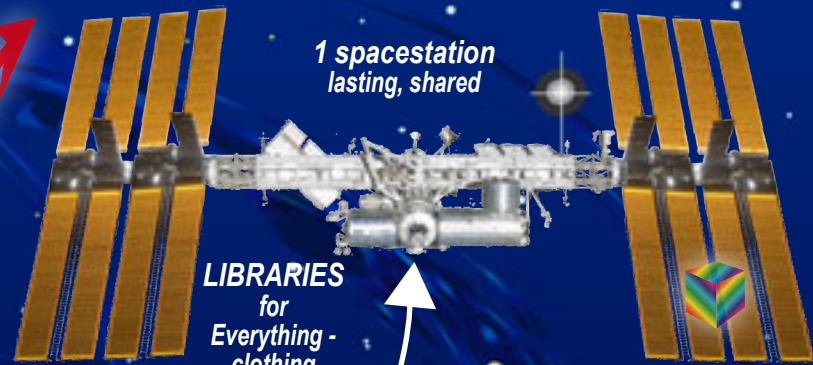




-P SOLUTION. Regarding the “need” for products: humans can be taught to want - want-making - or NOT to want products:
> 1 PRODUCT. Research shows that it is not the many products - of fashion, style, change - that brings the great, lasting pleasure it is the use of 1 product...



Product solution
 make 1 best (-massenergy)
 that lasts (+time)
 share it (+space)



1 guitar
 lasting,
 shared

1 keyboard
 lasting,
 shared

closed mass



To achieve -P, Products reduced, R, Resources conserved: adopt the closed mass finite system rule: whether the Product is a guitar, a keyboard, computer, clothing, whatever:
1 best Product, made to last, shared.
 > Everything on the space station is selected to last 30 years and more;
 > Everything is shared, there are few to no private possessions;
 > Exclusive possession of Products is NOT taught to be prestige or esteem.

~~society~~ self
me more
new now

“Buy”

1 Best
Lasting
Shared



Productmaker's Open Mass
Law: “Make Many, that
Don't Last & Aren't Shared”

“Unbelievable”



“Magical”



Depletions

- Al 13 Aluminum
- Cr 24 Chromium
- Mn 25 Manganese
- Fe 26 Iron
- Co 27 Cobalt
- Ni 28 Nickel
- Cu 29 Copper
- Zn 30 Zinc
- As 33 Arsenic
- Ag 47 Silver
- Cd 48 Cadmium
- Sn 50 Tin
- Pt 78 Platinum
- Au 79 Gold
- Hg 80 Mercury
- Pb 82 Lead
- U 92 Uranium
- Li 3 Lithium
- Ga 31 Gallium
- Se 34 Selenium
- Rh 45 Rhodium
- Pd 46 Palladium
- In 49 Indium
- Te 52 Tellurium
- Nd 60 Neodymium
- Tb 65 Terbium
- Dy 66 Dysprosium
- Ta 73 Tantalum

“My Products”



“Most
Advanced”



“Revolutionary”



“What Products Are You?”

This is just one example of today's global proliferation of trillions of Products. Appeals to “me, more, new, now”, fashion, style, change for profit's sake result in depletions of metals and other scarce resources, which will leave little to nothing for future generations.





Open mass - the shopping is not reuseable or for life

40 years
4X more
products
2X more humans

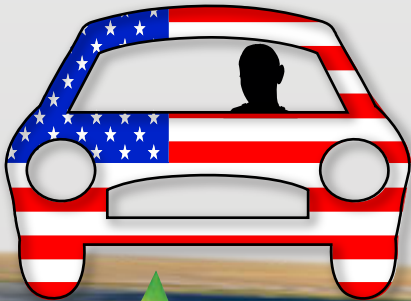
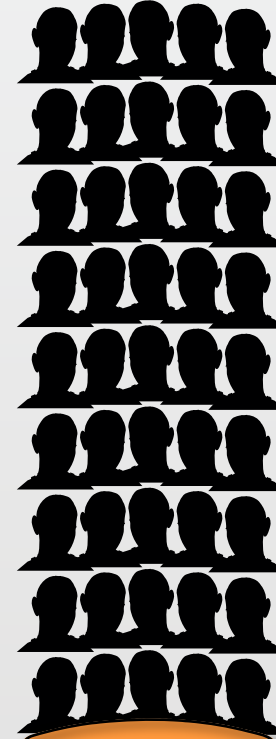
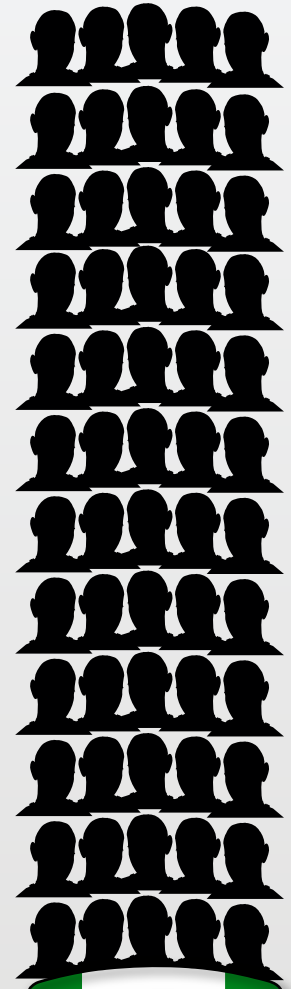
The Right to Development



