

UNIVERSAL
DECLARATION
OF
LIVING BEINGS
COEXISTENCE

Article 0

Life exists in the Universe.

*The living beings aware of their existence
would like life to be perennial.*

LIVING – EQUALITY (TO ACT/TO HAVE) – PERENNIALITY

FOREWORD

This UNIVERSAL DECLARATION OF LIVING BEINGS COEXISTENCE attempts to propose benchmarks and organizational keys which would make it possible to respond to the numerous calls from the United Nations-IPCC-IPBES-COP warning since the end of the 20th century about the “planetary boundaries overshoot”: the structurally divergent trajectory (increasing and blind) of the organizational model that we have inherited would endanger the existence of living beings, human species included, on our finite planet.

The human species would therefore be obliged to invent a new organizational model if we wish to preserve the perennality of living beings on the long term.

This document therefore brings together in a very synthetic way the common hypotheses of the existence of living beings and proposes **a minimal organizational structure**:

- separation of powers: TO KNOW / TO ACT / TO HAVE,
- necessary measures of reality to be continuously updated (indicators),

which would give us knowledge of the “right” LIMITS and would empower us to respect them, thus allowing the establishment of a perennial organization for living beings existing in a FINITE BIOSPHERE.

The elements presented here are the conclusion of the analysis developed in the Living Beings Manifesto, available free online here www.peacenlive.com. If you are missing information to understand certain elements presented here, do not hesitate to consult this Manifesto.

These proposals do not claim to be irrevocable and are to be continuously updated with KNOWLEDGE extension, accordingly with the first postulate of the physics of the Universe: the laws of the Universe are homogeneous throughout the Universe (no singularity).

Therefore, if something does not happen as “expected” somewhere in the Universe, it may be because the current description of the Universe that we have is incomplete or incorrect; it is therefore necessary to remain open at all times to learn from the Universe, to improve and to update the description of its laws.

SUMMARY

ISSUE:

What MEASURES of reality, with knowledge of their LIMITS, must be kept up to date and made available to all, and by what minimal institutions, to empower a **perennial realization of a justice TO ACT and TO HAVE** inside a **FINITE BIOSPHERE**?

PROPOSAL OF THIS UNIVERSAL DECLARATION:

3 institutions TO KNOW – TO ACT – TO HAVE updating these measures of reality:



LIVING – EQUALITY (TO ACT/TO HAVE) – PERENNIALITY

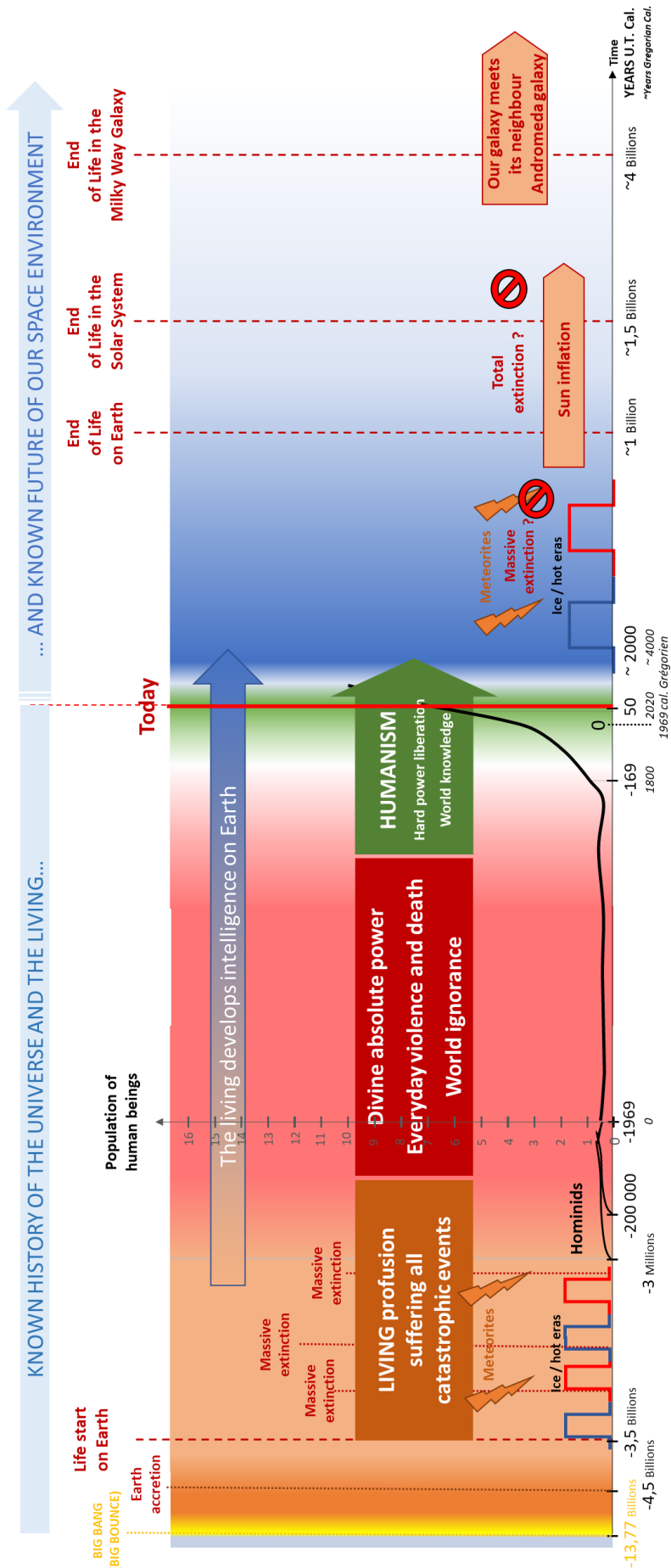
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LIVING – EQUALITY (TO ACT/TO HAVE) – PERENNIALITY

A LIVING: COMMON HYPOTHESIS

I. HISTORY AND FUTURE



II. EXISTENCE IN THE UNIVERSE

Article A.II.1

FINITE BIOSPHERE: In the Universe (TIME, SPACE, MATTER, ENERGY),

- ✓ in a sufficient volume containing a sufficient quantity of MATTER,
 - in a physical context allowing the SOLID, LIQUID AND GASEOUS states of MATTER to coexist (pressure, temperature, gravitation, inertial acceleration – rotating frame),
 - MATTER made up of a suitable distribution of atoms (C,H,O,N,Ca, etc.), including the presence of liquid water (H₂O) in large quantities,
- ✓ in the presence of an almost constant source of ENERGY on a cosmic scale (millions of years - radiation from a star or internal fusion of a planet),

➤ a spontaneous form of construction and animation of MATTER can exist: **THE LIVING**

The LIVING is made up of LIVING BEINGS in osmosis with their inert environment (physical and chemical properties of the environment) and interdependent between each other (reproduction, food chains, ...): no LIVING BEING can exist alone. They COEVOLUTE together in a continuous chain, self-transforming, adapting, improving themselves in their environment.

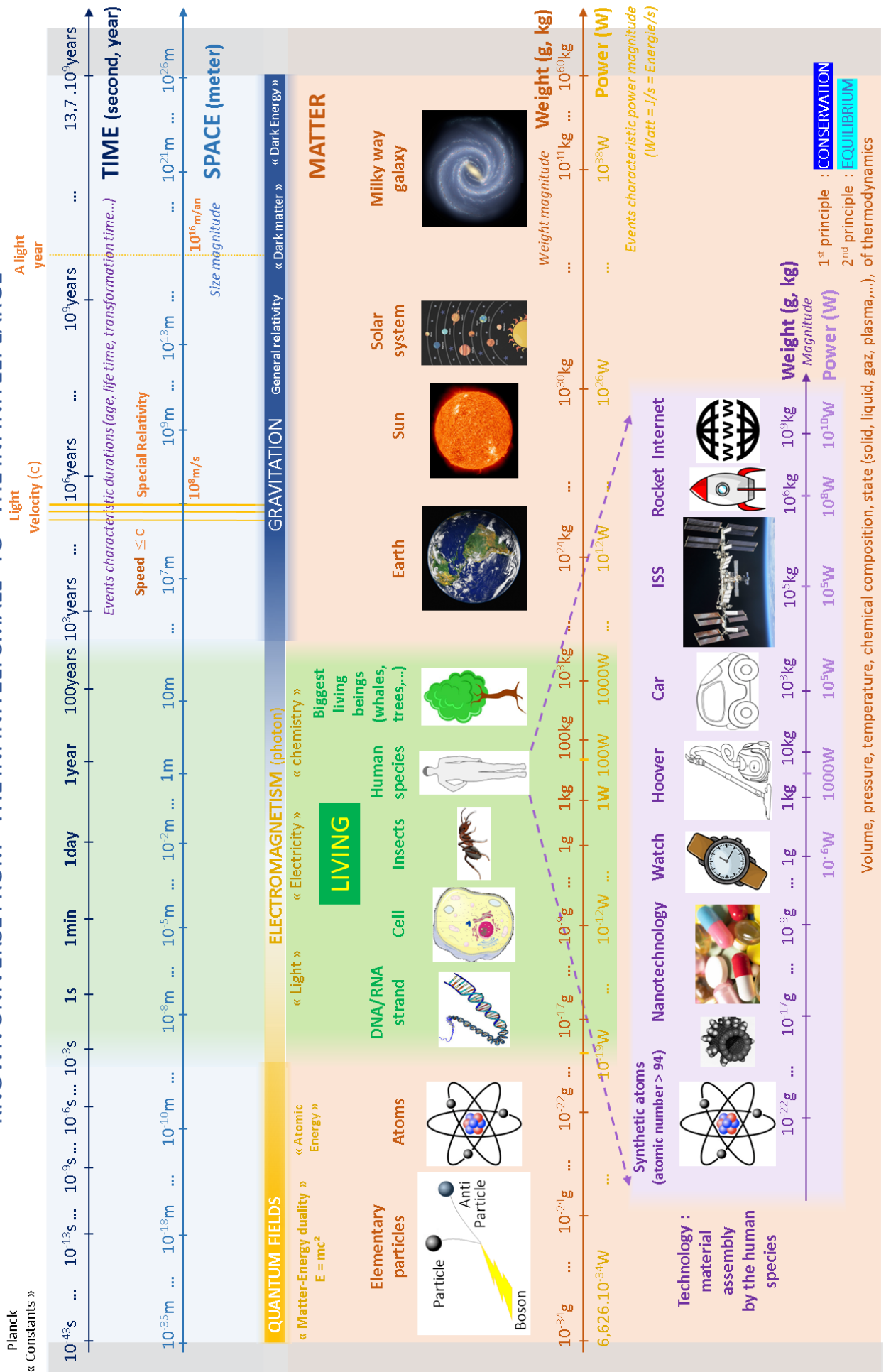
Notes:

- *The living really exists in the “Universe”, the terrestrial rock is really a space rock “like the others”, where the physical and chemical conditions are simply adapted to life. The fact that living beings do not turn to dust in the International Space Station or on the Moon demonstrates that the earth rock does not have a “specific property” that would allow life to exist.*
- *The origin of existence in the Universe of this spontaneous capacity of construction and animation of MATTER is a mystery for the human species.*

Corollary A. II. 1 (contrapositive)

If the capacity of existence of living beings remains a mystery, one CERTAINTY is that living beings, as we know them on Earth, cannot exist outside of the previous physical and chemical conditions.

KNOWN UNIVERSE FROM "THE INFINITELY SMALL" TO "THE INFINITELY LARGE"



III. A LIVING BEING IN A FINITE BIOSPHERE

Article A.III.1

LIVING BEING: (nature)

A living being is a closed set of matter having a wall between an interior and an exterior, provided with an own, spontaneous, autonomous and homogeneous capacity at every point of its interior to manage MATTER and ENERGY to achieve its process of:

- construction,
- operation,
- maintenance,
- and reproduction,

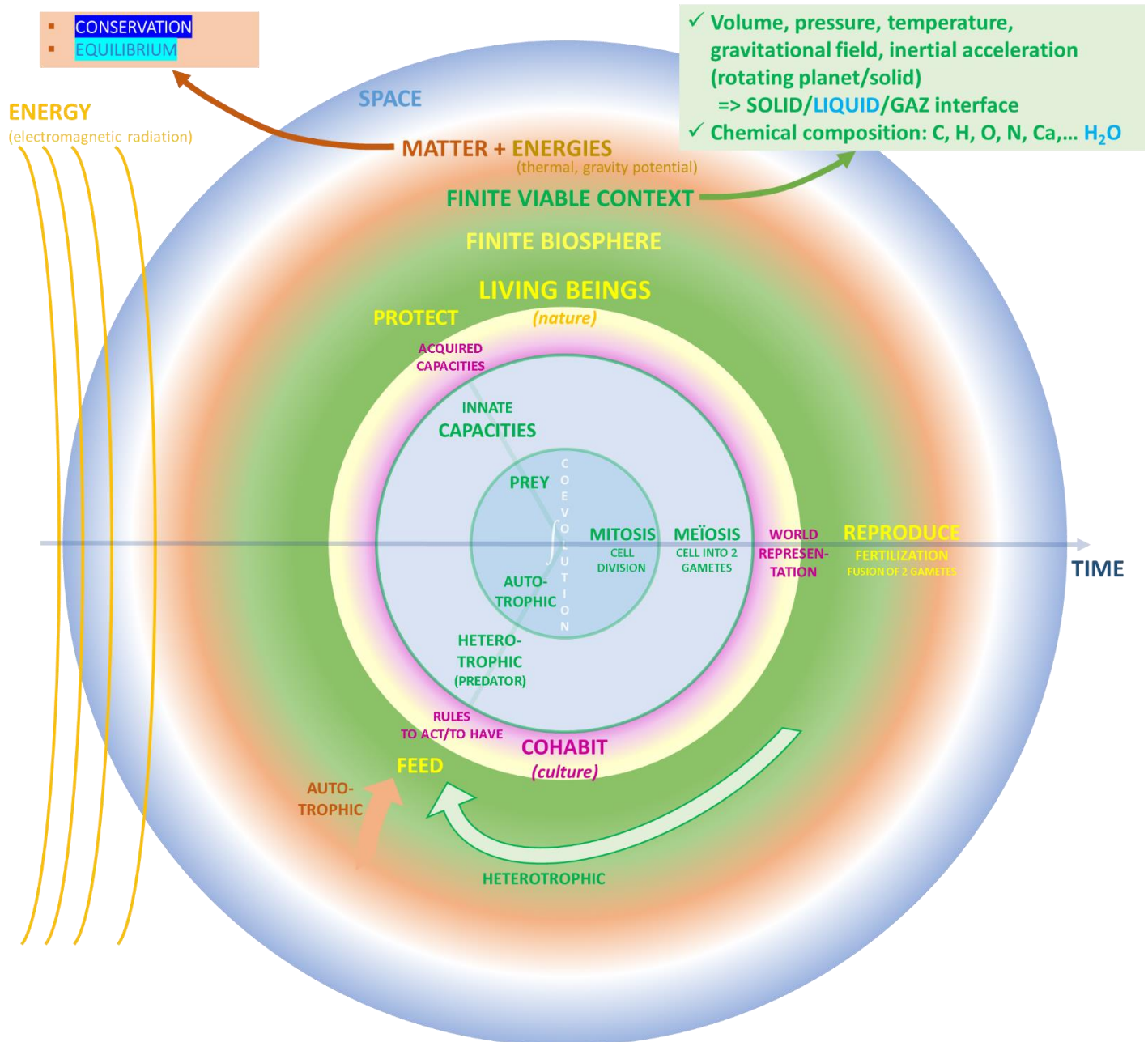
processes carried out by the cell for terrestrial life (concept of autopoiesis).

The construction of the living seems to take place around 3 stages:

- digestion (feed):
 - **autotrophic:** capable of constructing its own organic matter from “inert” MATTER and ENERGY (light, thermal);
 - **heterotrophic:** feeds on organic matter produced by other living beings or digestion of other living beings (prey-predator).
- cell division: identical replication of a cell (*mitosis*, *DNA/RNA*).
- cell fusion (*sexual reproduction*): *meiosis* of a cell into two gametes ("half cells"), one of which fuses with a gamete produced by a congener of the same species, to give a new cell (*fertilization*), a new living being.

Living beings have INNATE CAPACITIES allowing them to live in their ecosystem:

- ✓ capacities to recognize their biological identity:
 - self and not self (immune system);
 - their group of similar/breeding individuals (species);
 - their place in the food chain (prey/predators).
- ✓ operational capacities adapted to their environment:
 - perception in the environment (the senses: sight, hearing, etc.)
 - information processing (the nervous system, the brain, etc.)
 - mobility (limbs, fins, wings, etc.)



