

KEO

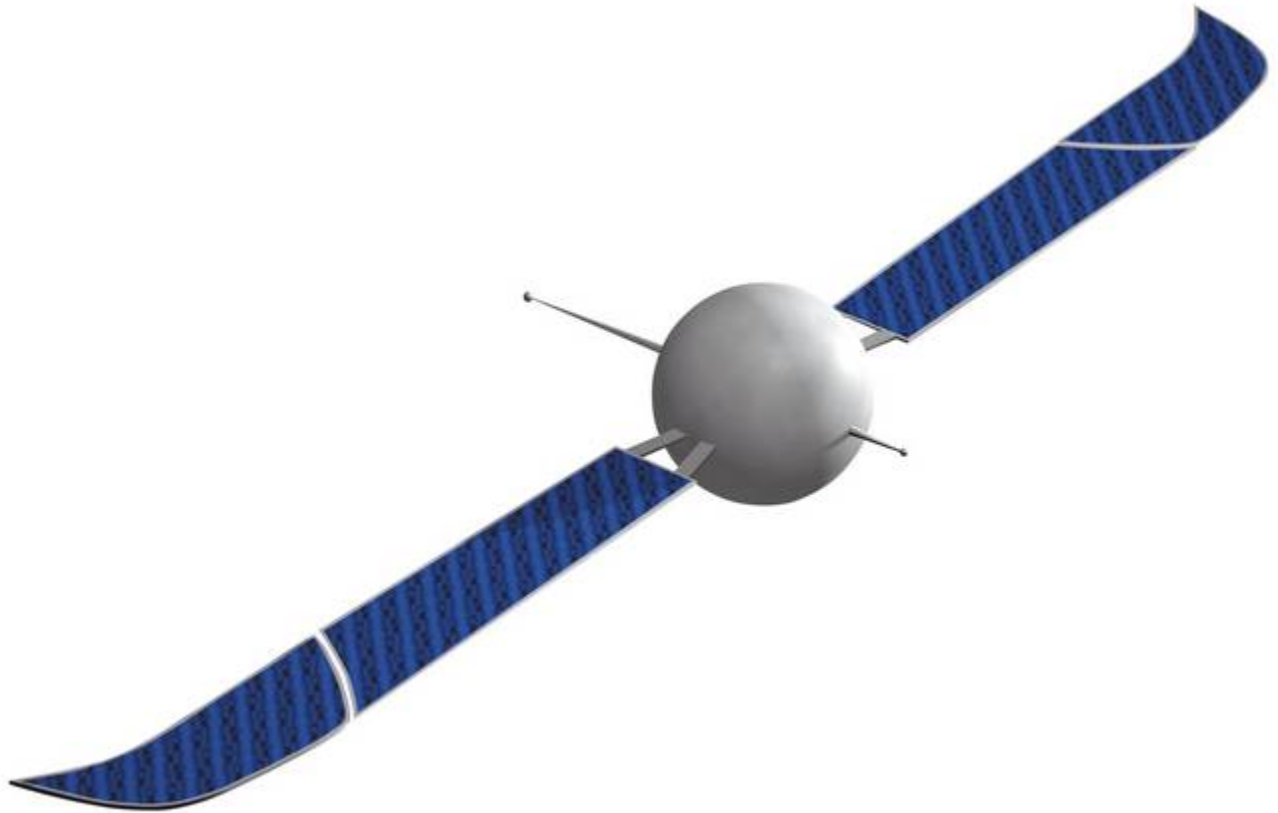
The Space Time Capsule



KEO

THE SATELLITE THAT CARRIES THE HOPES OF THE WORLD

EDUCATIONAL TOOL



**A UNIVERSAL PROJECT
AT THE CROSSROAD OF
ART, TECHNOLOGY, HUMANISM AND DREAMS**

Elected as “Project of the 21st century” by UNESCO

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1. WHY HAS THIS EDUCATIONAL DOCUMENT ON KEO BEEN CREATED?

KEO is the realisation of a dream – a dream envisaging the concurrence of art, science, technology and humanity. KEO’s goal is to facilitate the meeting of people, guiding them towards a shared vision of hope for the future. KEO is a project that enables us to see beyond the ephemeral nature of our mundane preoccupations, and indeed, the fragility and vulnerability of the planet itself. KEO is the canary in the mine, warning us of the destructive nature of our tribal selfishness, sectarianism and dissention, addressing all of humanity.

In the short term, KEO aims to sensitise the young and prepare them for the challenges of the modern world by opening new forms of dialogue among humankind. KEO aims to improve mutual understanding between and appreciation for, different cultures; and above all, to prepare each and every one of us to live harmoniously on this planet which we are compelled to share.