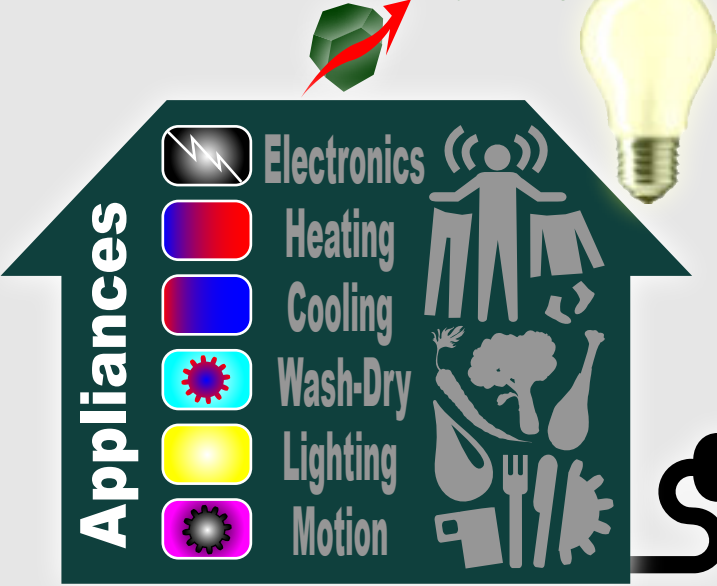
The Good Life

Setting standards of living -

- 1 American, 1 car
 - 2 Europeans in 1 car
 - 20 Chinese crammed into 1 car
 - 50 Indians jammed into 1 car
 - 60+ Africans slam packed into 1 car
- Who is the great cause of climate change -
20 Chinese, 50 Indians, 60+ Africans in 1 car?



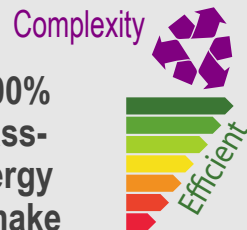
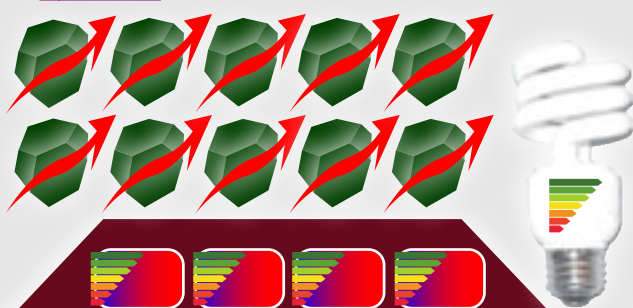
100% all-in Resource use 40 years ago



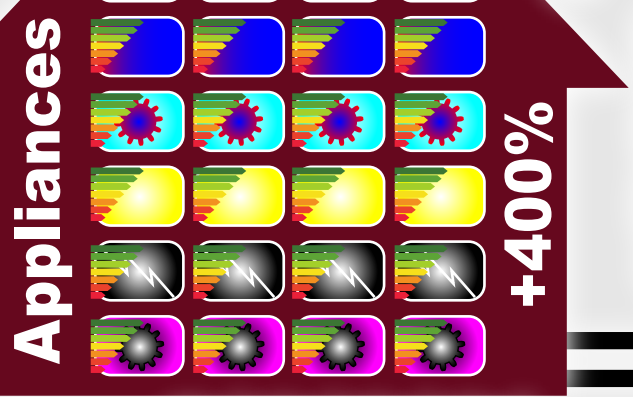
40 YEARS AGO to NOW,
no all-in design, great all-in cost:
HOME, energy-using devices;
TRANSPORT, most produced, economy,
4 people + luggage, Mini-Fiesta.



1,000%+ all-in Resource use now



+400%
mass-energy
to make
operation
energy



+200%
energy to
operate

+400%
mass-energy to make-maintain
-35% Lifetime -400% Recyclability

+400%
mass-energy to make-maintain
-50% Lifetime -400% Recyclability



**BUY 2 AND
SAVE**

**1/2
PRICE**

**ALWAYS
GREAT
PRICES**

PROFIT!

PROFIT!

PROFIT!

PROFIT!

**Open mass -
buildings & contents:
nothing is made to last -
everything new, now, least price**

PRODUCTS

1970s **NOW**

1,000 **9,500**

Simple Complex

Lasting Don't last

Recyclable Unrecyclable

Hardware: hinges

CLOSE SOFT CLOSE

1 substance Multi-substance

3 piece Mega-piece

Materials: woods

BOARD Chip-board

Fibre-board

Strand-board

Poly-board...

**Nothing inside or
out is made to last**

OPEN MASS

IKEA



GRUNDTAL
Toilet seat
\$29.99



FREDEN
Toilet seat
\$19.99



MAREN
Toilet seat
\$19.99



ÖRESUND
Toilet seat
\$19.99

simplicity



1970s

multiplexity



now



GOLIAT
drawer unit on
casters
\$34.99



HELMER
drawer unit on
casters
\$39.99



GALANT
Base cabinet with
shelves
\$89.00



AKURUM
Base cabinet with
shelves
\$102.00

World Trade Towers, UN Building - almost all buildings - are not built to last, they would have had to be taken down in about 20 years, or an amount equal to their cost invested to keep them standing.