Many species use their **INNATE CAPACITIES** for **COHABITATION** purposes (culture):

- modeling the use of these capacities in a specific way: **ACQUIRED CAPACITIES** to communicate (languages), feed, build (technique), defend, entertain oneself...
- defining a frame to live together: rules **TO ACT** and **TO HAVE**,
- based on a shared representation of the world (values, mystery, beliefs).

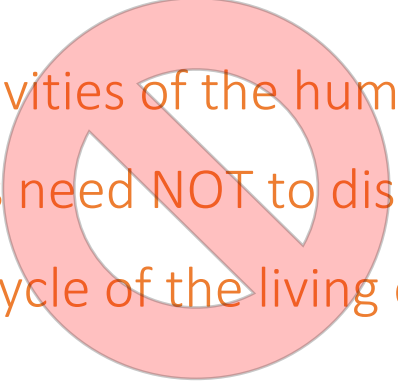
From this construction in a culture, there exists a **secular inertia** from which the principle of secularism is born: acceptance and respect for differences are necessary to allow peaceful cohabitation of living beings.

Page 12: "The living develops intelligence on Earth"

Choice to define the word "**intelligence**" in this **UNIVERSAL DECLARATION** as the set of **CAPACITIES** enabling a species to construct in **MATTER** the tools (**technology**) empowering it to extend the perennality of the **LIVING** through **SPACE** emptiness.

The capacity of existence of terrestrial heterotrophic living beings (living beings that do not produce their own organic matter), including the human species, and therefore the maximum number of human beings, is therefore limited by this first reality:

- available inert matter (including quantity of liquid water),
- incoming energy (solar radiation),
- fresh water cycle,
- autotrophic living beings growth capacity (plants).



All the activities of the human species
thus need NOT to disrupt
this first cycle of the living existence.

B

EQUALITY:

TO ACT AND TO HAVE

IN A

FINITE BIOSPHERE

PROBLEM

What MEASURES of reality,
with knowledge of their LIMITS,
should be kept up to date
and made available to all,
and by what minimal institutions,
to enable the realization
of a justice TO ACT and TO HAVE
while respecting
the limits of a FINITE BIOSPHERE?

I. NEED DEFINITION

Article B.I.1

FINITE BIOSPHERE: ANY ORGANISATION SHALL

- exist,
- be designed,
- be capable to adapt itself,

in order to empower the perennality of the living beings existing in a finite viable context.

Article B.I.2

TO ACT: ACTION OF ALL SHALL BE

- PERMANENT,
- RELEVANT for oneself and for the coexistence of living beings in a given ecosystem,
- DIVERSIFIED with a maximum FREEDOM of orientation.

Article B.I.3

TO HAVE: DISTRIBUTION FOR ALL SHALL

- cover our NEEDS exactly, without growth nor decrease
= no one dies of hunger, cold/heat or mild disease,
- fairly VALUE our action (duration, involvement, results, complexity, responsibility),
- RESPECT the limits of resources in a given viable context to allow their perennial renewal.

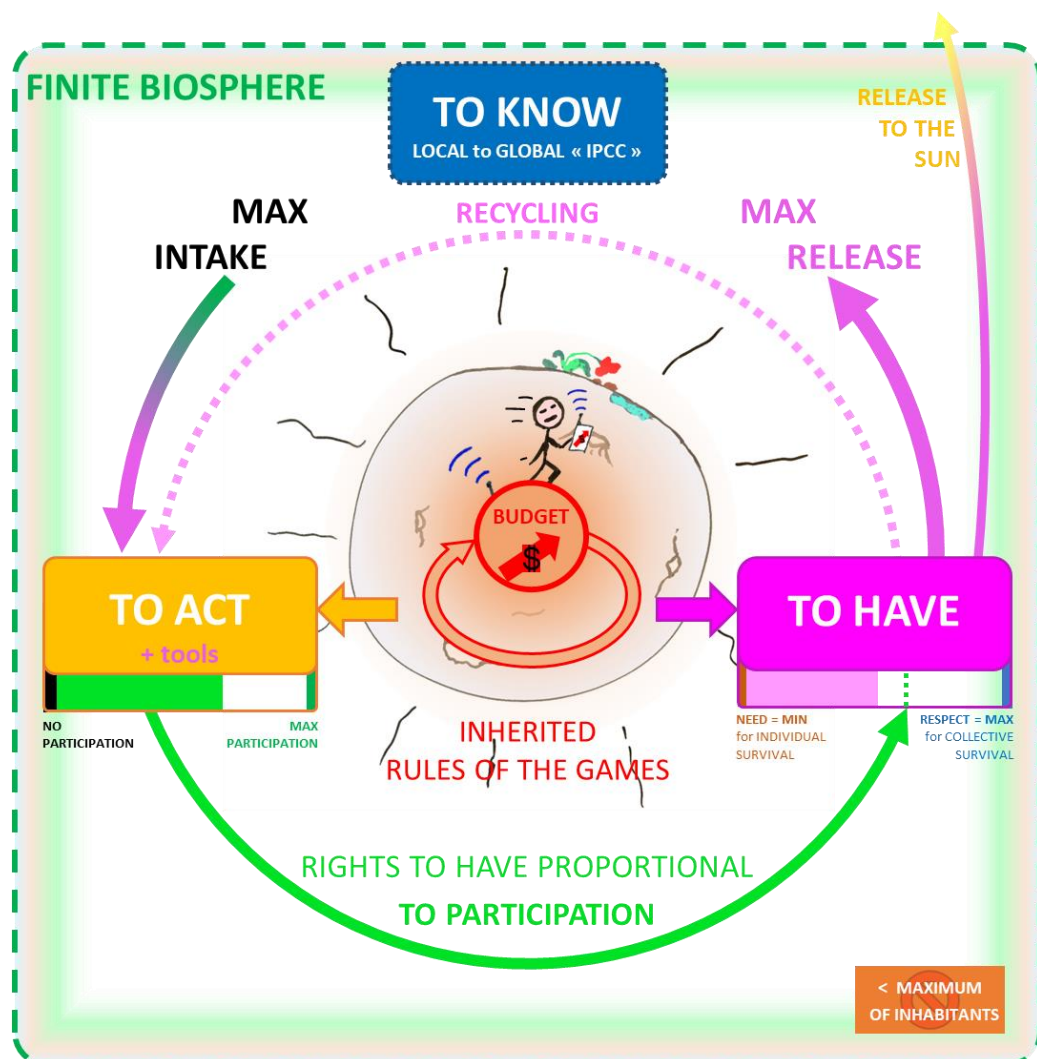
II. MINIMAL ORGANISATION

Article B.II.1

« STATE »

=

LOCAL AUTONOMY EVERYWHERE
PROTECTED BY THE STEPBAC AND COORDINATION
OF 3 TEAMS/INSTANCES
TO KNOW – TO ACT – TO HAVE

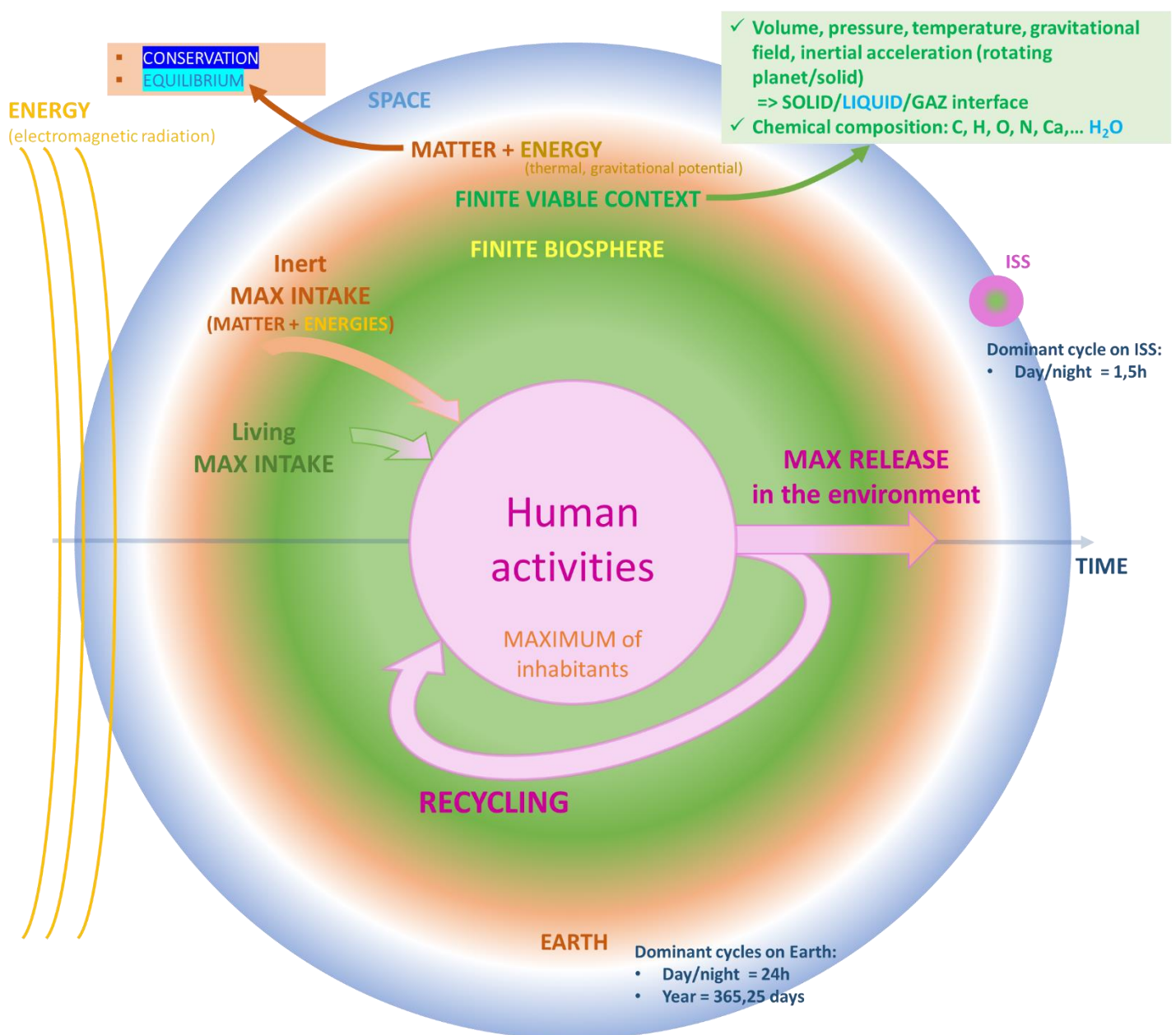


Article B.II.2

TO KNOW

From LOCAL to GLOBAL « IPCC » updating the KNOWLEDGE of the finite viable contexts, their measures and LIMITS.

Known for now : Earth + International Space Station (ISS)



KEY INDICATORS = Measures and limits of the reality to be continuously updated :

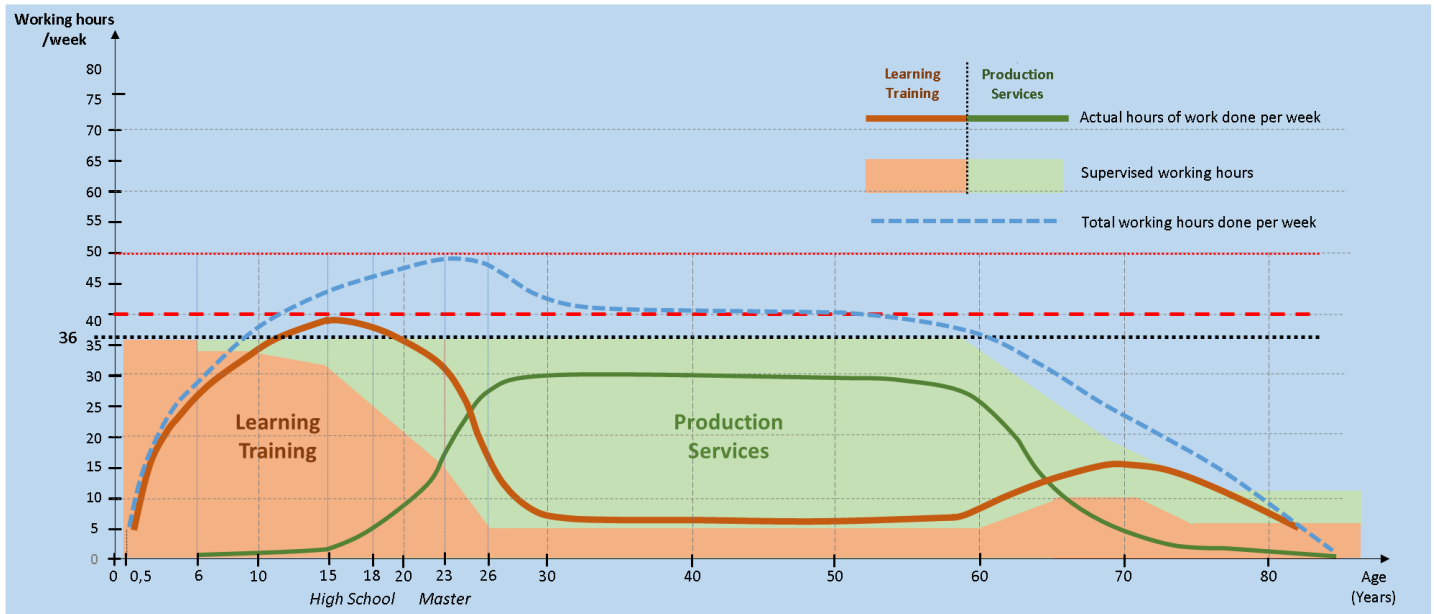
1. **TIME** : duration of viability of a context: estimated start and end dates of life in the given context.
2. **SPACE** : Definition of the SPACE (volume) occupation (Lands/Seas/Sky):
 - a. **SPACE to be left inoccupied by the human species to leave room for the profusion of biodiversity and the establishment of the LIVING perennality.**
 - i. continuity of this inoccupied SPACE through the **FINITE BIOSPHERE** to allow the co-evolution of **LIVING** to be preserved.
 - b. **SPACE exploitable by the human species.**
 - c. **SPACE habitable by the human species.**
3. **MATTER**
 - a. Mass, Pressure, temperature, gravitational field, inertial acceleration (for non-negligible rotating reference frames: spaceships rotating on themselves or base on an asteroid rotating on itself).
 - i. **Interface solid/liquid/gaz (Lands/Sea/Sky),**
 - b. Composition of the context : (minimum for the existence of terrestrial life)
 - i. atoms of "terrestrial life", constituting on average more than 95% of the mass of terrestrial living beings: C, H, O, N, Ca, ...;
 - ii. molecules of "terrestrial life": **water (H₂O)** constituting more than 60% of the mass of all living beings,
 - c. **MAX intake assessment in inert MATTER,**
 - d. **MAX release assessment in the environment.**
4. **ENERGIES** :
 - a. **PRIMARY (movement)** : “permanent” (renewable) at the scale of a star system.
 - i. “solar” (radiation from the sun, from the star),
 - ii. “Internal” thermal energy (molten core of a planet).
 - iii. gravitation (hydraulic energy from falling water, tides, etc.),
 - iv. wind/hydraulic power,
 - b. **SECONDARY (potential)** : finite resources (non-renewable) at the scale of a planet, produced from the transformation of "primary" energies.
 - i. “fossils”: molecules “storing” solar energy (carbon chains resulting from the photosynthetic construction of living beings), others,
 - ii. “atomic”: atoms “storing” the gravitational energy of a star (radioactive atoms).
 - iii. **LIVING** : mechanical energy (movement) and information processing energy.
 - c. **MAX intake assessment of ENERGIES.**
5. **LIVING** :
 - a. Autotroph living beings ("plants") : mass, species, food chains...
 - b. Heterotroph living beings ("animals") : mass, species, food chains...
 - i. “Intelligent” species (capable of building tools to cross SPACE emptiness) = number of human beings at the moment (0056 cUT – 2024 cG).
 - c. **MAXIMUM of “intelligent” living beings viable in the context.**
 - d. **MAX intake assessment of living resources.**
6. **TECHNOLOGY** : context-specific tools to ensure the perennial survival of the living beings.