For the long term, KEO aims to ensure the continuation of humanity by providing a true testimony of our lives for our distant descendants in the future. Reflecting the magnitude of its universality, every one is invited to contribute their perspective on our every day life and aspirations.

To take its message around the world KEO relies principally on teachers of every kind, at every level.

Many around the world have already recognised KEO as an exceptional educational tool. Indeed its present form is an amalgam of the teaching experience of those who have contributed to its creation.

The main goal of this pedagogical guide is to suggest that every teacher take and communicate the project to his pupils as an innovative educational tool.

Observations as a result of different pedagogical approaches were:

- That KEO evokes spontaneous curiosity and enthusiasm within students of every age, with little indifference.
- That every teacher, irrespective of his field of study, finds something of interest. This helps his sacred calling to inspire his students and develop their mental capacities.
- That after having learnt about KEO in the class students will talk about it to their families and friends.

Already, the themes discussed encourage exploration into numerous fields of study, such as astronomy, science, spatial technology, economy, biology, evolution of species, etc. Moreover, the intention of the project and its underlying vision is to invite written messages. This allows for more freedom and discussion in the history of art, civilization, humane societies, religion, life sciences, philosophy, history and geopolitical sciences that can be undertaken at any time during the academic year.

- Helping students understand the world of today as a whole, by seeing themselves in a different light.
- Encouraging their reflection on humane societies - their own in particular,
- Developing their capacity for critical thinking on societal subjects.
- Moulding young people as future citizens of the world, making them aware that they are already ancestors of their future descendants and that they have a responsible role to play.
- Showing them that art, beauty and poetry have their rightful place next to science, technology and social debate.

Moreover, the website www.keo.org is an active link between KEO and its followers. Regularly updated through its channel, KEOMAG, it allows every KEO follower to keep abreast of the development of KEO around the world.

We wish that every teacher in the world makes the KEO project his or her own; to adopt and adapt as they see fit.

We hope that the description of the project that follows is instrumental in inspiring you to use KEO as an exceptional, profound yet simple tool with your students.

Furthermore, we hope that the explanations and reflections developed by you during lessons, will be an encouraging invitation for your students to contribute their thoughts.

Thank you for your active contribution in developing KEO, elected “ Project of the 21 century” by UNESCO.

Jean-Marc Philippe
Creator of KEO.

II – KEO

1. INTENTIONS

The KEO project aims at:

- ◆ **Offering every person on Earth with the same space of liberty so that he can write his message;**
- ◆ **Making each person express his life, his thoughts and his hopes through the medium of dreams and mystique;**
- ◆ **Collecting all the written messages and presenting them as a collective work of art, representative of the human community of the 21st century;**
- ◆ **Making every message anonymous and sharing it amongst ourselves so that we can build a world that is more human.**

**KEO has been elected as
“Project of the 21st century” by UNESCO**

2. PROJECT DESCRIPTION

Scheduled to be launched into space in 2013/14, KEO will return to Earth in 50,000 years to hand over to our faraway descendants all the messages that each person on Earth wishes to transmit to the future generations.

The KEO project is an invitation to every person on Earth to write his personal text, a message, a poem...of a maximum of 4 A4 sized pages (or 6,000 characters) addressed to our faraway descendants.

All the texts that shall be received – by Internet or by post - without undergoing any censorship, will be stocked aboard the satellite KEO that shall put into orbit in 2013/14. The satellite is constructed in such a way that it shall return, intact, to Earth after 50,000 years.

After their return to Earth in 50,000 years, all our messages will constitute a formidable archeological gift for our future descendants that will enable them to have access to precious information concerning their ancestors at the start of the third millenium.

However, after KEO's launching in 2013/14, all the messages will be made anonymous (a copy of which will be preserved on Earth) and available on the Internet site to be shared with everyone.

Thus it shall be possible for each of us, right from the time KEO is launched to have access to an unedited image of humanity as it exists today, to know more about the other person by being more aware of our thoughts, our revolts, our reflections, our secrets, our hopes, our experiences...to know more about the slum children, the African animist, the wise old man in Japan, the Nobel prize winner in economics, the European manager...

Language analysis conducted using this fresco of messages, will provide us with a new perspective of our species and our aspirations. The analysis will be offered to schools, universities, international organizations and shall be made freely accessible to all on the Internet.

Thus, archeological bird, addressed to our faraway descendants, KEO is a splendid gift even for the people of today because it aims at establishing an individual, collective and universal reflection that wishes to reply to the question: " who are we? ", "what do we wish for?" and "how can we together mould a common harmonious destiny and a more human world for ourselves?".