**Open mass -
nothing is made
to last**



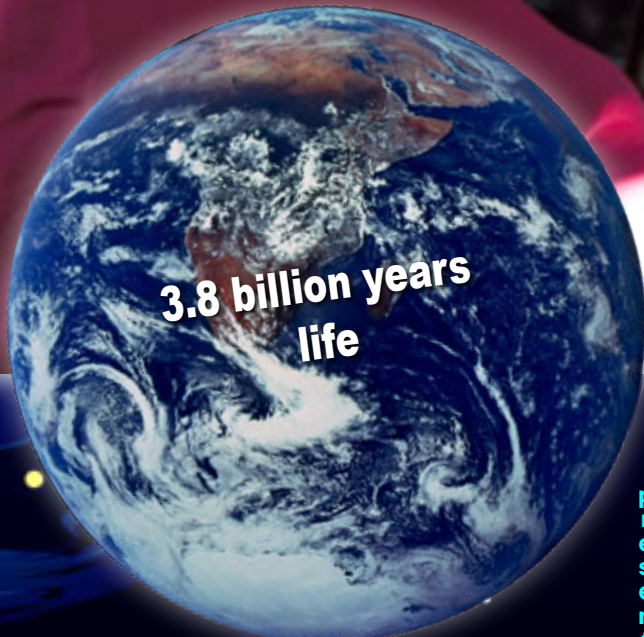
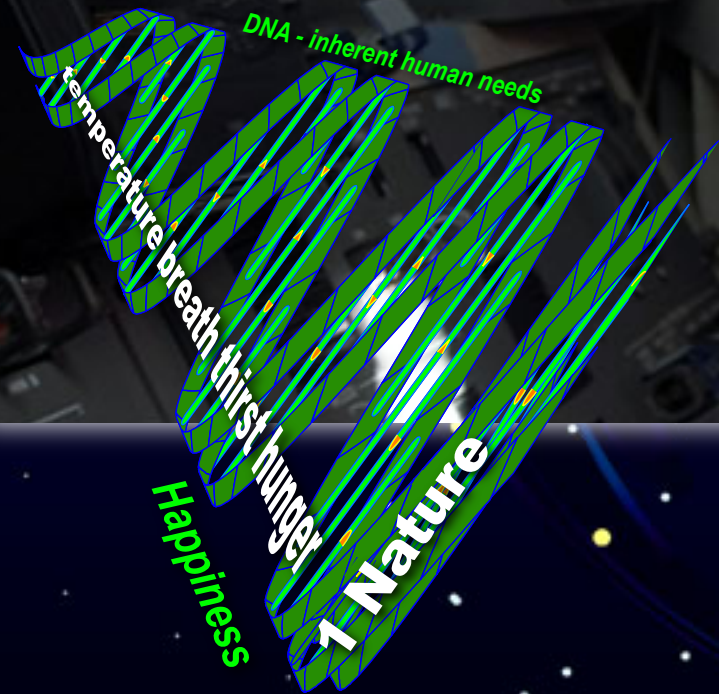
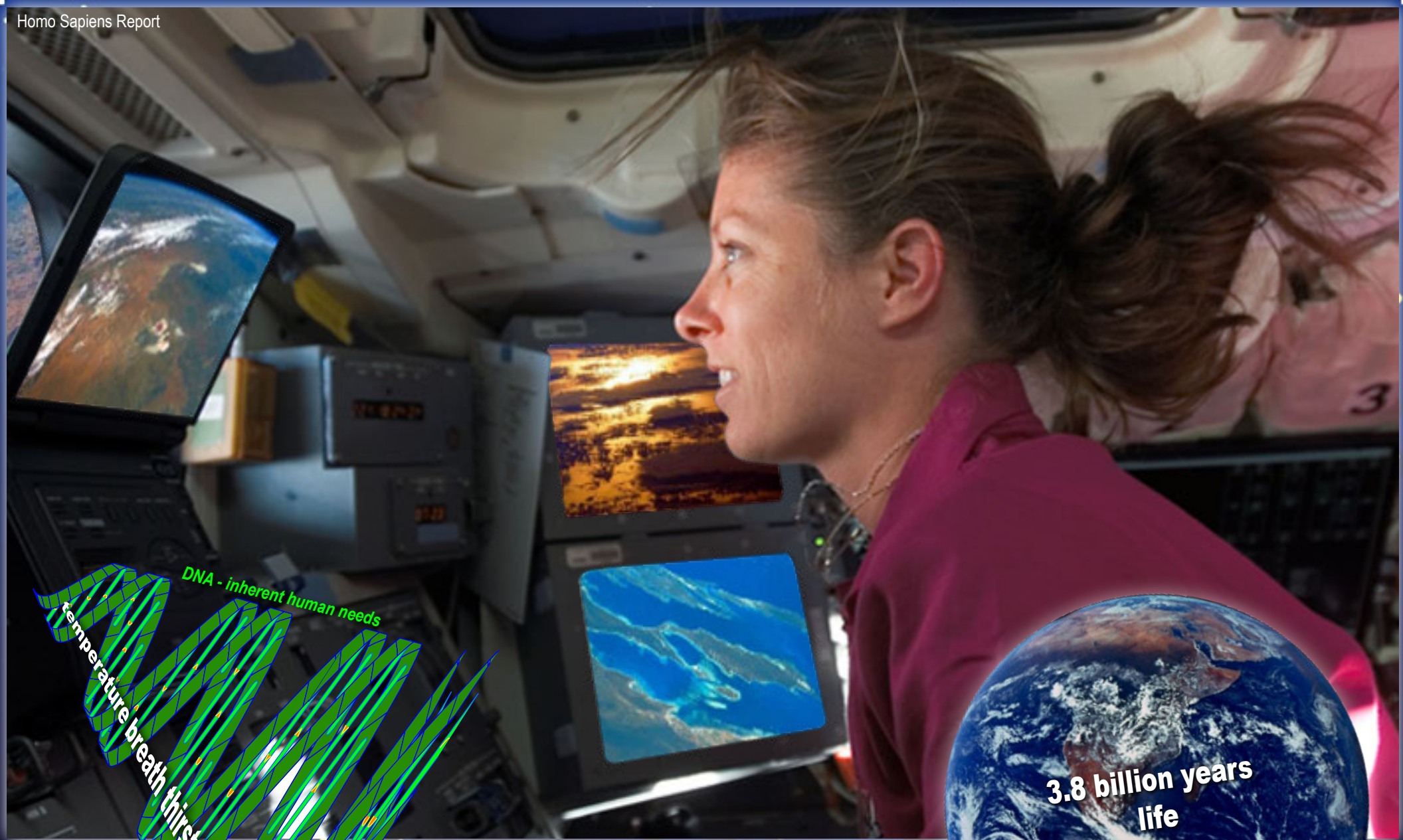
DNA - inherent needs-desires