Article B.II.3

TO ACT

Example of an average ACTION pace over a lifetime :

36h/week + 10 weeks of vacation per year (=1500h/year = h_o)



KEY INDICATORS = Measures of the reality of human beings action :

- ACTION organized like so:

O. ADMINISTRATION (3 INSTITUTIONS TO KNOW – TO ACT – TO HAVE MANAGEMENT)

A. PRACTICE Cohabit – Knowledge – Skills

B. MAKE

PRODUCTION of the 10 RESOURCES

C. TRANSMIT – RESEARCH

=> PROTECT Peace and Security

With the identification of PRIORITIES in each activity:



- VALUE: on bounded scales

✓ Implication assessment grade : N_i

✓ Result assessment grade : N_r

○ Complexity coefficient : Q_c

○ Responsibility coefficient : Q_r

- PARTICIPATION :

○ ANNUAL : $Pa_n = [\min(h/h_o ; 1,05) \cdot Q_c \cdot Q_r \cdot (N_i + N_r)] / Pa_{n_max} \quad (\%)$

○ CUMULATED : $P_c = [\sum_{i \leq n} Pa_i] / P_{c_max} \quad (\%)$

Article B.II.4

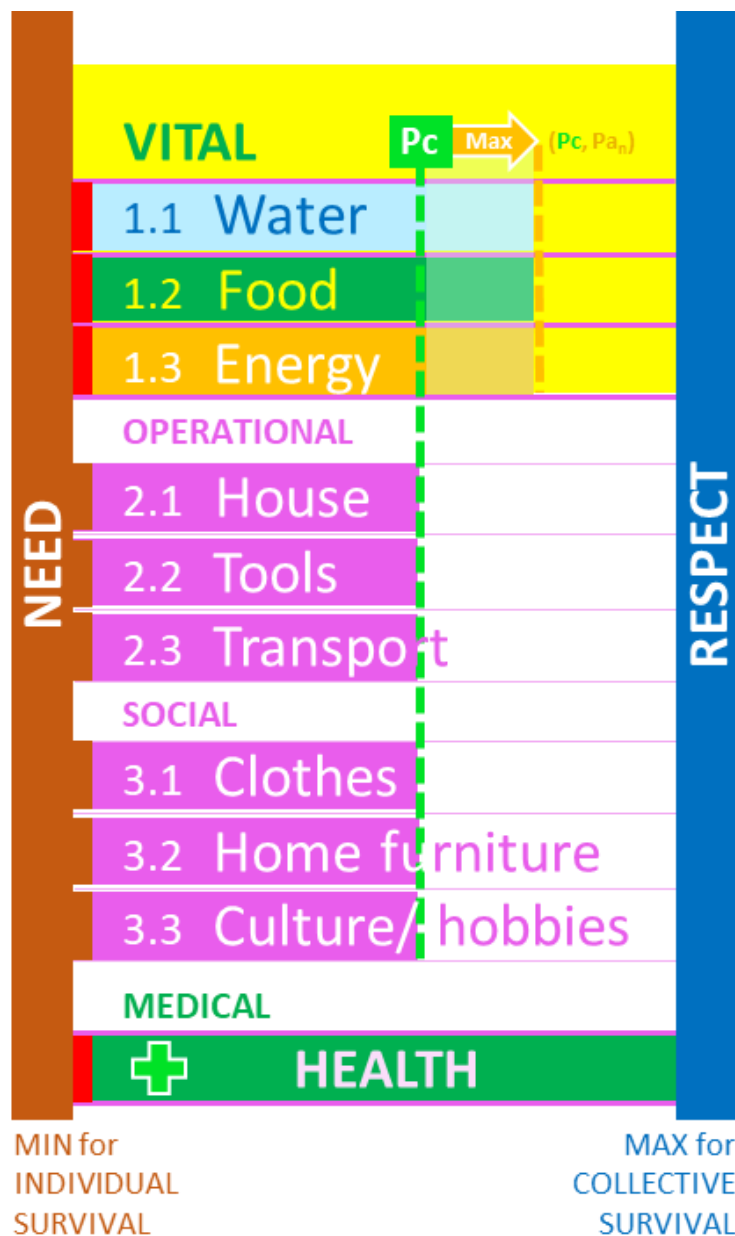
TO HAVE

KEY INDICATORS = Measures of the reality of wealth distribution :

10 RESOURCES to be shared separately:

(PRODUCTION PRIORITIES according to the ACTION PRIORITIES color code)

- ✓ from a minimum for **INDIVIDUAL SURVIVAL: NEED**,
- ✓ **VALUED** proportionally to **PARTICIPATION**,
- ✓ below a **MAXIMUM** for long term **COLLECTIVE SURVIVAL: RESPECT**.



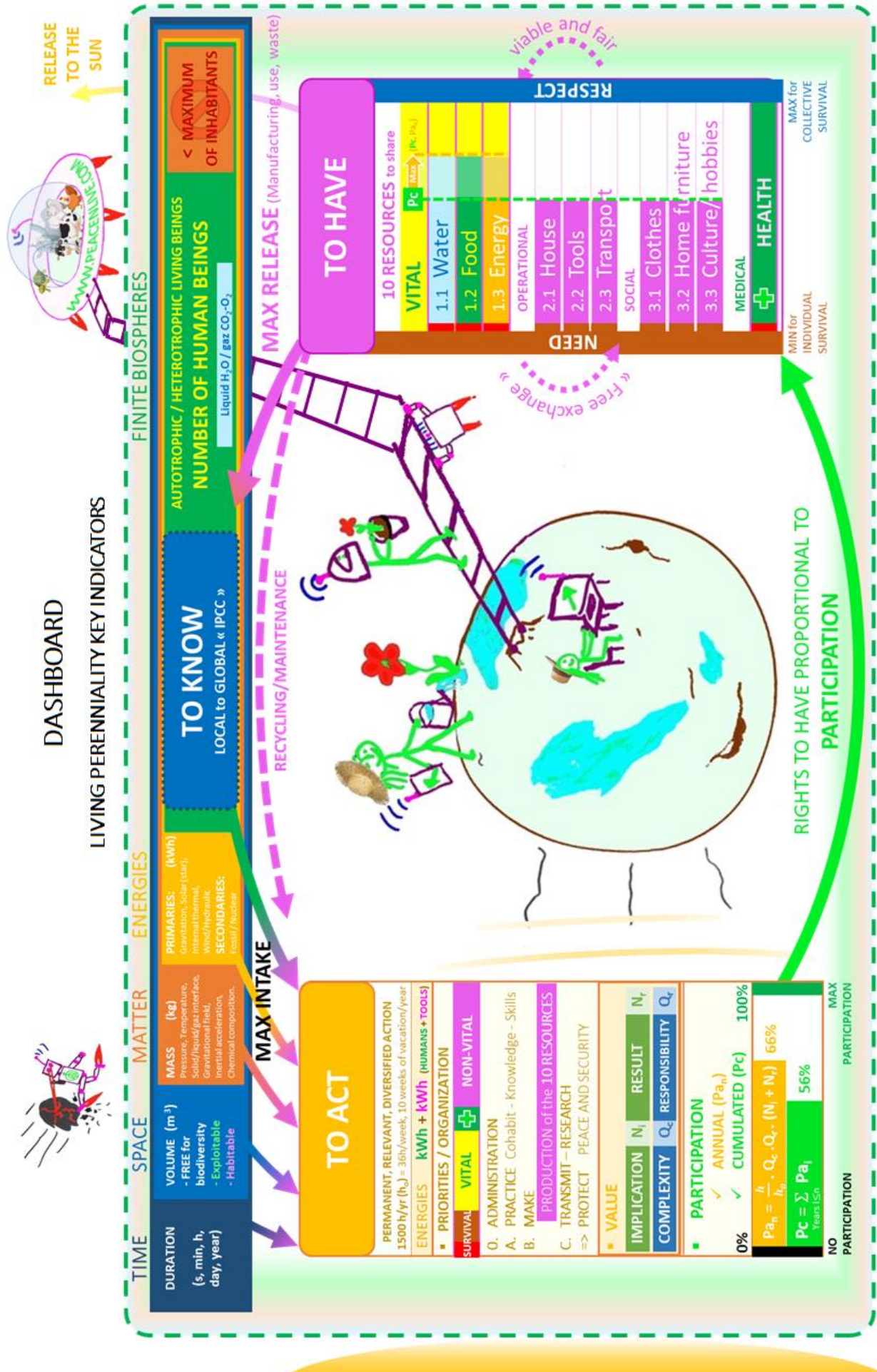
III. OPERATION

Article B.III.1

TO KNOW - TO ACT - TO HAVE 3 INSTITUTIONS MANAGEMENT

- a. TIME AND SPACE : The issues to be dealt with by the inhabitants of the world through the 3 INSTITUTIONS (FINITE BIOSPHERE, TO ACT, TO HAVE) would be scaled and prioritized according to their SPATIAL AND TEMPORAL SCOPE (from the daily production of eggs, to the management of an ISS-type space station over a century).
- b. PRIORITIES : The "democratic elections" would not have as their object the choice of its coordinators, but the PRIORITIAZTION of projects and orientations to be given at each level, from local to global.
- c. KNOWLEDGE AND CAPACITY : The management of the 3 INSTITUTIONS (TO KNOW, TO ACT, TO HAVE) at each level would be carried out by trained people, whose KNOWLEDGE AND CAPACITIES for objectivity and impartiality for the PERENNIALITY of a FINITE BIOSPHERE would have been validated, renewed regularly for example according to the proposed pace in the *Administration* column of the table given in APPENDIX 1.2 TO ACT, page 57.

The operating principle would be for each INSTITUTION to continuously update all the identified MEASURES OF REALITY, by producing local syntheses (individual = UNIVERSAL PARTICIPATION Notice) to global ones (possible thanks to our global digital network - internet), which very synthetic presentation would be the following dashboard:



C

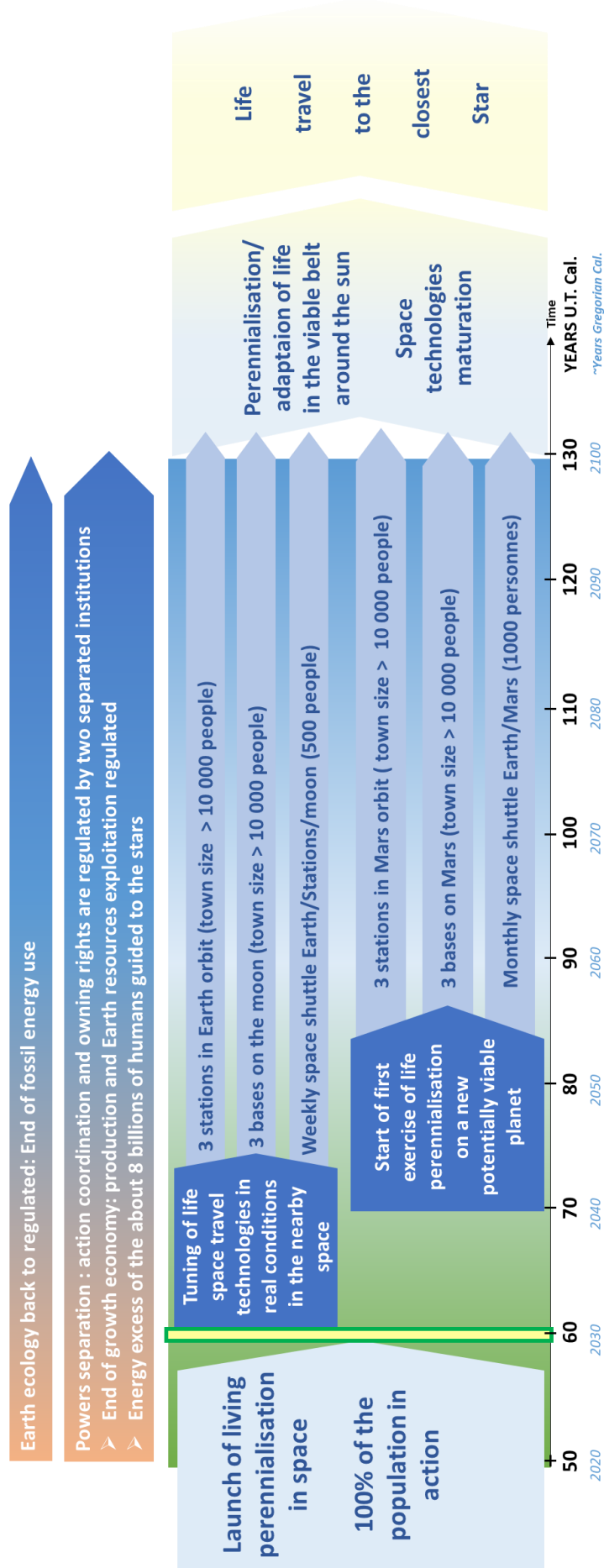
PERENNIALITY:

DIRECTIONS

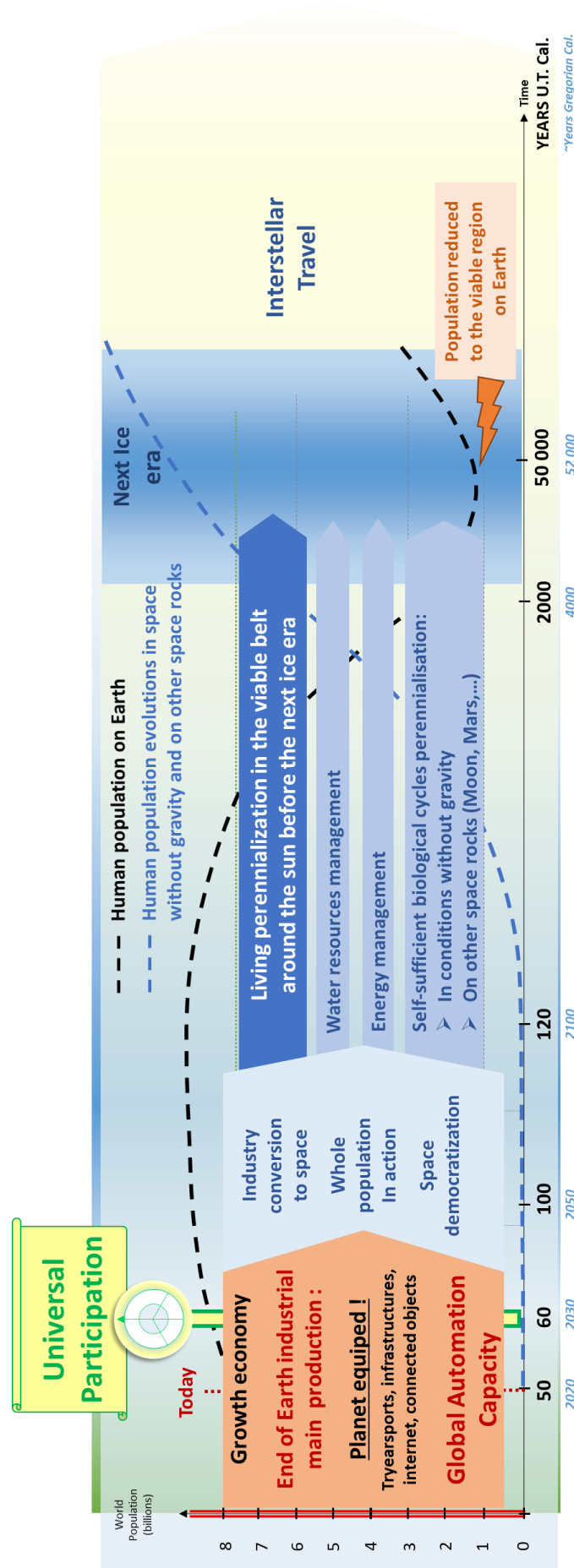
AND

PRIORITIES

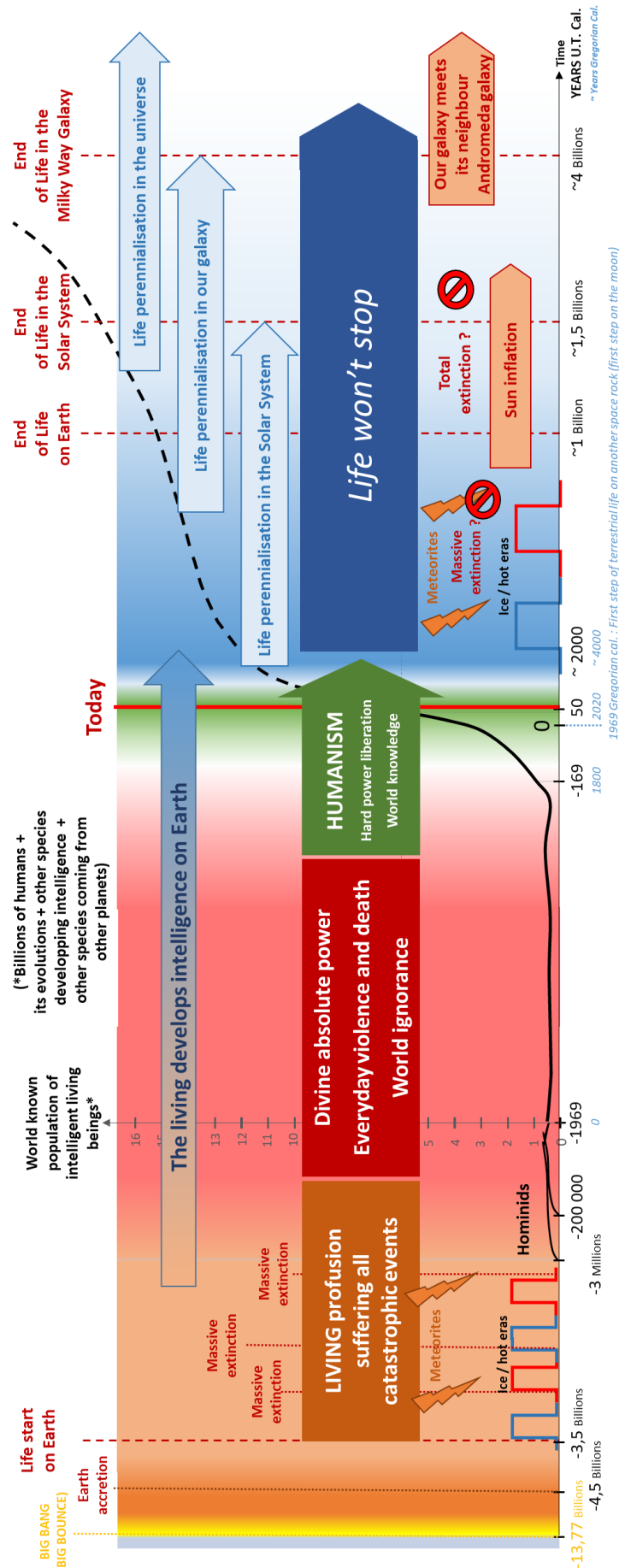
I. SHORT TERM DIRECTIONS



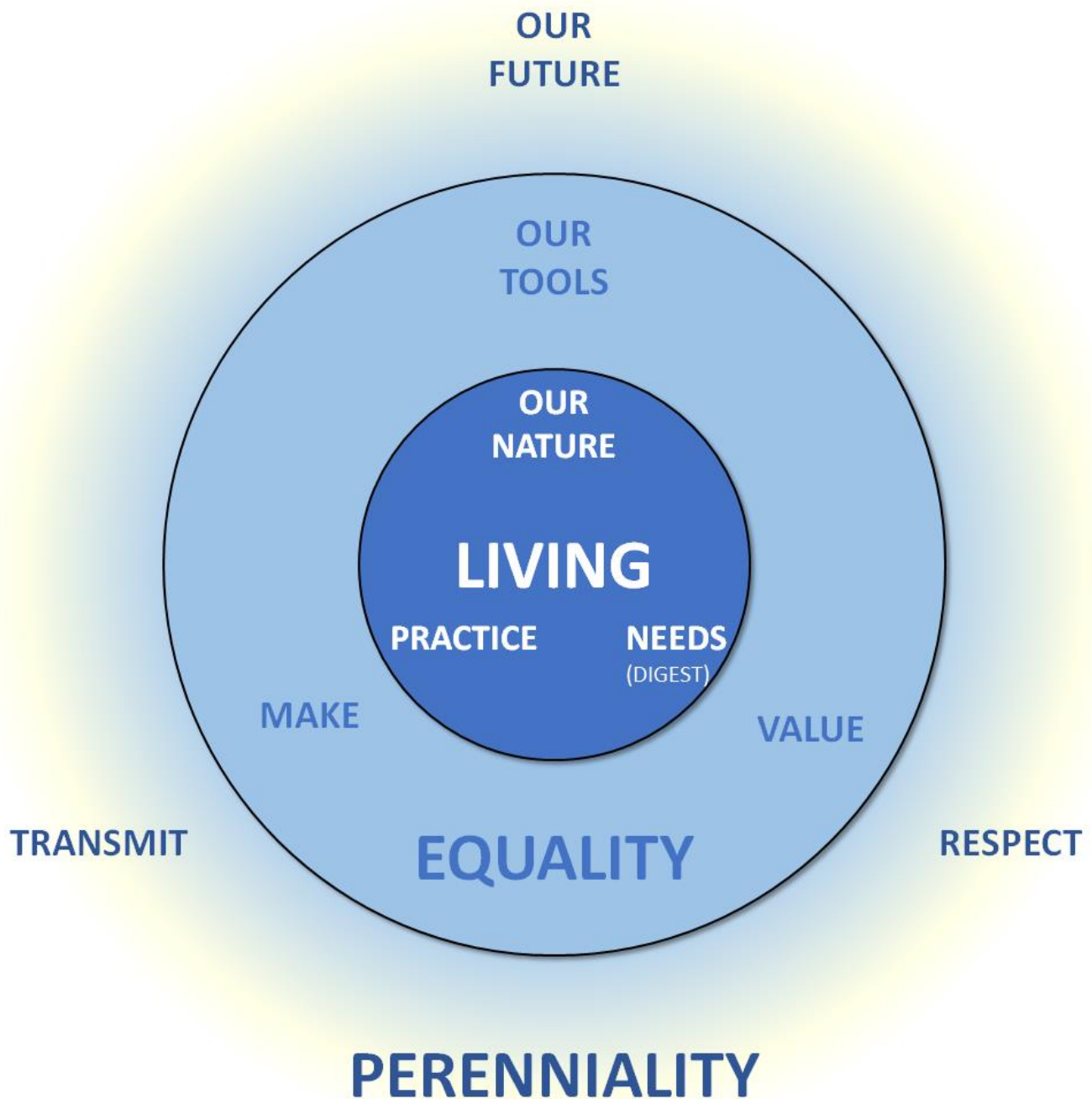
MEDIUM TERM DIRECTIONS



LONG TERM DIRECTIONS



II. PRIORITIES OF EVERY MOMENT



APPENDIX

APPENDIX 1 – Recommendations

THE MOST IMPORTANT TO NOTE in all these proposals for building an organizational structure which would empower the establishment of a justice TO ACT and TO HAVE while respecting the limits of a FINITE BIOSPHERE, are the following points:

1. **MEASURES OF REALITY** : SEPARATE ALL COUNTERS according to the NATURE of what they MEASURE.
2. **FINITE BIOSPHERE** : ALL THESE COUNTERS are bounded and their LIMITS shall be clearly identified.
3. **TRANSPARENCY** :
 - **PUBLIC**: DEFINITION OF ALL COUNTERS, THEIR SCALES, LIMITS, AND THEIR OVERALL VALUES, CONTINUOUSLY UPDATED BY THE THREE INSTITUTIONS TO KNOW – TO ACT – TO HAVE.
 - **PRIVATE**: INDIVIDUAL VALUES OF THESE COUNTERS, MANAGED SEPARATELY AND ANONYMOUSLY BY THE TWO TO ACT AND TO HAVE INSTITUTIONS DEPENDING ON WHETHER THEY ARE MEASURES OF OUR ACTIONS ON ONE SIDE (TO ACT), OR OUR RIGHTS TO HAVE ON THE OTHER SIDE (TO HAVE).

The important thing is not **WHO** has the **POWER**, but **whether we have the right INFORMATION to make the right DECISIONS**. Beyond, just as schools have different faces across the planet, this structure can be reproduced by tuning and adjusting its parameters according to cultures and what is important to them.

Our cultures and our conventions should also allow everyone to maintain their tolerance and adaptation abilities at all times, keeping in their hearts the fact that nothing is immutable. They should therefore avoid messages and practices that propose to publicly lock in an absolute and definitive manner certain realities, decisions, **commitments** which can be linked to the knowledge of ourselves in a given context at a given moment.

Our capacity for **tolerance and adaptation** should therefore leave room for our own **ignorance** of ourselves and of the world at all times.

APPENDIX 1.1

TO KNOW

From LOCAL to GLOBAL “IPCC” instance - General recommendations:

1. **EXISTENCE:** The spontaneous existence of living beings in the Universe, in a continuous chain that extends at least on Earth for about 3 billion years, would be our first common reality of nature, the “submerged part of the iceberg” ultimately preponderant, thus the **FIRST REALITY TO RESPECT**.

Therefore EQUALITY:

a. **The existence of NO living being is superior to the one of another.**

- b. Language must by default express EQUALITY between all living beings : avoid in everyday language terms expressing domination, even implicitly, over any aspect of living beings existence (“they are just animals”, “kids”, etc.)
- c. Conventions, rules, standards, requirements, objectives to be met, etc. are “tools” serving the perennial cohabitation of living beings; we must remain capable of adapting them when they do not serve (anymore) the majority of living beings.
- d. Avoid the cultural construction of “borders”, of lines on the ground or in our representations, of “TRUE” and “FALSE”, of separations between “BEFORE” and “AFTER” which would make us different; the increase in our abilities through training and experience, evolving our power over our environment, as well as the evolution of our rights TO ACT and TO HAVE as we grow, would not change our deep nature... the common central pillar of our existence as living being would remain the same throughout our lives.

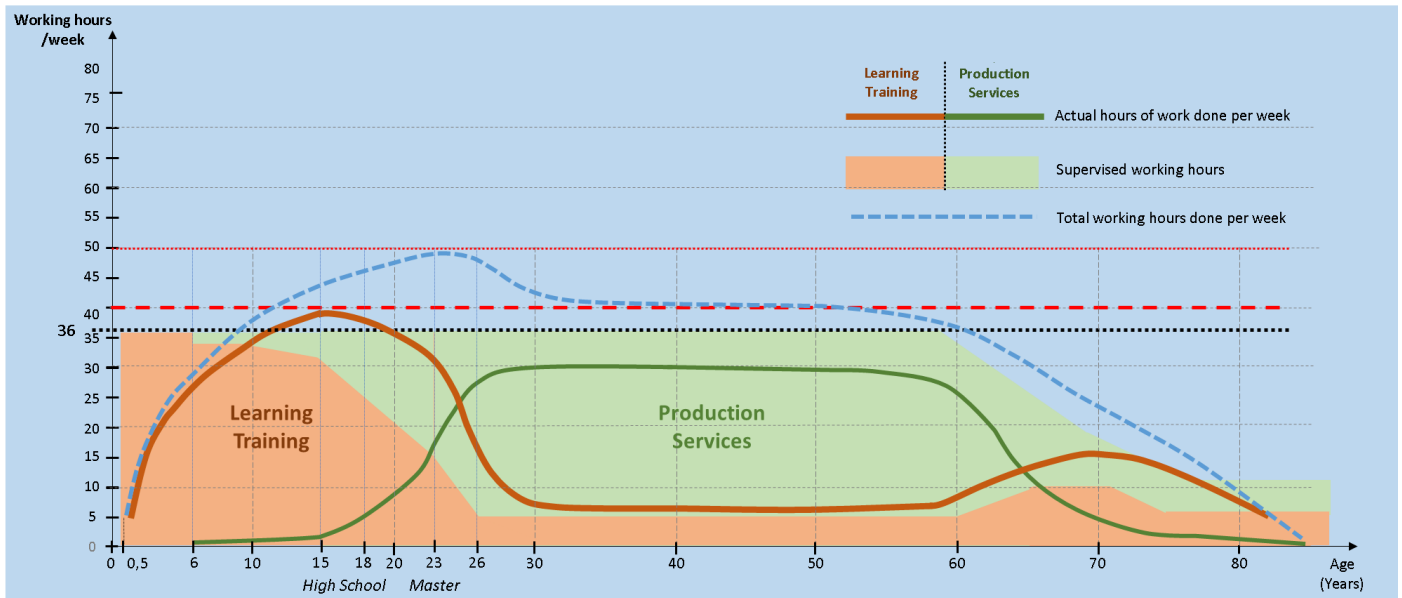
Especially avoid exacerbating cultures as the “soul of a Nation”, as our “identity” which would define us deep within ourselves. Cultures are very real and are different but would constitute the “visible part of the iceberg”, which shall not hide the overwhelming immensity of the common living nature that we share.

2. **DEATH:** Due to the fact that the existence of heterotrophic living beings passes through the digestion of other living beings, **death consciously given to another living being :**
 - a. **autotrophic** must not endanger the renewal of the species,
 - b. **heterotrophic must only be done:**
 - i. **to feed**, without exceeding the renewal capacity of the species,
 - ii. **to protect one's own survival in the moment of aggression** (legitimate self-defense).
3. **REPRODUCTION:** The conscious reproduction of a heterotrophic species must not endanger, by increasing its population, the renewal of the species that feed it, putting its own existence in danger : **we should not consciously conceive a child when we know that it will not be able to be fed.**

APPENDIX 1.2

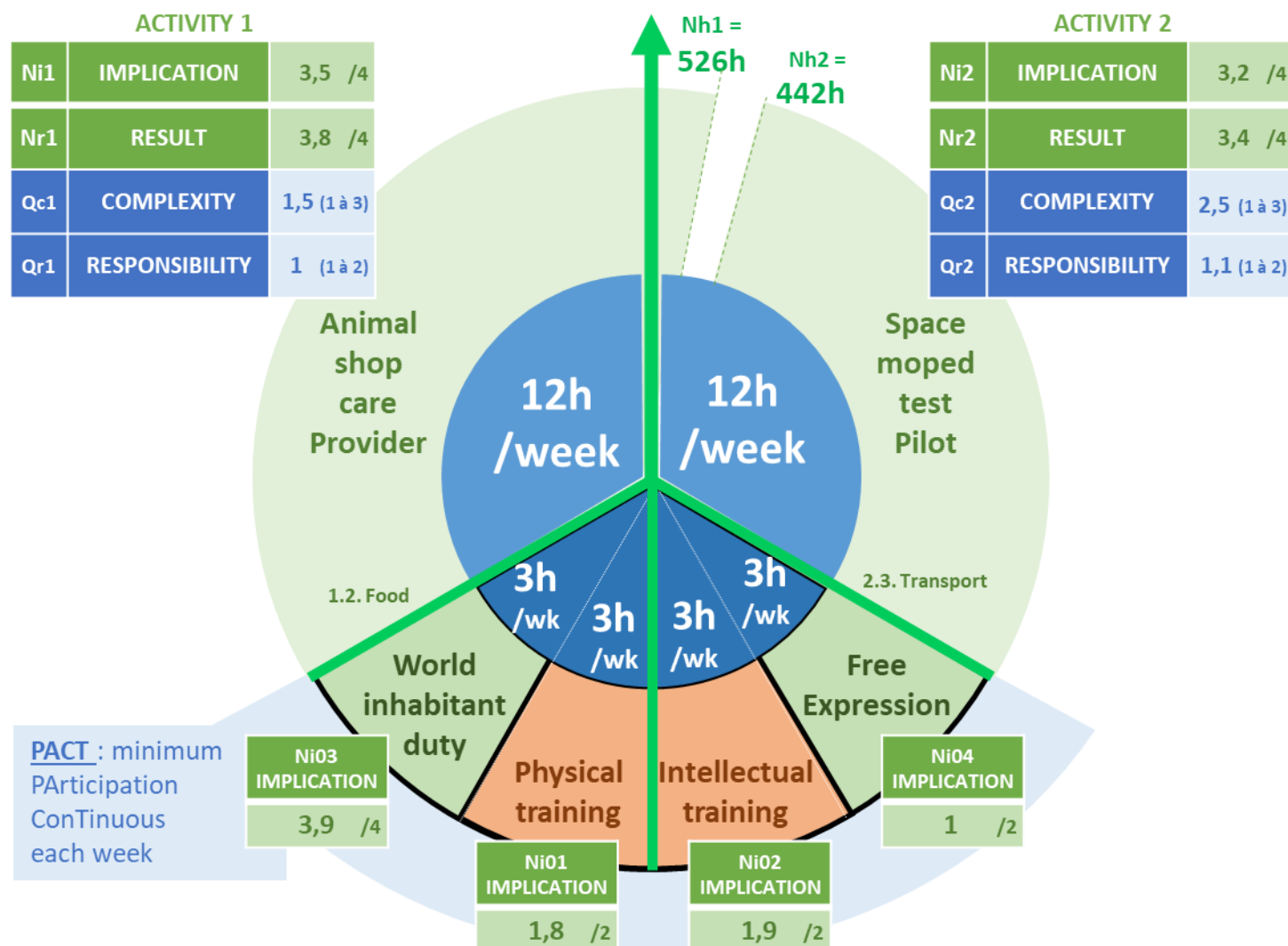
TO ACT

The organization would guarantee a relevant, rich and diversified ACTION throughout life, for instance on the following pace:



- from 6 months to 58 years old: 36h/week with 10 weeks vacation per year (1500h/year),
- from 59 years old to 70 years old: 2h/week less each year, going from 36h/week to 12h/week gradually between 58 years old and 70 years old (always 10 weeks of vacation per year),
- from 70 years old to the end of life: 12h/week (at best according to each person's capacities), 10 weeks of vacation per year.