- self-actualization fulfillment
 - curiosity understanding
 - prestige esteem competence
 - love belonging
 - safety security
 - reproducing
 - mating
 - breath
 - thirst
 - hunger
- 1 Nature 2 Humans 3 Activities

What makes humans happy?

Above are the unchanged 130,000 year old *inherent human needs-wants-desires* which must be *satisfied* or humans will not be happy or survive.





1> NATURE: food, water, air, temperature, pressure - in other words, **life, Resources**, the earth, the planet which humans absolutely rely upon, a planet which therefore makes humans very happy, they owe it **everything**.





DNA - inherent needs-desires
 love belonging
 safety security
 mating reproducing
 Happiness
 2 Humans

2> HUMANS: humans need other humans to mate and to reproduce (or there will be no more humans); for security, for love and belonging -

humans cannot survive alone, they are social creatures, humans need, want and desire other humans.

Family Hominidae
13 million years





Knowledge, Creativity...

Homo Sapiens 130,000 years:
 Observe>Investigate>Question>
 Suppose>Experiment>
 Conclude>Explain>Confirm

3> **ACTIVITIES-ABILITIES:** humans need to be *competent*, to *understand*, to be *fulfilled*. In this category is the unique, amazing human ability to *reason*, to learn, to *know reality*, truths, things as they are.
 > For 130,000 years Humans have done this by observing, investigating, questioning, supposing, experimenting, concluding, explaining, confriming...



Happiness-survival,
in space or on earth:

Nature



self-actualization fulfillment
curiosity understanding
prestige esteem competence
love belonging
safety security
mating reproducing
temperature breath thirst hunger
130,000 year inheerits



Humans



Abilities



**Most popular
feature film**



HUNTER-GATHERERS

NATURE

ACTIVITIES

not products



*My car makes me happy
I really love it!
Are you sure you know
what makes you happy?
Here's how to find out...*

humans

activity

nature

product

Serving overprotective parents since 1935
Chevrolet suburban, the original SUV
starting at \$39,999

Day Recall Method

<i>Tuesday</i>		<i>5 November</i>
<i>5 AM</i>		3
6		4
7		5
8		6
9		7
10		8
11		9
12		10
<i>1 PM</i>		11
2		12