Time schedule example of the 36h/week (1500h/year) of a person at 35 years old:



The annual duration of 1500 hours/year is a framework to provide a shared and reasonable benchmark, but everyone would be free to participate to the extent they wish or are capable of, with an impact on their rights of TO HAVE evaluated as fairly as possible as explained below.

The time and place of ACTION (of "work") is a neutral moment and space where all the inhabitants of the world find themselves partners, no living being prevailing over another, to build themselves and build the future of the coexistence of living beings, each at their own level and motivation, independently of any "network", any affinity or conflict with this or that person.

For the 1000h/year (24h/week) of ACTION with the PACT (500h/year) put aside, a person could therefore commit each year to participate in one or two different activities in the

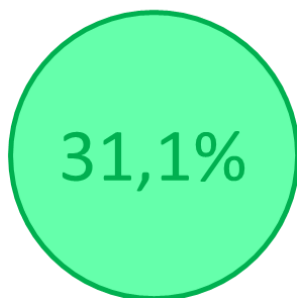
different fields of action, for example by trying to balance in 2 blocks of 500 hours rather physical activities with others rather intellectual, for which they would have acquired during their continuous practice the right level of competence.

This division into 2 blocks of 500 hours/year would not be obligatory either, but it would be a possibility to ensure a regular diversity. On the contrary some activities, as the Administration coordinators with more than 100 000 people for example, would have 1000 hours/year dedicated to their tasks due to the focus and concentration needed to carry all the topics, the PACT already providing diversity and weekly balance.

Recommendations for the ACTION assessment: PARTICIPATION

The scales and evaluation methods of the ACTION would be homogeneous throughout life, applicable from the age of 6 upon entry into school:

ANNUAL PARTICIPATION (Pa)



$$Pa = Ni01 + Ni02 + Ni03 + Ni04 + \min(Nh1/500 ; 1,05) \cdot Qc1 \cdot Qr1 \cdot (Ni1 + Nr1) + \min(Nh2/500 ; 1,05) \cdot Qc2 \cdot Qr2 \cdot (Ni2 + Nr2)$$

- $\min(Nhi/500 ; 1,05)$: value extra time up to 25 hours (5%); more extra time is not valued (it is good to do nothing as well).
- Evaluation bounds : $0 \leq Nx \leq 4$
- Quotients bounds : $1 \leq Qc \leq 3$ and $1 \leq Qr \leq 2$
 $1 \leq Qci \cdot Qri \leq 6 = Q_{MAX}$ = « salary » range
 If 1500\$/month is the MIN, then 9000\$/month is the MAX

Duration Nh: by setting aside 500 hours for the PACT (explained below), the duration of 1000 hours of action per year could generally be divided into 2 blocks of 500 hours to create a diversity of action throughout the year. The division would be free according to the needs of each activity:

- do 500 hours of activity 1 during the first 6 months, then the other 500 hours during the last 6 months;
- or each working week, do 12 hours of activity 1 and 12 hours of activity 2;
- ... or other organization depending on the need.

The effective action duration ratio $Nh/500$ could for example be limited by 1.05 to value 5% overtime if $Nh > 500$ (i.e. up to 25 hours of overtime per block of 500 hours), but would be limited to prevent overwork, and promote the fact that going home or doing fun activities is also good; hence the complete formula for the action duration ratio $\min(Nh/500; 1.05)$ in the computation of the Annual Participation.

Qc = complexity quotient

The complexity quotient primarily takes into account **the Skill Level Quotient Qco** :

SKILLS ASSESSMENT

BASIC SKILLS AND KNOWLEDGE (maintained in particular by the PACT):

PHYSICAL TRAINING			INTELLECTUAL TRAINING		
MOBILITY Body coordination in SPACE and TIME (including voice)	POWER Strength and Speed	ENDURANCE Duration of exercise at a given POWER level	COMMUNICATION Listening, Language logics, synthesis	PROBLEM SOLVING Mathematics and applications	IMPLEMENTATION Technologies and Arts
2	2.9	1.5	1.5	2.7	2.2

ACQUIRED OPERATIONAL SKILLS:

Engineer	Computer programming	Veterinary	Technical Maintenance	Music (piano)	Chinese	...
2.7	2	1.5	1.5	2	1.5	2

1 ≤ Qc0 < 1.5 – COMMON LEVEL:

Minimum general training Middle school (15 years old)

1.5 ≤ Qc0 < 2 – CAPABLE: COMMON LEVEL + 12h/week for 3 years

2 ≤ Qc0 < 2.5 – MASTER: CAPABLE + 12h/week for 3 years

2.5 ≤ Qc0 ≤ 3 – AUTONOMOUS : MASTER + 12h/week for 3 years

Each level is validated by these durations of activity AND the validation by a test of the new acquired skills, the results of these exams giving the assessment of the skill quotient between 1 and 3, with the three thresholds 1.5, 2, and 2.5.

The Skill Level Quotient Qco goes from 0.1 to 1 between the ages of 6 and 15, increasing by a tenth (0.1) each year.

It is calculated based on the average between:

- The skill level of the activity to be carried out **Qco-a**,
- The skill level of the person in this same domain **Qco-p**

For example, if a technician at level **Qco-p = 1.6** is required to design a machine at engineer level **Qco-a = 2.3**, then his complexity quotient will be for the past period **Qco = ½. (Qco-a + Qco-p) = 1.95**.

Or conversely if a cook of very high level **Qco-p = 2.8** must or wishes to go and cook at McDonald's for x reasons for a certain time, cooking level **Qco-a = 1.5**, then his complexity quotient will be for the past period **Qco = ½. (Qco-a + Qco-p) = 2.15**.

To this first term of **skill level** is multiplied a **coefficient of arduousness** which includes:

- The time slot of the action:
 - **Qh = 1** if the action takes place between 8 a.m. and 7 p.m.
 - **Qh = 1.2** if the action takes place between 6 a.m. and 8 a.m., or between 7 p.m. and 10 p.m.,
 - **Qh = 1.5** if the action takes place at night between 10 p.m. and 6 a.m.
- Difficult physical (very significant effort) or moral (emergencies, prison, etc.) conditions:
 - **Qpm = 1** if no notable difficulty apart from carrying out the action itself.
 - **Qpm = 1.2** if slight physical or moral difficulty.
 - **Qpm = 1.5** if major physical or moral difficulties.
- A disability of the person:
 - **Qhp = 1** if no handicap to carry out the activity concerned,
 - **Qhp = x** depending on the impact of the disability on production.

This arduousness coefficient could also be used in inverse to limit the maximum number of hours worked during a year to give an Annual Participation equivalent to 500 hours worked

with a arduousness coefficient of 1: for example working nights in a prison could have an arduousness coefficient of 2.25 ($Q_h = 1.5$ and $Q_{pm} = 1.5$); i.e. 220 hours gives the same Annual Participation as a block of 500 hours with a arduousness coefficient of 1. The choice could therefore be to limit this work to blocks of 220 hours over a year.

These values are completely arbitrary and other parameters can be added; as explained in the introduction, the important thing is to express the real different degrees of freedom and constraints of action and to apply limited scales that are explicit and accepted by a majority.

In the end, the complexity quotient could look like this:

$$Q_c = \frac{1}{2} \cdot (Q_{co-a} + Q_{co-p}) \cdot Q_h \cdot Q_{pm} \cdot Q_{hp}$$

$Q_r = \text{Responsibility quotient} = 1 + 0,1 \cdot \text{LOG}_{10}(1+N)$: my action, my decisions impact the activities, the environment, the daily lives of how many N people?

$Q_r = 1$ corresponds to minimum responsibility where our action/decisions only concern ourselves.

As soon as you manage one person, then you are valued of 3% percent more : $Q_r = 1 + 0,1 \cdot \text{LOG}_{10}(1+1) = 1.03$.

When you interface with a group of more than 2 people (class of students, company, group of people), then Q_r increases proportionally to the decimal logarithm of the size of the group of N people.

The choice of a logarithmic scale is to say that we quickly increase the responsibility quotient at the beginning when we manage from 1 to 10, 20, 50 people... but that ultimately beyond that, whether we manage 100 or 200 people, the coordination issues become quite the same and therefore the responsibility quotient increases less quickly. Besides, the principle of “LOCAL AUTONOMY EVERYWHERE” with the inverted hierarchical pyramid says that we must not depend on high-level coordinators, hence their low level of effective power and therefore a lower increased responsibility quotient as we manage more.

Each activity carried out, with its identified **complexity** and **responsibility quotients**, would be evaluated in terms of Involvement and Result on a limited scale (in the example on a scale from 1 to 4) :

$N_i = \text{Implication assessment grade}$

An N_i grade would be calculated based on:

- Presence at all committed hours (no unjustified absences),

- Punctuality,
- Focus/Concentration on the activity (no other activities at the same time),
- Proactivity : make the activity go forward.

Nr = Result assessment grade

An Nr grade would be calculated based on:

- Achieving the shared, potentially reconfigurable objective.

Eventually, what is not clearly expressed in the initial formula for calculating the Annual Participation is that there is a need to **NORMALIZE** the final result of the calculation by dividing it by the maximum possible grade once all the scales and limits have been set, to have a result as a percentage (%) of the maximum possible PARTICIPATION.

Recommendations for the “PACT” : PArticipation ConTinuuous

A “PACT” (PArTicipation ConTinuuous), 500h/year = 12h/week, would be the minimum permanent action independent of the “projects situation”, which would aim to consider and ensure the integrity and realization of everyone's potential throughout life, as well as the sharing of necessary tasks that interest no one allowing a serene COHABITATION.

For example, it could be organized as follows:

- **3 hours per week of physical training:** participation in a minimum of activity using our entire body (sports, dance, ...) to guarantee that we keep us fit, for example organized as follows:
 - Mobility : 1h/week of body coordination in SPACE and TIME - rhythm, dance, self-defense, breathing, singing, stretching, relaxation,
 - Power : 1h/week of muscle building (force and speed),
 - Endurance : 1h/week of cardio-training.
- **3 hours per week of intellectual training:** would maintain the skills acquired over time and enrich them, for example broken down as follows:
 - Communication : 1h/week listening, language/KNOWLEDGE (world description), logics, synthesis,
 - Problem solving : 1h/week of Mathematics and applications,
 - Implementation : 1h/week of Sciences, Arts, techniques and tools.

⇒ **3 hours per week of "World inhabitant duty":** sharing among all of all the necessary tasks that interest no one and that no one wants to do (emptying the trash, sort and recycle waste, clean one's neighborhood, clean the premises of common places, ...).

In the event of major events (floods, earthquakes, etc.), a “one-off” increase in the number of hours of “World inhabitant duty” may be chosen by the community to focus everyone's efforts on resolving them (to the detriment of other lower priority/NON-VITAL activities).

- **3 hours per week of free expression:** free time during the week to develop our own ideas and express ourselves in the way we want, individually or in groups (reading, writing, theater, singing, music, artistic creation,...). Could be the privileged place of emergence of new concepts, to then propose them for a wider deployment (from local to global) if the interest is confirmed.

These 12 hours/week, having the role of keeping us and our environment in shape, with no need for specific skills, has a central place in our ACTION. They would only be evaluated on IMPLICATION (Ni0x), always on a limited scale, which MAX grade is to be defined according to the importance we wish to give it (here 2 points per block of 3 hours/week, and 4 points for the “World Inhabitant Duty”).

Recommendations for the different ACTION domain:

ACTION would be organized into 5 main branches:

- O. ADMINISTRATION (3 INSTITUTIONS TO KNOW – TO ACT – TO HAVE MANAGEMENT)
- A. PRACTICE Cohabit – Knowledge – Skills
- B. MAKE
 PRODUCTION of the 10 RESOURCES
- C. TRANSMIT – RESEARCH
- => PROTECT Peace and Security

In all ACTION domains, several levels of PRIORITIES would be identified:



- ✓ **SURVIVAL** = MINIMUM level of ACTION empowering the population to maintain a minimum PRODUCTION of RESOURCES for survival, according with a minimum PRACTICE to maintain its capacities adapted to its level of development (current technology), to maintain its INFRASTRUCTURE (transportation, energy, information) and its minimum ADMINISTRATION to make it all run.
- ✓ **VITAL** = ACTION whose STOP instantly (= within 24 hours or a few days) endangers collective SURVIVAL.
- ✓ **NON-VITAL** = ACTION whose STOP does not endanger an established, healthy population.

An “instantaneous” PRIORITIZATION of ACTION would be coordinated by the TO ACT institution when a major event endangering SURVIVAL happens.

0 – Administration

The main role of the 3 INSTITUTIONS TO KNOW – TO ACT – TO HAVE, would be to maintain up to date the scaled from local to global “elected” priorities, to empower their realization by providing continuous visibility of the perennality of the projects by updating separately, for each of the INSTITUTIONS, their identified MEASURES OF REALITY from local to global (the “dashboard”).

The management of these 3 INSTITUTIONS at each level would be carried out by trained people, whose KNOWLEDGE AND CAPACITIES for objectivity and impartiality for the PERENNIALITY of a FINITE BIOSPHERE would have been validated, renewed regularly for example according to the proposed pace in the *Administration* column of the table given page 57.

Endurance and bandwidth on any kind of topic being key capacities for these coordination activities, some minimum conditions on Physical and Intellectual skill levels, as well as age, would be necessary to succeed the entry exam, for example:

- ✓ Up to 100 000 people: Age between 21 and 62 years old, $Q_c > 1.5$, right to do 3 mandates of 3 years in a lifetime.
- ✓ Between 100 000 and 100 000 000 people: Age between 28 and 59 years old, $Q_c > 2$, need to have done at least one mandate before for a group under 100 000 people, right to do 2 mandates of 6 years in a lifetime.
- ✓ Above 100 000 000 people: Age between 36 and 56 years old, $Q_c > 2.5$, need to have done at least one mandate before for a group above 100 000 people, right to do 1 mandate of 9 years in a lifetime.

For the end of the last mandate at the latest at age 65.

Minimize the phenomenon of “staricization”: DO NOT BELIEVE IN THE ONE WHO SPEAKS but seek at every moment RELEVANCE for our lives, living beings who cohabit in finite contexts.

Any responsibility that we may take during our lives does not change the fact that we are living beings similar to all living beings. BELIEVING IN someone, delegating "absolute" power to someone or let her/him take it, would therefore potentially be overwhelming them with responsibility and an inhuman expectation of exemplarity: on one hand this person could become paralyzed in a pattern of power whose he would become the prisoner; and on the other hand, human beings abdicating to this power would lose their dignity as equal and autonomous living beings.

If the first intention of a person getting involved may really be to "improve" a situation facing societal "problems", the fact remains that **these "problems" are often structural/cultural**

and require effort and transformation of everyone, and not of a single “human being” who “would be perfect” to come to power for a few years in a given region of the planet.

The separation of powers is a key to avoid this societal impasse.

In the table ranking the levels of coordination from 1000 inhabitants to 10 billion inhabitants page 57, the "hierarchy" must consequently be understood as an inverted "pyramid" compared to the traditional one of kings and empires: the more one is the coordinator of a large population, the more one is "below", the more one is at the service of a greater number of people. Therefore, the more one manages global issues in this organization, the more one must be capable of neutrality, dedication to the majority and disinterest (without putting oneself in danger and not forgetting oneself either, the bounded 1000 hours/year of availability framework is part of this protection).

Minimize conflicts of interest: The coordinators are not there to create bonds, affinities between coordinators or with the population, even if this can happen naturally; the accomplishment of their mission must be free of any attachment as much as possible. The main mission of the coordinators is to allow the realization of the choices of the populations at each level (**priorities voted on during the elections**), from local to global by updating all the information necessary for everyone to understand the current issues (the "dashboard").

They would not have a “public role” to play (through the media) during the exercise of their mission, nor any accumulation of mandates, to avoid any abuse of power and conflict of interest. Public communications could be made by dedicated teams.

A – Practice / C1 – Transmit

Continuous improvement to be carried out by all disciplines to hierarchize KNOWLEDGE and make their language and skills as “ergonomic” and as “intuitive” as possible.

Advances in understanding the world over the last two centuries could lead us to propose a hierarchy of **KNOWLEDGE** according to a structure consistent with the emerging structure of the world, its inclusions, starting from the **capacity for processing information** of the human species, included in the LIVING, included in the MATTER-ENERGY existing in SPACE-TIME; this upstream capacity could be broken down into three elementary sub-capacities:

- A. The language for the expression and exchange of information (receive/meaning/send information).
- B. Logic for the treatment of links between propositions.
- C. Mathematics for the treatment of quantities.