Day Recall Method

Enter in a diary the activities of your day

Tuesday

5 AM

6 *Activity 1*

7 *Activity 2*

8 *Activity 3*

9 *Activity 4*

10

11

12

1 PM *Activity 5*

2 *Activity 6*

5 November

3

4

5 *Activity 7*

6 *Activity 8*

7 *Activity 9*

8 *Activity 10*

9 *Activity 11*

10 *Activity 12*

11 *Activity 13*

12 *Activity 14*

Activity 15

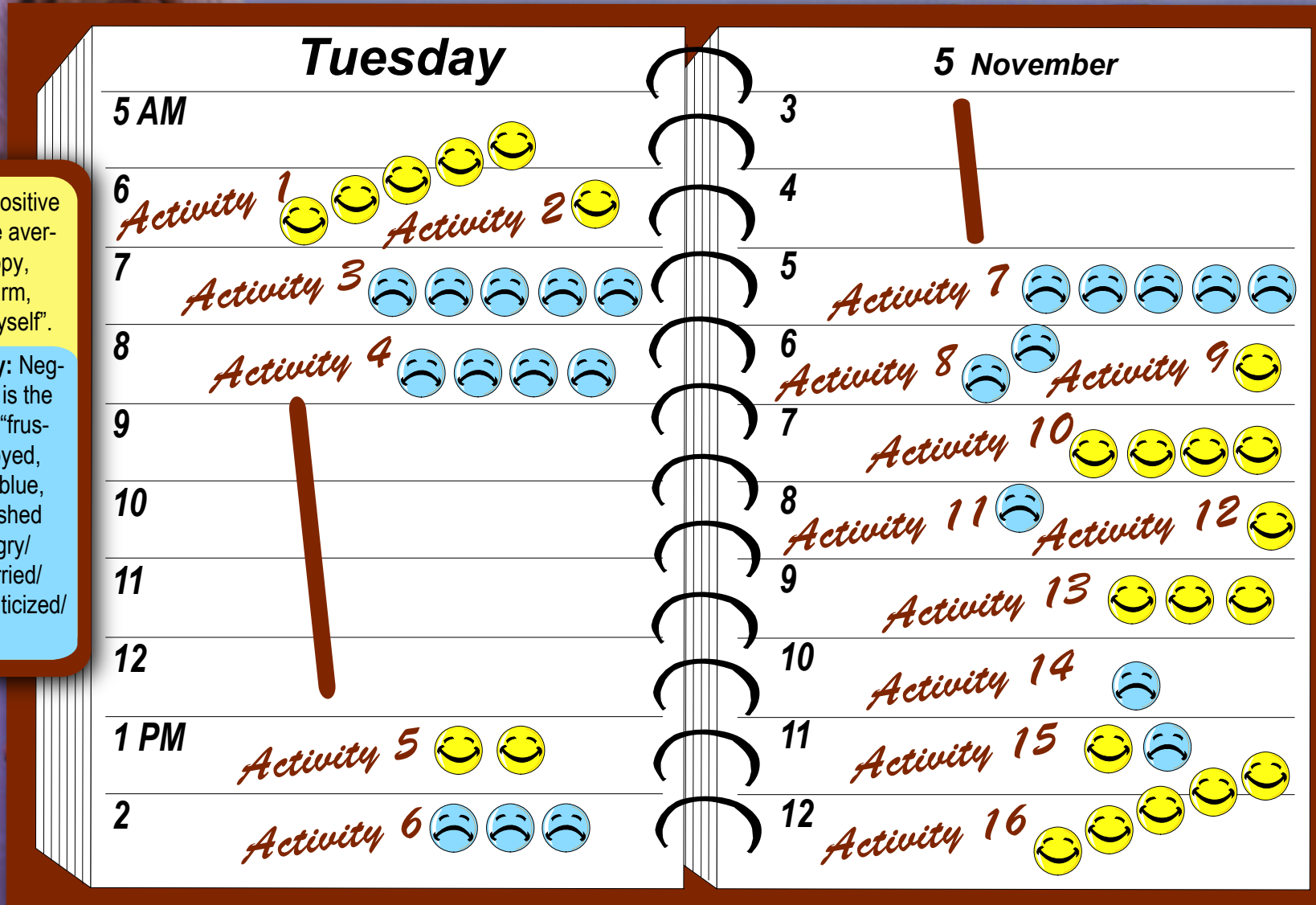
Activity 16

Day Recall Method

Rank your activities -
Happy-Unhappy *

***Happy:** Positive affect is the average of "happy, friendly, warm, enjoying myself".

***Unhappy:** Negative affect is the average of "frustrated/annoyed, depressed/blue, hassled/pushed around, angry/hostile, worried/anxious, criticized/put down".



Day Recall Method

RESULTS - activities that

make me happy/unhappy:

1 😊😊😊😊😊

9 😞

2 😊😊😊😊😊

10 😞😞

3 😊😊😊😊

11 😞😞

4 😊😊😊😊

12 😞😞😞

5 😊😊😊

13 😞😞😞

6 😊😊😊

14 😞😞😞😞

7 😊😊

15 😞😞😞😞😞

8 😊

16 😞😞😞😞😞

***Happy:** Positive affect is the average of "happy, friendly, warm, enjoying myself".

***Unhappy:** Negative affect is the average of "frustrated/annoyed, depressed/blue, hassled/pushed around, angry/hostile, worried/anxious, criticized/put down".

Day Recall Method

RESULTS - activities that

make me happy/unhappy:

1 😊😊😊😊😊 🦶
intimate relations - sex

9 😞

2 😊😊😊😊😐 🦶
socializing

10 😞😞

3 😊😊😊😊 🦶
relaxing

11 😞😞

4 😊😊😊😐 🦶
think-meditate-pray

12 😞😞😐

5 😊😊😊

13 😞😞😞

6 😊😊😐

14 😞😞😞😞

7 😊😊

15 😞😞😞😞😐

8 😊

16 😞😞😞😞😞

***Happy:** Positive affect is the average of "happy, friendly, warm, enjoying myself".

***Unhappy:** Negative affect is the average of "frustrated/annoyed, depressed/blue, hassled/pushed around, angry/hostile, worried/anxious, criticized/put down".