Then depending on the field of application of these information processing capacities, that is to say the "specific subject, the window or prism through which we observe the world", we

would then have all the "academics disciplines". Without trying to be exhaustive here, this could give for example:

1. the description of the behavior of MATTER and ENERGY in SPACE-TIME: Physics.
 - a. including all sub-branches: Thermodynamics, particles/atoms/molecules physics,...
 - b. the use of these properties to design machines: Technology.
 - i. with all the specific sub-sub-branches: Mechanics, Chemistry, Electricity, Optics, Electronics, IT,...
2. the description of the functioning of LIVING: Biology.
 - a. the use of this knowledge to produce food: Agriculture.
 - b. the use of this knowledge to heal living beings: Medicine.
3. the description of the behaviors of living beings capable of movement ("animals"): Ethology.
4. the description of the past of the human species: History.
5. the description of the geometry, resources and occupation of "territories": Geography.
6. the description of the structures of human societies: Sociology.
 - a. the orchestration of the current society: Law, Politics.
 - b. the description of exchanges between human beings: Economy.
 - i. the management of the monetary tool when existing: Finance.

Besides, the history of KNOWLEDGE (epistemology) and the reward that we express to a human being for his "discoveries", could in particular be separated from the content of the KNOWLEDGE transmitted to each generation, each discipline continuously updating " its state of the art, its references", allowing us to escape from the "star" culture and to share knowledge of our world in complete EQUALITY. For example, in mathematics theorems could lose the name of the people who "discovered" them, often the fruit of a long series of research which can span centuries, added to this the inclusion of this research in potential power struggles of the moment which can erase certain contributions... notably those of women who have been erased from History for a very long time.

The theorems would then take the name of what they actually represent: for example the Pythagorean theorem could be called the "right triangle theorem", the Bolzano Weierstrass theorem could be called the "convergence theorem of bounded series" ,... etc. This would perhaps also facilitate their learning, their name explicitly expressing what they represent, rather than having to remember names which can sometimes be very far from our cultures and add a complexity of information management which has no relation to the subject matter (a reflection on simplification to be carried out by all disciplines to make their language/syntax "intuitive").

In parallel with KNOWLEDGE, would be the **SKILLS OF THE BODY**. In the same way as KNOWLEDGE, a hierarchy of the **body's capacities** could be made with an initial breakdown into three elementary sub-capacities:

- A. **Mobility: amplitude and precision** of body movement in SPACE and TIME.
- B. **Power: speed and force** of movement.
- C. **Endurance: duration** of movement at a certain power level.

These elementary capacities of the body could be linked to the different fields of KNOWLEDGE to give rise to SKILLS, potentially accompanied by TOOLS, specific to the field or transversal to all or part of the KNOWLEDGE (even if it only uses low power finger mobility, the use of computer tools for example has become a skill common to practically all disciplines - consistent because it is, par excellence, the tool that we invented for the automated processing of information and its communication over the planet and in space, therefore potentially useful to all activities), and which can evolve with the extension of KNOWLEDGE and the evolution of Technologies ("progress").

The playful and/or artistic exploitation of these capacities of the body, in groups or individually, with artifacts (balls, rackets, skis, rollerblades, weapons, costumes, musical instruments, etc.) or without, gives rise to all sports, all dances, all music, all combat arts,... of the world. These 3 sub-capacities of movement of the body would include the ability to make the air vibrate thanks to our vocal apparatus, an innate capacity of the body used in particular for language, the use of which in much greater amplitude would be SINGING, included in MUSIC.

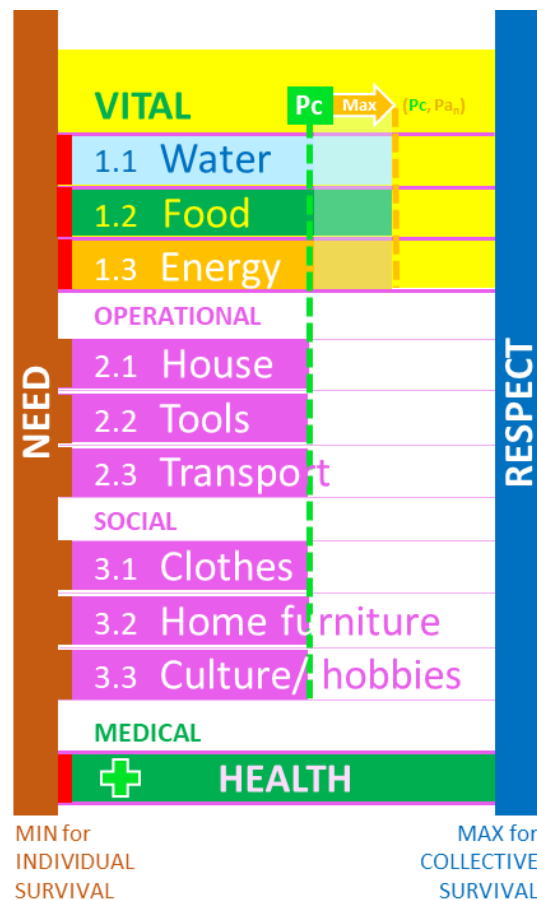
Finally, the combination of our **information processing abilities** and our **body skills**, of **KNOWLEDGE** and **POWER**, would constitute **our "intellectual" capacities for action in the world** which could be described as follows by putting all the pieces together:

- **COMMUNICATION:** listening, language, KNOWLEDGE (world description), logic, synthesis.
- **PROBLEM SOLVING:** mathematics and applications.
- **IMPLEMENTATION:** Technologies and Arts.

With the Arts which would be the potential "extrapolation" of KNOWLEDGE and BODY SKILLS, without "precise utility", but perhaps in the spirit of *"letting speak the creative source principles of the Universe which pass through us"...*

B – Make

PRODUCTIONS made by the human species would be separated into 10 categories:

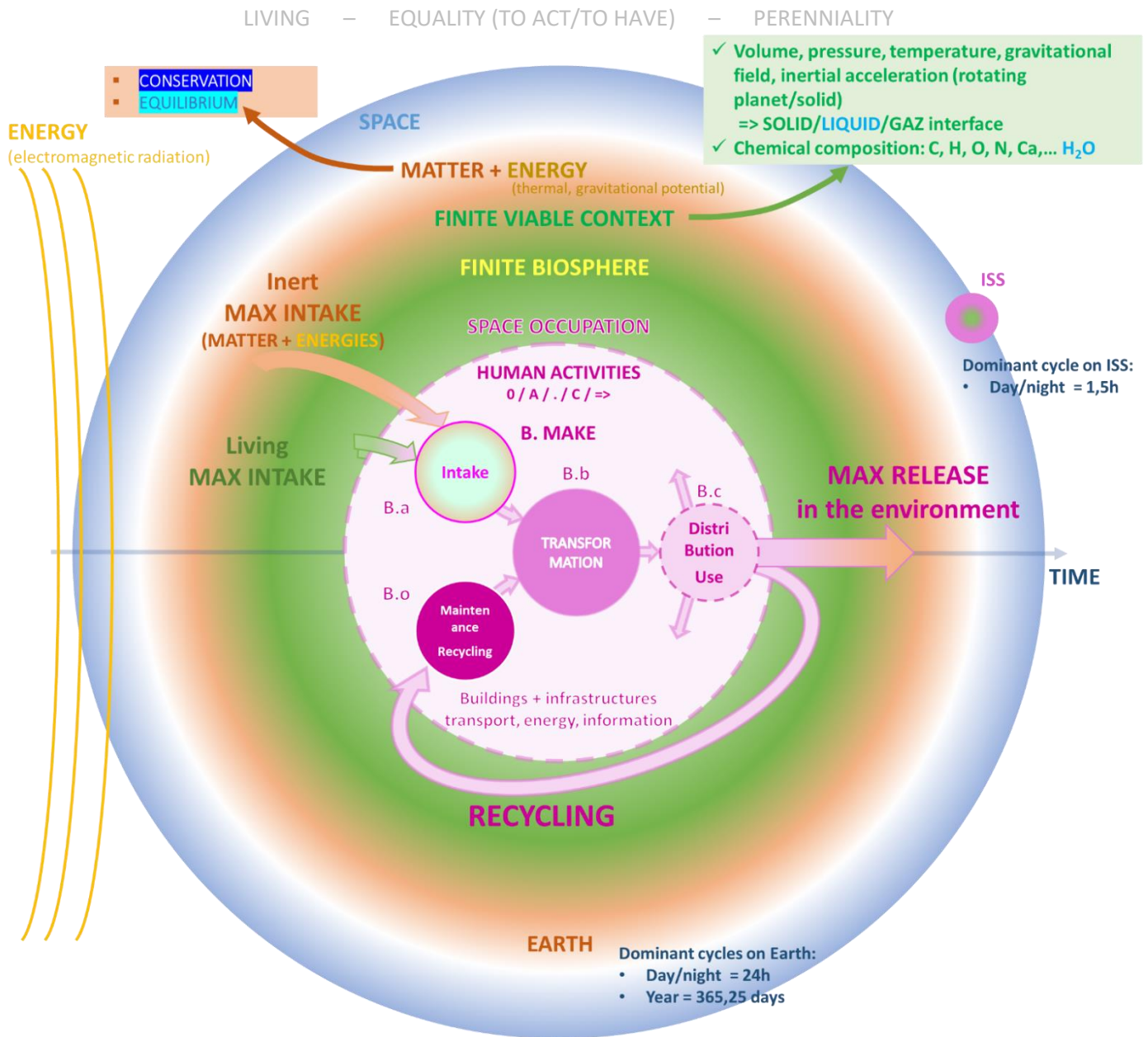


Each PRODUCTION category would necessarily have the following identical implementation phases:

- INTAKE of INERT or LIVING RESOURCES from the environment,
- TRANSFORMATION of RESOURCES into FINISHED PRODUCTS,
- DISTRIBUTION of FINISHED PRODUCTS,
- USE,
- RELEASE or RECYCLING/MAINTENANCE.

At any given time, the TO KNOW institution would have up-to-date maximum INTAKE and RELEASE values into the environment (including RELEASE during the PRODUCTION and USE phases), which would allow for real-time assessment of **the MAXIMUM QUANTITY of a given type of object that the FINITE BIOSPHERE can contain:**

RESPECT = MAX for COLLECTIVE SURVIVAL.



In all PRODUCTION domains, the levels of PRIORITIES would be identified in the same way:



- ✓ **SURVIVAL** = MINIMUM level of PRODUCTION of RESOURCES for SURVIVAL, including the maintenance of INFRASTRUCTURES (transport, energy, information) to ensure this PRODUCTION.
- ✓ **VITAL** = RESOURCES whose PRODUCTION STOP instantaneously (= within 24 hours or few days) endangers collective SURVIVAL:

1.1 WATER / 1.2 FOOD / 1.3 ENERGY

Valued at the MAX between the **Annual** or **Cumulative Participation**, allowing to “instantly” value an extremely good annual participation by giving the person more

rights to quality food and water and energy. In the event of a lower **Annual Participation**, or even zero, it is the **Cumulative Participation** that archives our participation history that gives us our VITAL level of rights TO HAVE.

HEALTH is between VITAL and NON-VITAL.

Ideally for everyone, it is a question of never needing it... **thus an INACTIVE HEALTH because of no disease nor accident would be a tremendous society success!**

Our HEALTHCARE needs are covered no matter what: no one dies from a treatable illness or accident. **Benefits of comfort or quality of medical equipment can be weighted according to our CUMULATIVE PARTICIPATION and our corresponding rights to HAVE in NON-VITAL RESOURCES.**

- ✓ **NON-VITAL = RESOURCES whose PRODUCTION STOP does not endanger a healthy population.**

The CUMULATIVE PARTICIPATION would give us our NON-VITAL level of rights TO HAVE.

If the PRODUCTION of VITAL RESOURCES must never be interrupted, a society that has reached a good level of comfort for all non-VITAL RESOURCES, or even reached the **MAXIMUM QUANTITIES of a large number of objects** and has "nothing left to produce", **would be SUCCESSFUL!**

This society must not seek to produce ever more other things, or worse, be forced to do so due to its organizational structure : it must at all times RESPECT the MAXIMUM LIMITS of occupation and exploitation of the FINISHED VIABLE CONTEXT in which it exists.

If a society finds itself truly idle due to reaching its physical LIMITS, it can then focus its ACTION on TRAINING, CULTURE, IMPROVEMENT of what is already there... and RESEARCH for extending the PERENNIALITY of the LIVING in the UNIVERSE !

C2 – Research

Main research axes to pursue/launch over our century:

1. Continuously updated global institutional “Wikipedia” (managed by the Universities and National Centers for Scientific Research of the world):
 - a. languages,
 - b. logic,
 - c. mathematics,

- d. description of the world hierarchically organized according to the constitution of the Universe: TIME – SPACE – MATTER – ENERGY – LIVING - Technology, ergonomic with popularization pages for complex subjects.
2. Finalize the stages of global automation (“Artificial Intelligence”): language, vision,... (logic, mathematics, description of the world,... already available in digital).
3. Gain a calculation scale factor of 1000 (?)... in accuracy and speed with quantum computers.
4. Living perennality in the Universe:
 - a. appropriate this opening from a biological and societal point of view,
 - b. first technological steps :
 - i. 3 terrestrial linear catapults to space working on renewable energy (Hyperloop-Spinlaunch mix; one in the Andes mountain and two in the Himalayas, for example),
 - ii. Anti-meteorite barrier (nuclear bombs, others...),
 - iii. 2 space bases with 1000 inhabitants in Earth orbit,
 - iv. 1 space base with 1000 inhabitants in lunar orbit,
 - v. 3 bases/greenhouses on the Moon with 300 inhabitants,...

General remark for academic research: A problem can be well posed and a solution proposed to this problem rigorously demonstrated from a scientific point of view, without reference to any scientific source.

For example, posing and proving the Pythagorean theorem can be done by "anyone" without any reference; and the intellectual exercise will make all the more progress and will be all the more rewarding for a person, if she/he actually succeeds in doing it on her/his own, rather than reading references on the subject.

Citing sources is therefore not a way of “validating that an approach is scientific”. It responds to a need to position a proposal in the current state of knowledge to specify the “intellectual property” of the proposal when it comes to fairly evaluating a work, as to identify how the work makes a new contribution or not, the objective of academic research being to advance the content of KNOWLEDGE.

As a matter of fact, it brings nothing to Mathematics today to reprove the Pythagorean theorem... and to browse references will allow researchers, especially the youngest, to arrive quickly "on the knowledge front", rather than spending a lot of time re-demonstrating how all the wheels roll.