Day Recall Method

RESULTS - activities that

make me happy/unhappy:

1 😊😊😊😊😊 
intimate relations - sex

2 😊😊😊😊😐 
socializing

3 😊😊😊😊 
relaxing

4 😊😊😊😐 
think-meditate-pray

5 😊😊😊
eating

6 😊😊😐
exercizing


7 😊😊
watching TV-videos

8 😊
shopping


9 😞
preparing food


10 😞😞
phoning

11 😞😞
napping

12 😞😞😞 
taking care of children

13 😞😞😞 
computer-internet

14 😞😞😞😞 
housework

15 😞😞😞😞😐 
working

16 😞😞😞😞😞 
driving-commuting

***Happy:** Positive affect is the average of "happy, friendly, warm, enjoying myself".

***Unhappy:** Negative affect is the average of "frustrated/annoyed, depressed/blue, hassled/pushed around, angry/hostile, worried/anxious, criticized/put down".

Interaction with Humans ranking:
w/ friends 
w/ relatives
w/ spouse/significant other
w/ children
w/ clients/customers
w/ co-workers
w/ boss alone

Nature ranking:
w/ land sea air 
w/ vegetation
w/ animals...


Products ranking:
w/ transporter 
w/ shelter...

Day Recall Method

***Happy:** Positive affect is the average of "happy, friendly, warm, enjoying myself".

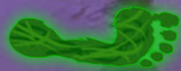
***Unhappy:** Negative affect is the average of "frustrated/annoyed, depressed/blue, hassled/pushed around, angry/hostile, worried/anxious, criticized/put down".



H. sapiens - 
130,000 year old species



humans



activity

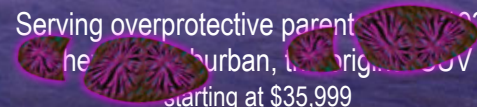


nature



product

Serving overprotective parent...
the... suburban, the orig... SUV
starting at \$35,999



My car makes me...

8 

16 

driving-commuting



Interaction with Humans ranking:

- w/ friends
- w/ relatives
- w/ spouse/significant other
- w/ children
- w/ clients/customers
- w/ co-workers
- w/ boss
- alone



Nature ranking:

- w/ land sea air
- w/ vegetation
- w/ animals...

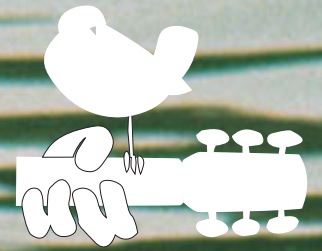


Products ranking:

- w/ transporter
- w/ shelter...



Woodstock -
most popular
documentary



nature

humans

activity - 1: intimate relations, sex



Life Begins Here™

It could!



nature

humans

activity

product



Humanity's best known brand

*You are ugly, unloved
and insecure - but if
you buy this...*



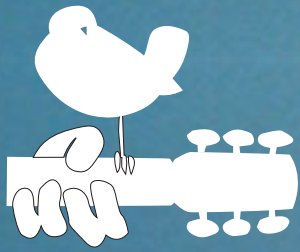
nature

humans

activity - sex

product





peace & music

“I don't know who I am but life is for learning -
We are stardust, golden, billion year old carbon
And we've got to get back to the garden.”

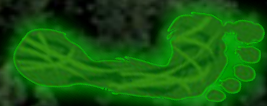
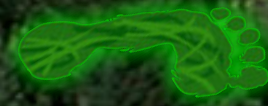
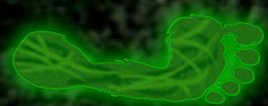


nature

humans

activities

~~product~~



Woodstock - not products -
peace & music

H. sapiens - 130,000 year old species





Climate change
most popular
important

epic battle evil~good



Climate change
most popular
important

epic battle evil~good



Climate change
most popular
important

epic battle evil~good

Climate change
most popular
important



epic battle evil~good



100 years old

CLOSED MASS Centenarian

“In one person’s
lifetime
- the changes
I have seen,
and the lessons
to be learned.”

Imagine a small
planet...



Closed Mass



A minature planet like Earth with hundreds, not billions of people.



CLOSED MASS



Imagine a small planet like Earth where each person has on average the same land and resources as the average human has today - 140 by 140 meters, 3 football fields; and like Earth there are no imports to the planet, no emigrations off.



140 x 140 m²



1 human, 3 football fields of resources

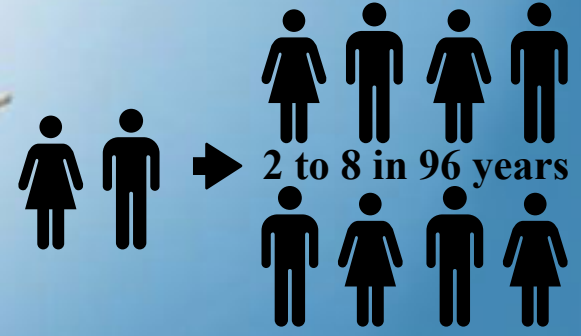
A miniature Earth with hundreds, not billions of people.