ACTION DETAILED BREAKDOWN

“Local autonomy everywhere”

Demographic levels population minimum size* for which a region shall be autonomous for the issues given in the corresponding line		TO ACT					
		Responsibility quotient 1<= Q _r <=2 Q _r =1 + 0,1*LOG ₁₀ (1+N) (**)	0. ADMINISTRATION Number and renewal of managers representing and coordinating the 3 powers FINITE BIOSPHERE ACTION DISTRIBUTION	A. PRACTIVE + C.1. TRANSMIT Cohabit - Knowledge - Skills	B. MAKE		
					PRIMARY RESOURCES (TIME, SPACE, MATTER, ENERGY, LIVING)		
					B.o Maintenance and recycling	B.a Intake from the environment	
	Inert Extraction	Living Agriculture					
Everydy	> 1000 people	1,3	3 people (500h/year) for 3 years	0-6 years old elementary school	Hand made tools	Shortest path Renewable Respectful of biodiversity	
	> 10 000 people	1,4	3 people (500h/year) for 3 years	6-10 years old Primary school	Bicycles Small eletronic tools		
	> 100 000 people	1,5	3 people (1000h/year) for 3 years	10-18 years old Middle and High school	Home appliances/ motorbike		
	> 1000 000 people	1,6	6 people (1000h/year) for 6 years (renewed by half every 3 years)	18-21 years old Bachelor level University	Cars		
	> 10 000 000 people	1,7	6 people (1000h/year) for 6 years (renewed by half every 3 years)	> 22 years old Master and PhD Levels University	Aircrafts		
	> 100 000 000 people	1,8	6 people (1000h/year) for 6 years (renewed by half every 3 years)		Space station		
	> 1000 000 000 people	1,9	9 people (1000h/year) for 9 years (renewed by a third every 3 years)				
	> 10 000 000 000 people	2	9 people (1000h/year) for 9 years (renewed by a third every 3 years)				
WORKING TIME TOTAL (% 1000h/year)			2%	15% (A) + 3% (C1)	12%	3%	4%
ENSERGY SPENT TOTAL (% Intake kWh)			1%	2% (A) + 1% (C1)	10%	12%	8%

kWh = ENERGY used by machines

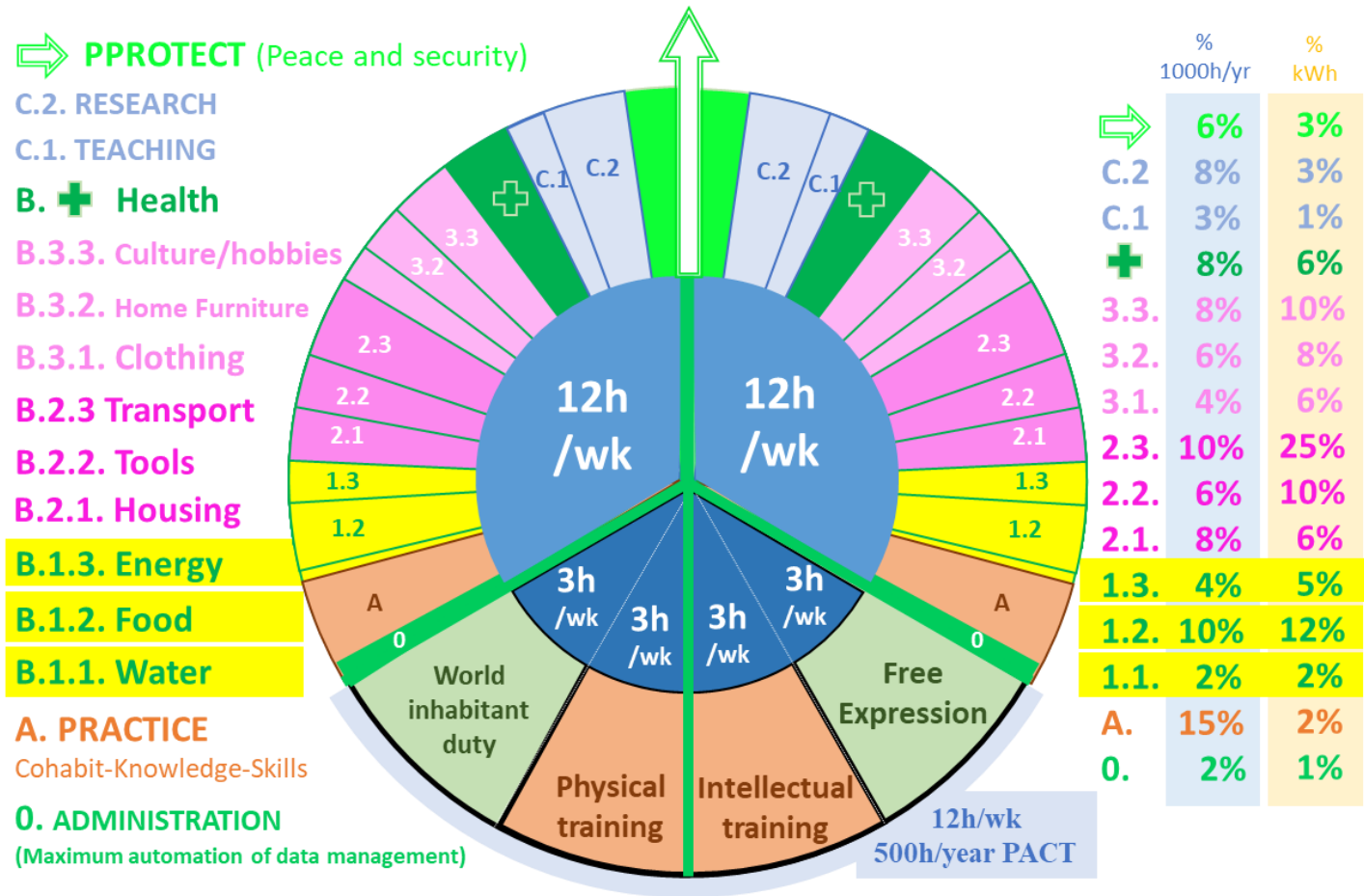
(*) the population size is the first factor, distance and isolation of certain region with very small populations may be another factor to be considered

(**) $Q_r = 1 + 0,1 * \log_{10}(1+N)$ = Responsibility quotient: my work, my decisions impact the activities, the environment, the daily lives of how many N people?

TO ACT				
B. MAKE		C.2. RESEARCH KNOWLEDGE EXTENSION SKILLS AND TECHNOLOGY UPGRADE (setting up a global institutional Wikipedia continuously updated)	=> PROTECT PEACE AND SECURITY (police, army, firefighter)	RELEASE IN THE ENVIRONMENT (Recycling center, cremation, etc.)
B.b TRANSFORMATION B.c DISTRIBUTION/USE "Realisation" average size :		Laboratories for :		
Buidlings and Infrastructures Transport Energies Information			500 people 1000h/year + 1000 people 500h/year	BELOW A MAXIMUM LEVEL ALLOWING LIFE PERENNIALITY
	Food			
	Hand made tools			
	Bicycles	Local/short term needs		
	Small eletronic tools			
	Home appliances/ motorbike	Regional/ medium term needs		
	Cars			
	Aircrafts	Global/ long term needs		
	Space station			
15%	32%	8%	6%	2%
20%	40%	3%	3%	1%

OVERALL ACTION ASSESSMENT

kWh = ENERGY used by machines



“MEASURE” of the REALITY of ACTION

HUMAN's ACTION corresponds concretely to ENERGY, whether the action corresponds to actual movement or information processing (intellectual work). **So the TIME of human beings spent working could be converted into ENERGY.**

If the average USEFUL POWER performed by a human being, over a 7-hour workday, is approximately 70 watts, this gives :

- an average total ENERGY output for a workday of 0.5 kWh/person/day,
- an average total ENERGY output for a 1000 working hours per year of 70kWh/person/year.

To refine the measurements, the TO ACT institution could possibly use the actual average individual power values of each person, assessed each year in the ENDURANCE category of body training.

Therefore, the MEASURE of ACTION could be an effective and homogeneous quantity of ENERGY (kWh), summing:

$$\begin{array}{c}
 \text{HUMAN ENERGY} \\
 \text{(or LIVING energy if animals contribute to the action)} \\
 + \\
 \text{ENERGY used by machines}
 \end{array}$$

One of the primary benefits of using ENERGY (kWh) as a “cost” metric would be that it could enable much more objective TRANSPARENCY and global EQUITY:

- ⇒ **immediately, we will become aware of how rich we are from the fact that we receive a lot, but really much more, than what we actually produce as effort by participating in the activities of the world.**

As a matter of fact, while the order of magnitude of our productive ACTION per year is around 70kWh, we consume, across all sectors in Western countries, the equivalent of tens of thousands of kWh per year ! Approximately 400 to 600 times more than what we actually achieve in terms of effort, ENERGY... cf. Jean Marc Jancovici – The world without end - it is as if we had the equivalent of 400 to 600 slaves at our service, but in our modern world, these "slaves" are machines.

This should therefore allow us to be more FAIR in sharing our RESSOURCES and to be able to accept their LIMITS.

APPENDIX 1.3

TO HAVE

Since the inert materials and living beings present in the universe do not initially belong to anyone and therefore do not have an own “price”, **the cost of an object would be the sum of all the kWh (living + machines) required to:**

- ✓ INTAKE inert MATTER and LIVING from the environment/RECYCLE,
- ✓ TRANSFORM these materials into finished products,
- ✓ DISTRIBUTE the finished products.

Thus this ENERGY cost (kWh) of an object could be its “price”.

It could in particular be “engraved” on the object (or more simply recorded in a non-volatile memory for most objects that will have an integrated digital part), since it is a real physical measure of the INITIAL PRODUCTION that will not change, and which can therefore serve as a value reference point throughout the life of the object. It could possibly be updated/proposed iterations, if the product is improved during its lifetime (typically a house). Maintenance would only maintain the quality of the object and therefore its level of “value”.

Besides, with this organizational structure, **the MAXIMUM QUANTITY of a given type of object that the FINITE BIOSPHERE can contain would be limited upstream of PRODUCTION (RESPECT)**, thanks to the continuous evaluation of the MAXIMUM of SPACE occupation, of INTAKE and of RELEASE in the FINITE BIOSPHERE:

- ⇒ **It would therefore no longer be up to the "consumer" at the end of the chain to bear the (overwhelming) responsibility of having global visibility of the world to make the right choice of product when shopping; if an object is available for "sale", it is because it would respect the planetary limits.**

The TO HAVE institution would therefore have visibility on the overall volumes produced in each **Prod_{x,y}** domain expressed in kWh (volumes that would respect upstream planetary limits):

1.1 WATER

1.2 FOOD

1.3 ENERGY

2.1 – 3.3 NON-VITAL RESOURCES

The populations could then vote for a MINIMUM threshold expressed in kWh in each main area, each individual i would have a right to HAVE above this MINIMUM proportional to their P_{ci} Participation:

$$\text{TO HAVE}_{x,y} = \text{MIN}_{x,y} + P_{ci} \times \Delta \text{Prod}_{x,y}$$

so that the sum of the rights $\text{TO HAVE}_{x,y}$ over the number of inhabitants H is equal to the total production $\text{Prod}_{x,y}$:

$$\text{Prod}_{x,y} = \sum_H \text{TO HAVE}_{x,y} = H \times \text{MIN}_{x,y} + (\sum_H P_{ci}) \Delta \text{Prod}_{x,y}$$

For housing specifically, in addition to this right TO HAVE calculated in kWh of housing manufacturing cost, a second VOLUME criteria (in m3) could be calculated in the same way, with MIN and MAX voted bounds, to limit our rights to HAVE in housing so that it respects the SPACE OCCUPATION upstream planetary LIMIT.

We would thus have at any given moment our estimate of our rights TO HAVE in each domain, expressed in kWh (and in m3 for housing), always with the FREEDOM TO CHOOSE what we wish to consume or own based on our personal criteria:

- Desire,
- Utility/Functions,
- Performance,
- Lifespan,
- Social esteem: aesthetic, symbolic, sentimental, rarity...

The idea of gathering NON-VITAL RESOURCES (operational and social) into a common right TO HAVE would precisely allow everyone to "freely" live their lives as they wish:

- ✓ If someone with a relatively high level of Participation grants a right TO HAVE in kWh slightly higher than a Porsche, and wants to have it by agreeing to live in a 25 m² apartment, thus not exceeding their total right to have, this should be possible (just as we personally manage our monetary counter in 2020 Gregorian calendar).

“Free exchange”:

The question of "free trade" ultimately only poses the question of PROPERTY: "whose thing does this belong to?"

Indeed, once PRODUCTION is carried out with respect for what it can take and reject in the inert and living environment, once human beings have perceived from PRODUCTION their rights to HAVE proportionate to their PARTICIPATION, the freedom to exchange between individuals what they have received remains completely possible and “free”.

However, for major assets exchange (car, house, etc.), this “freedom” would be “protected” by mediators from the TO HAVE institution to establish equity equivalences, and avoid errors or abuse of power which would penalize one of the two parties, or worse which would endanger its survival.

In particular, exchanges would primarily take place within the same RESOURCE to be shared:

1.2 Food: apples for pears, eggs for a chicken, etc.

2.1 House: moving would be a simple, almost cost-free (automated), procedure of renaming the "owner", i.e. the exclusive occupant of the premises. The Cumulative Participation would directly indicate the “level” (surface, garden, facilities, etc) of real estate that could be accessed.

2.2 Tools: a rake for a spade, a smartphone for a PC, etc.

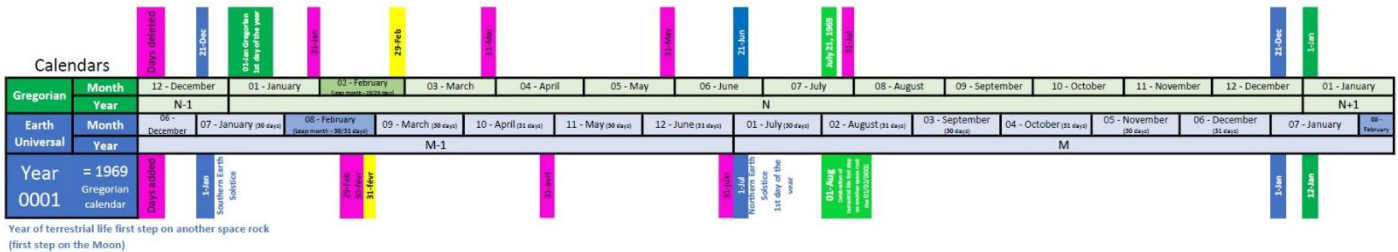
3.3 Culture & leisure: cinema tickets for entries to an amusement park.

Conversely, for example, it would generally not be possible to exchange:

- one's week food for a bicycle,
- one's day drinking water for a movie ticket,
- one's house for a tennis court,
- ... etc

APPENDIX 2 - Universal Terrestrial Calendar

In order to be precisely synchronized with all the cycles of the nearby Universe, a **Universal Terrestrial Calendar** could be set up as follow:



- Annual rhythm synchronized with the rotation around the sun:
 - Shift of the entire calendar so that January 1 coincides with the Earth Southern solstice, December 21 of the Gregorian calendar.
- 12 months simply alternating between 30 days and 31 days = 366 days per year (no more of the very strange rule of counting on your knuckles to know the positioning of the months at 30 and 31 days); the february month being reduced by 1 day (from 31 to 30 days) 3 years out of 4, this month only being equal to 31 days in leap years due to the fact that the Earth goes around the sun in 365.25 days.
- In order to be in harmony with the pace of a large part of the planet (the northern hemisphere containing 90% of the world population, two thirds of the land surface), **the new year could be chosen to be the northern solstice, meaning July 1st of the Universal Terrestrial calendar (June 21st of the Gregorian calendar), allowing to synchronize the civil calendar and school calendar for a lot of nations** : the nations of the northern hemisphere would start with the summer vacation on July 1st with the New Year celebration.
- Year 1 could be shifted to the year of a major event in the history of terrestrial life over the last few millennia: **the first step of terrestrial life on another space rock, the first step on the Moon the 21st of july 1969 Gregorian Calendar; the 21st of june 1969 Gregorian calendar = 21/06/1969 G. cal. would become the 1st of July of year 1 Universal Terrestrial Calendar = 01/01/0001 U. T. cal.**
 - 01-juil U.T. cal. = Earth Northern solstice: Celebration of the LIVING and its mystery - celebration of all the arts - NEW YEAR (21st of June Gregorian calendar)
 - 01-janv U.T. cal. = Earth Southern solstice: celebration of the sun, the stars, the mystery of the origins of the Universe : TIME - SPACE - MATTER – ENERGY (21st of Decembrer Gregorian calendar)
 - August 1st of the Universal Terrestrial Calendar could become the Annual International Celebration for the Living Perennality commemorating this date of 21/07/1969 cal. G. = 01/02/0001 cal. U. T.