CLOSED MASS



“Only 89 years ago there were just 200 people on our small planet (*Earth 2 billion*), 42 years ago we had doubled to 400 (*Earth 4 billion*) - in just a few years we will have quadrupled, to 800!”



On Earth, it took humanity 130,000 years to grow to 2 billion, then only 96 years to grow to 8 billion!



Product: anything made by humans



“89 years ago there was so much land, so many resources for each person (274 by 274 square meters of land, 11.5 football fields) - and we were making very little (16 product units) out of them.

“Today we have so few resources (3 fields per person) and out of them we are making and consuming so much (an extraordinary 220 product units)!

“This can’t go on!”

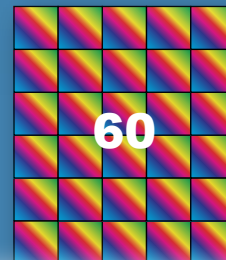


Products & Resources per 1 Human



16

Resources: land & fresh water



60



220



89 years ago

11.5

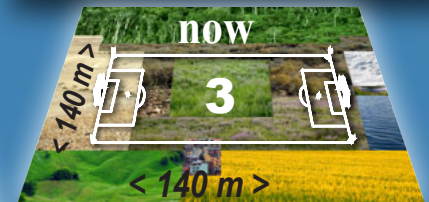
< 274 m >



42 years ago

6

< 198 m >



now

3

< 140 m >

now:

3 resource fields, 220 product units*

89 years ago: 11.5 resource fields, 16 product units*

42 years ago: 6 resource fields, 60 product units*

*“field” is standard football 100 x 65 meters, “unit” is relative product comparison



Closed Mass paradigm shift

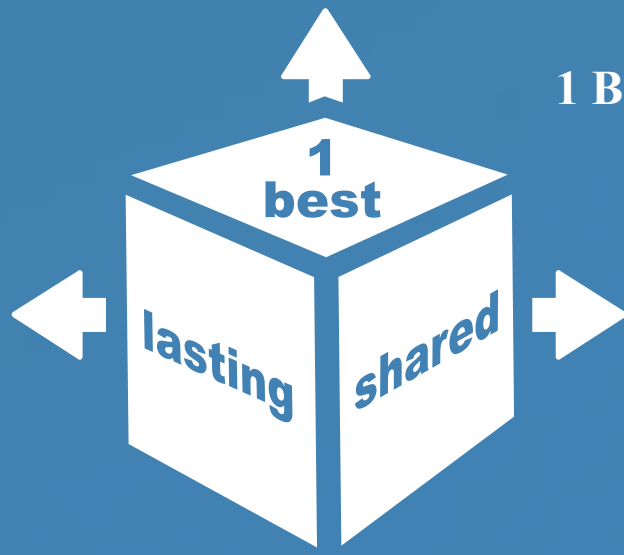
“We live in a closed mass system, we are running out of everything, we will end with no quality life, no happiness for anyone, the solution is simple:

“We do not need to keep growing, we have machines - robots - to do jobs, we need less people, and only the best products (*using fewer resources, minimum mass and energy*), products that last and are shared (*maximizing time and space which costs nothing*).

“We need a hyper library lending everything - the best, lasting products shared - and reduce our market to a mini, selling the least.”



HYPER LIBRARY
for everything



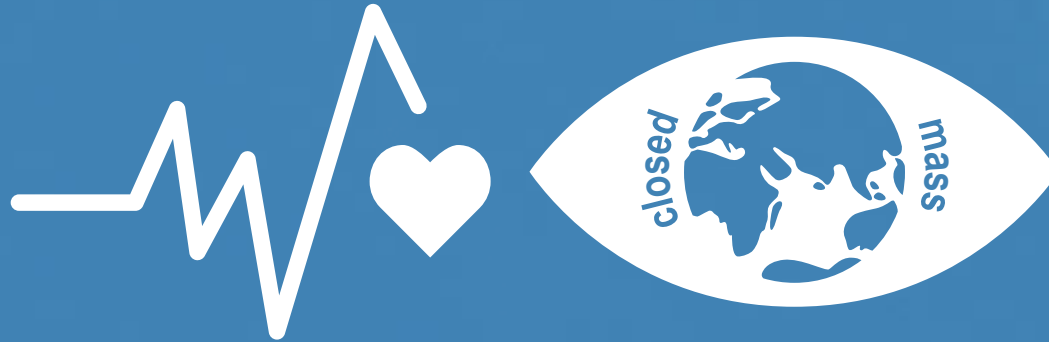
Products including robots
1 BEST LASTING SHARED
1 baby





United Nations Sustainable Development

“By 2050, the equivalent of almost **3 planets** could be required to provide the natural resources needed to sustain current lifestyles” - 1970: 1 planet.



Health & well-being -
Climate action

Unreality: OPEN MASS

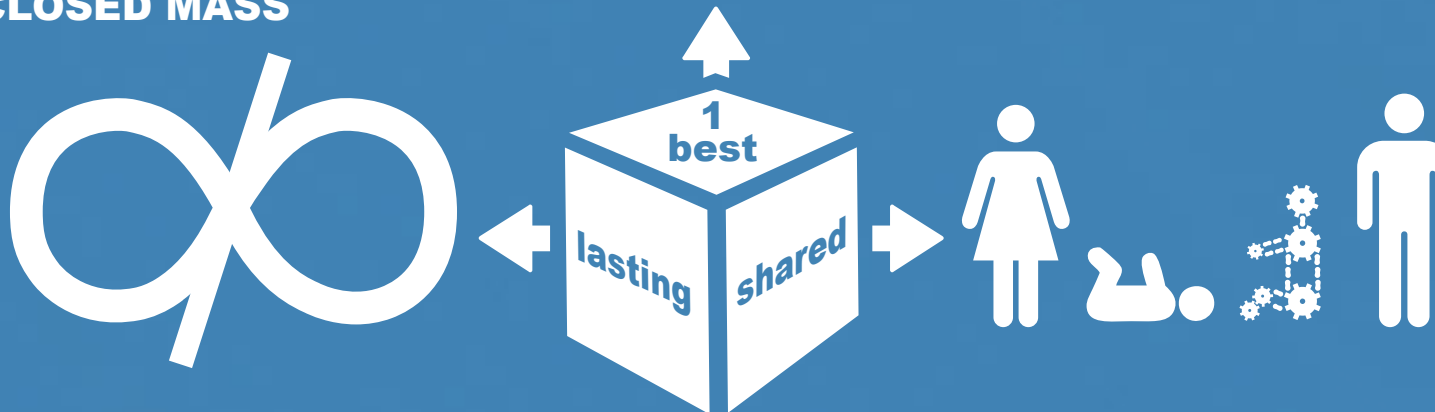
depletion,
degradation,
destruction
assured



Responsible
production &
consumption -
Economic
growth & jobs -
No poverty

Reality: CLOSED MASS

no infinity,
no imports,
no emigrations,
entropy, etc.



Products
- robots:
1, best,
lasting,
shared;
1 baby

Our planet laws

CLOSED MASS

Our Planet goal is another 5,000 years of civilizations, so our Laws are those of closed mass:

1. Don't make Products or Babies (*closed mass: entropy, etc.*).
2. If you must, make one, the best (*minimize mass-energy use*) that lasts (*maximize time*) and is shared (*maximize space*).

What laws will you make for your planet?...



BANNED

$$\Delta S = (\Delta U + p\Delta V) / T \geq \Delta Q / T$$

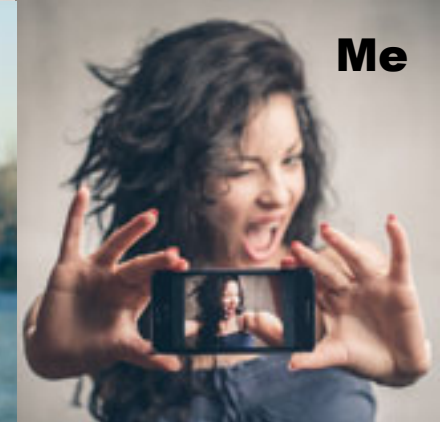
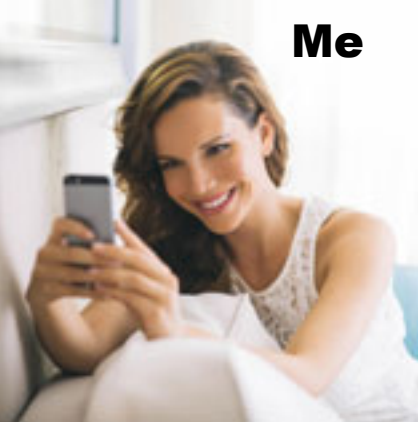
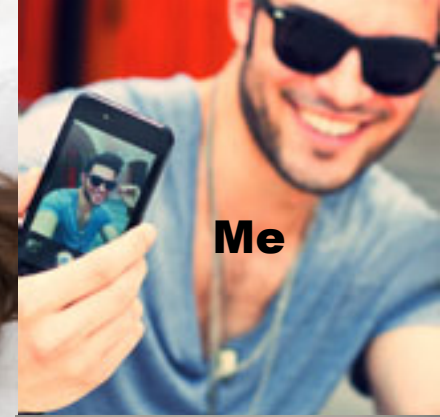
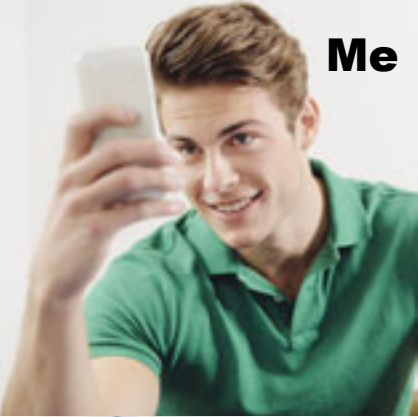
VIRTUAL

**sustainable
beautiful world
no climate change
100% clean renewable energy**

The future

Open mass





In the immortal words of the last emigrant -
Let's get this mother outta here:



~~open mass~~
CLOSED MASS
~~me more new how~~
1 best lasting shared,
ban emitting energy,
make love & robots
not babies!



Reset your clocks -

year

month

day

hour

minute

second

closedmass.org/pdfs/eef-cm.pdf

closedmass@gmail.com



we're in the

Closed Mass Age