CALENDARS

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Gregorian				Terrestrial Universal					
Days/year	Day	Month	Year	Day	Month	Year	Days/year		
335	1-Dec	12 December	N-1	12-Dec	06 December	M-1	164		
336	2-Dec			13-Dec			165		
337	3-Dec			14-Dec			166		
338	4-Dec			15-Dec			167		
339	5-Dec			16-Dec			168		
340	6-Dec			17-Dec			169		
341	7-Dec			18-Dec			170		
342	8-Dec			19-Dec			171		
343	9-Dec			20-Dec			172		
344	10-Dec			21-Dec			173		
345	11-Dec			22-Dec			174		
346	12-Dec			23-Dec			175		
347	13-Dec			24-Dec			176		
348	14-Dec			25-Dec			177		
349	15-Dec			26-Dec			178		
350	16-Dec			27-Dec			179		
351	17-Dec			28-Dec			180		
352	18-Dec			29-Dec			181		
353	19-Dec			30-Dec			182		
354	20-Dec			31-Dec			183		
355	21-Dec						1-Jan	07 January	184
356	22-Dec						2-Jan		185
357	23-Dec						3-Jan		186
358	24-Dec						4-Jan		187
359	25-Dec						5-Jan		188
360	26-Dec						6-Jan		189
361	27-Dec						7-Jan		190
362	28-Dec						8-Jan		191
363	29-Dec						9-Jan		192
364	30-Dec						10-Jan		193
365	31-Dec						11-Jan		194
1	1-Jan	01 January	N	12-Jan			195		
2	2-Jan			13-Jan	196				
3	3-Jan			14-Jan	197				
4	4-Jan			15-Jan	198				
5	5-Jan			16-Jan	199				
6	6-Jan			17-Jan	200				
7	7-Jan			18-Jan	201				
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20	20-Jan			1-Feb	214				
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22	22-Jan			3-Feb	216				
23	23-Jan			4-Feb	217				
24	24-Jan			5-Feb	218				
25	25-Jan			6-Feb	219				
26	26-Jan			7-Feb	220				
27	27-Jan			8-Feb	221				
28	28-Jan			9-Feb	222				
29	29-Jan			10-Feb	223				
30	30-Jan			11-Feb	224				
31	31-Jan			12-Feb	225				
32	1-Feb	13-Feb	226						
33	2-Feb	14-Feb	227						
34	3-Feb	15-Feb	228						
35	4-Feb	16-Feb	229						
36	5-Feb	17-Feb	230						
37	6-Feb	18-Feb	231						
38	7-Feb	19-Feb	232						
39	8-Feb	20-Feb	233						
40	9-Feb	21-Feb	234						
41	10-Feb	22-Feb	235						
42	11-Feb	23-Feb	236						
43	12-Feb	24-Feb	237						
44	13-Feb	25-Feb	238						
45	14-Feb	26-Feb	239						
				08 February (Leap month)					

46	15-Feb			27-Feb			240
47	16-Feb			28-Feb			241
48	17-Feb			29-Feb			242
49	18-Feb			30-févr			243
50	19-Feb			31-févr			244
51	20-Feb			1-Mar			245
52	21-Feb			2-Mar			246
53	22-Feb			3-Mar			247
54	23-Feb			4-Mar			248
55	24-Feb			5-Mar			249
56	25-Feb	09 March		6-Mar	250		
57	26-Feb			7-Mar	251		
58	27-Feb			8-Mar	252		
59	28-Feb			9-Mar	253		
60	29-Feb			10-Mar	254		
61	1-Mar			11-Mar	255		
62	2-Mar			12-Mar	256		
63	3-Mar			13-Mar	257		
64	4-Mar			14-Mar	258		
65	5-Mar			15-Mar	259		
66	6-Mar	03 March		16-Mar	260		
67	7-Mar			17-Mar	261		
68	8-Mar			18-Mar	262		
69	9-Mar			19-Mar	263		
70	10-Mar			20-Mar	264		
71	11-Mar			21-Mar	265		
72	12-Mar			22-Mar	266		
73	13-Mar			23-Mar	267		
74	14-Mar			24-Mar	268		
75	15-Mar			25-Mar	269		
76	16-Mar	10 April		26-Mar	270		
77	17-Mar			27-Mar	271		
78	18-Mar			28-Mar	272		
79	19-Mar			29-Mar	273		
80	20-Mar			30-Mar	274		
81	21-Mar			1-Apr	275		
82	22-Mar			2-Apr	276		
83	23-Mar			3-Apr	277		
84	24-Mar			4-Apr	278		
85	25-Mar			5-Apr	279		
86	26-Mar	04 April		6-Apr	280		
87	27-Mar			7-Apr	281		
88	28-Mar			8-Apr	282		
89	29-Mar			9-Apr	283		
90	30-Mar			10-Apr	284		
91	31-Mar			11-Apr	285		
92	1-Apr			12-Apr	286		
93	2-Apr			13-Apr	287		
94	3-Apr			14-Apr	288		
95	4-Apr			15-Apr	289		
96	5-Apr	11 May		16-Apr	290		
97	6-Apr			17-Apr	291		
98	7-Apr			18-Apr	292		
99	8-Apr			19-Apr	293		
100	9-Apr			20-Apr	294		
101	10-Apr			21-Apr	295		
102	11-Apr			22-Apr	296		
103	12-Apr			23-Apr	297		
104	13-Apr			24-Apr	298		
105	14-Apr			25-Apr	299		
106	15-Apr	05 May		26-Apr	300		
107	16-Apr			27-Apr	301		
108	17-Apr			28-Apr	302		
109	18-Apr			29-Apr	303		
110	19-Apr			30-Apr	304		
111	20-Apr			31-avri	305		
112	21-Apr			1-May	306		
113	22-Apr			2-May	307		
114	23-Apr			3-May	308		
115	24-Apr			4-May	309		
116	25-Apr			5-May	310		
117	26-Apr			6-May	311		
118	27-Apr			7-May	312		
119	28-Apr			8-May	313		
120	29-Apr			9-May	314		
121	30-Apr			10-May	315		
122	1-May			11-May	316		
123	2-May			12-May	317		
124	3-May			13-May	318		
125	4-May			14-May	319		
126	5-May			15-May	320		
127	6-May			16-May	321		
128	7-May			17-May	322		
129	8-May			18-May	323		
130	9-May			19-May	324		
131	10-May			20-May	325		
132	11-May			21-May	326		

133	12-May			22-May			327
134	13-May			23-May			328
135	14-May			24-May			329
136	15-May			25-May			330
137	16-May			26-May			331
138	17-May			27-May			332
139	18-May			28-May			333
140	19-May			29-May			334
141	20-May			30-May			335
142	21-May			1-Jun			336
143	22-May			2-Jun			337
144	23-May			3-Jun			338
145	24-May			4-Jun			339
146	25-May			5-Jun			340
147	26-May			6-Jun			341
148	27-May			7-Jun			342
149	28-May			8-Jun			343
150	29-May			9-Jun			344
151	30-May			10-Jun			345
152	31-May			11-Jun			346
153	1-Jun			12-Jun			347
154	2-Jun			13-Jun			348
155	3-Jun			14-Jun			349
156	4-Jun			15-Jun			350
157	5-Jun			16-Jun			351
158	6-Jun			17-Jun			352
159	7-Jun			18-Jun			353
160	8-Jun			19-Jun			354
161	9-Jun			20-Jun			355
162	10-Jun			21-Jun			356
163	11-Jun			22-Jun			357
164	12-Jun	23-Jun	358				
165	13-Jun	24-Jun	359				
166	14-Jun	25-Jun	360				
167	15-Jun	26-Jun	361				
168	16-Jun	27-Jun	362				
169	17-Jun	28-Jun	363				
170	18-Jun	29-Jun	364				
171	19-Jun	30-Jun	365				
172	20-Jun	31-Jun	366				
173	21-Jun	1-Jul	M	1			
174	22-Jun	2-Jul		2			
175	23-Jun	3-Jul		3			
176	24-Jun	4-Jul		4			
177	25-Jun	5-Jul		5			
178	26-Jun	6-Jul		6			
179	27-Jun	7-Jul		7			
180	28-Jun	8-Jul		8			
181	29-Jun	9-Jul		9			
182	30-Jun	10-Jul		10			
183	1-Jul	11-Jul		11			
184	2-Jul	12-Jul		12			
185	3-Jul	13-Jul		13			
186	4-Jul	14-Jul		14			
187	5-Jul	15-Jul		15			
188	6-Jul	16-Jul		16			
189	7-Jul	17-Jul		17			
190	8-Jul	18-Jul		18			
191	9-Jul	19-Jul		19			
192	10-Jul	20-Jul		20			
193	11-Jul	21-Jul		21			
194	12-Jul	22-Jul		22			
195	13-Jul	23-Jul		23			
196	14-Jul	24-Jul		24			
197	15-Jul	25-Jul		25			
198	16-Jul	26-Jul		26			
199	17-Jul	27-Jul		27			
200	18-Jul	28-Jul		28			
201	19-Jul	29-Jul		29			
202	20-Jul	30-Jul		30			
203	21-Jul	1-Aug		31			
204	22-Jul	2-Aug	M	32			
205	23-Jul	3-Aug		33			
206	24-Jul	4-Aug		34			
207	25-Jul	5-Aug		35			
208	26-Jul	6-Aug		36			
209	27-Jul	7-Aug		37			
210	28-Jul	8-Aug		38			
211	29-Jul	9-Aug		39			
212	30-Jul	10-Aug		40			
213	31-Jul	11-Aug		41			
214	1-Aug	12-Aug		42			
215	2-Aug	13-Aug	43				
216	3-Aug	14-Aug	44				
217	4-Aug	15-Aug	45				
218	5-Aug	16-Aug	46				
219	6-Aug	17-Aug	47				
220	7-Aug	18-Aug	48				

221	8-Aug	09 September		19-Aug	03 September		49
222	9-Aug			20-Aug			50
223	10-Aug			21-Aug			51
224	11-Aug			22-Aug			52
225	12-Aug			23-Aug			53
226	13-Aug			24-Aug			54
227	14-Aug			25-Aug			55
228	15-Aug			26-Aug			56
229	16-Aug			27-Aug			57
230	17-Aug			28-Aug			58
231	18-Aug			29-Aug			59
232	19-Aug			30-Aug			60
233	20-Aug			31-Aug			61
234	21-Aug			1-Sep			62
235	22-Aug			2-Sep			63
236	23-Aug			3-Sep			64
237	24-Aug			4-Sep			65
238	25-Aug			5-Sep			66
239	26-Aug			6-Sep			67
240	27-Aug			7-Sep			68
241	28-Aug			8-Sep			69
242	29-Aug			9-Sep			70
243	30-Aug			10-Sep			71
244	31-Aug			11-Sep			72
245	1-Sep			12-Sep			73
246	2-Sep			13-Sep			74
247	3-Sep			14-Sep			75
248	4-Sep			15-Sep			76
249	5-Sep			16-Sep			77
250	6-Sep			17-Sep			78
251	7-Sep			18-Sep			79
252	8-Sep			19-Sep			80
253	9-Sep			20-Sep			81
254	10-Sep			21-Sep			82
255	11-Sep			22-Sep			83
256	12-Sep			23-Sep			84
257	13-Sep			24-Sep			85
258	14-Sep			25-Sep			86
259	15-Sep			26-Sep			87
260	16-Sep			27-Sep			88
261	17-Sep			28-Sep			89
262	18-Sep			29-Sep			90
263	19-Sep			30-Sep			91
264	20-Sep			1-Oct			92
265	21-Sep			2-Oct			93
266	22-Sep			3-Oct			94
267	23-Sep			4-Oct			95
268	24-Sep			5-Oct			96
269	25-Sep			6-Oct			97
270	26-Sep			7-Oct			98
271	27-Sep			8-Oct			99
272	28-Sep			9-Oct			100
273	29-Sep			10-Oct			101
274	30-Sep			11-Oct			102
275	1-Oct			12-Oct			103
276	2-Oct			13-Oct			104
277	3-Oct			14-Oct			105
278	4-Oct			15-Oct			106
279	5-Oct			16-Oct			107
280	6-Oct			17-Oct			108
281	7-Oct			18-Oct			109
282	8-Oct			19-Oct			110
283	9-Oct			20-Oct			111
284	10-Oct			21-Oct			112
285	11-Oct			22-Oct			113
286	12-Oct			23-Oct			114
287	13-Oct			24-Oct			115
288	14-Oct			25-Oct			116
289	15-Oct			26-Oct			117
290	16-Oct			27-Oct			118
291	17-Oct			28-Oct			119
292	18-Oct			29-Oct			120
293	19-Oct			30-Oct			121
294	20-Oct			31-Oct			122
295	21-Oct			1-Nov			123
296	22-Oct			2-Nov			124
297	23-Oct			3-Nov			125
298	24-Oct			4-Nov			126
299	25-Oct			5-Nov			127
300	26-Oct			6-Nov			128
301	27-Oct			7-Nov			129
302	28-Oct			8-Nov			130
303	29-Oct			9-Nov			131
304	30-Oct			10-Nov			132
305	31-Oct			11-Nov			133
306	1-Nov			12-Nov			134
307	2-Nov			13-Nov			135
308	3-Nov			14-Nov			136
309	4-Nov			15-Nov			137

310	5-Nov	11 November	N	16-Nov		138
311	6-Nov			17-Nov		139
312	7-Nov			18-Nov		140
313	8-Nov			19-Nov		141
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321	16-Nov	27-Nov		149		
322	17-Nov	28-Nov		150		
323	18-Nov	29-Nov		151		
324	19-Nov	30-Nov		152		
325	20-Nov	1-Dec		153		
326	21-Nov	2-Dec		154		
327	22-Nov	3-Dec		155		
328	23-Nov	4-Dec		156		
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333	28-Nov	9-Dec		161		
334	29-Nov	10-Dec		162		
335	30-Nov	11-Dec		163		
336	1-Dec	12-Dec		164		
337	2-Dec	13-Dec		165		
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339	4-Dec	15-Dec		167		
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356	21-Dec	1-Jan	184			
357	22-Dec	2-Jan	185			
358	23-Dec	3-Jan	186			
359	24-Dec	4-Jan	187			
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363	28-Dec	8-Jan	191			
364	29-Dec	9-Jan	192			
365	30-Dec	10-Jan	193			
366	31-Dec	11-Jan	194			
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23	23-Jan	4-Feb	217			
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25	25-Jan	6-Feb	219			
26	26-Jan	7-Feb	220			
27	27-Jan	8-Feb	221			
28	28-Jan	9-Feb	222			
29	29-Jan	10-Feb	223			
30	30-Jan	11-Feb	224			
31	31-Jan	12-Feb	225			

1-Jan	Earth Southern solstice: celebration of the sun, the stars, the mystery of the origins of the Universe : TIME - SPACE - MATTER - ENERGY (21st of Decembrer Gregorian calendar)
1-Jul	Earth Northern solstice: NEW YEAR celebration - Celebration of the LIVING and its mystery - celebration of all the arts (21st of June Gregorian calendar)
1-Aug	Celebration of the LIVING PERENNIALITY in the Universe: Celebration of the first step of terrestrial life on another space rock carried out on 01/02/0001 (21/07/1969 Gregorian calendar)

Gregorian calendar years (N)	Universal Terrestrial calendar years (M) (the 21st of June of year N cal. G)	Gregorian calendar years (N)	Universal Terrestrial calendar years (M) (the 21st of June of year N cal. G)	Gregorian calendar years (N)	Universal Terrestrial calendar years (M) (the 21st of June of year N cal. G)	Gregorian calendar years (N)	Universal Terrestrial calendar years (M) (the 21st of June of year N cal. G)
1920	-49	1969	1	2018	50	2067	99
1921	-48	1970	2	2019	51	2068	100
1922	-47	1971	3	2020	52	2069	101
1923	-46	1972	4	2021	53	2070	102
1924	-45	1973	5	2022	54	2071	103
1925	-44	1974	6	2023	55	2072	104
1926	-43	1975	7	2024	56	2073	105
1927	-42	1976	8	2025	57	2074	106
1928	-41	1977	9	2026	58	2075	107
1929	-40	1978	10	2027	59	2076	108
1930	-39	1979	11	2028	60	2077	109
1931	-38	1980	12	2029	61	2078	110
1932	-37	1981	13	2030	62	2079	111
1933	-36	1982	14	2031	63	2080	112
1934	-35	1983	15	2032	64	2081	113
1935	-34	1984	16	2033	65	2082	114
1936	-33	1985	17	2034	66	2083	115
1937	-32	1986	18	2035	67	2084	116
1938	-31	1987	19	2036	68	2085	117
1939	-30	1988	20	2037	69	2086	118
1940	-29	1989	21	2038	70	2087	119
1941	-28	1990	22	2039	71	2088	120
1942	-27	1991	23	2040	72	2089	121
1943	-26	1992	24	2041	73	2090	122
1944	-25	1993	25	2042	74	2091	123
1945	-24	1994	26	2043	75	2092	124
1946	-23	1995	27	2044	76	2093	125
1947	-22	1996	28	2045	77	2094	126
1948	-21	1997	29	2046	78	2095	127
1949	-20	1998	30	2047	79	2096	128
1950	-19	1999	31	2048	80	2097	129
1951	-18	2000	32	2049	81	2098	130
1952	-17	2001	33	2050	82	2099	131
1953	-16	2002	34	2051	83	2100	132
1954	-15	2003	35	2052	84	2101	133
1955	-14	2004	36	2053	85	2102	134
1956	-13	2005	37	2054	86	2103	135
1957	-12	2006	38	2055	87	2104	136
1958	-11	2007	39	2056	88	2105	137
1959	-10	2008	40	2057	89	2106	138
1960	-9	2009	41	2058	90	2107	139
1961	-8	2010	42	2059	91	2108	140
1962	-7	2011	43	2060	92	2109	141
1963	-6	2012	44	2061	93	2110	142
1964	-5	2013	45	2062	94	2111	143
1965	-4	2014	46	2063	95	2112	144
1966	-3	2015	47	2064	96	2113	145
1967	-2	2016	48	2065	97	2114	146
1968	-1	2017	49	2066	98	2115	147