The KEO foundation will be created the same day as KEO will be launched so that our collective reflections continue to live.

3 – THE BIRTH OF THE IDEA

KEO is the reaction of a European artist and scientist, Jean-Marc Philippe. It is his response to the contemporary world.

In one of his recent conferences, he elucidates that:

“We live in a world today that is dominated by contradictions; at times splendid and at times dismal: splendid and marvelous some days because of the twinkling stars, the beauty of the Earth and the nature, the progress of our knowledge, skills and technology and our capacity to love and give.....dismal and sad some days because of the wars, the murders, the pollution, the disparity between the rich and the poor, the disparity in the levels of our knowledge, presence of absolute political rule...”.

“...We live today in a world where, in the developed countries people are submerged under the stress of information and work and in the under developed countries by the problems of securing their daily existence and source of livelihood. In both cases, the people hardly have any time to devote to reflecting on our collective and immediate destiny and on its anticipated management..”

“ ...Thus KEO, through its proposed invitation to write a message that will survive a long duration of 50,000 years is a pretext to encourage each person to take a moment to enrich his emotional and exceptional reflection by identifying himself as a representative of the human species. And through this dream of sending a message into space for a long odyssey, to better identify his expectations and his dreams, his revolts and his aspirations, his ultimate secrets...the various bonds that define the expectations of the human community ...”.

4- THE CHOICE TO RETURN TO EARTH IN 50,000 YEARS

After having validated the technical feasibility of KEO, the duration to return to Earth in 50,000 years has been selected:

Firstly, to distance ourselves from daily problems, to allow us to think differently, to question ourselves in another way, to accept new values...to better define our expectations and profound aspirations;

To appeal differently to our personal reflection, so that in each person’s heart intuition, imagination, conscience and intimate conviction goes beyond the realms of reason.

To put each person, small, powerful, rich or poor on an equal footing by offering him 4 pages of freedom that shall return in 50,000 years;

To also put our species into perspective with the line of evolution, by reminding ourselves that some 50,000 years ago art appeared in the Australian caves, an evidence of our species’ cerebral capacity to access symbolic abstraction.

(knowledge about our scientific origin confirms that the human species appeared on Earth some 4.5 to 5 million years ago, that the first tools were fabricated some 2.5 million years ago, that man domesticated fire about 500,000 years back, that the sculptures appeared some 100,000 years ago - a true indication of the emergence of metaphysical thoughts - and that man expressed his artistic abilities some 50,000 years ago).

5 - WHAT DOES EACH INDIVIDUAL MESSAGE SYMBOLIZE?

Due to the space-time duration of 50,000 years that KEO invites us to confront, we are inspired to widen our personal, cultural and traditional perspectives. KEO makes us question our emotions and our misty interpellations with respect to how our descendants will perceive our messages.

By writing his message to KEO, every individual shall not only be in the position to freely speak ABOUT himself, but also be simultaneously in the position to review himself in a new light.

Our faraway descendants shall also stand back and review our thoughts. We have a certain responsibility towards these descendants because our current and collective behavior shall determine “how they will be” in 50,000 years! (will we change on the genetic front and what consequences shall that have on them? What kind of environment shall we hand down to them?...).

Moreover, the reference of these essential questions, always related to an unusual interpellation across the time and the biological and genetic adventure of our species, corresponds to life in general and to the different ways of thinking residing in the human conscience: meaning of life, meaning of your life, meaning of death, meaning of the individual and collective responsibilities, meaning of the family, meaning of the human family, meaning of the species’ responsibility towards himself, meaning of the species’ responsibility towards other species...meaning of the species’ responsibility towards his own mother planet.

These last questions are the most intriguing because although the human species represents only 0.4% of the animal biomass on Earth, it is responsible for our history thanks to its scientific, technical and organizational competencies. It is the guarantor and manager not only of the quality of its individual and collective development, but also of the future of the planet, especially that which concerns the maintenance of the physico-chemical conditions that reign on the surface and permit the evolution of life.

6 - SYMBOLS THAT ADORN KEO

In order to lead each person towards a sensitive and favorable reflection, KEO, an object of art and a marvel of today's technology, is constituted by various symbols that together form its essence:

- **KEO, a universally pronounceable name**

The name KEO is the result of three successive phonemes that are the most utilized in the hundred most widely spoken languages on Earth. The name KEO is thus pronounceable by all human vocal cords and is a bond between mankind. It makes no reference to any particular culture or mythology and retains its neutrality and universality.

- **KEO, a design in the form of a bird**

Different from other satellites that have a military, scientific or commercial objective, KEO is a styled bird flanked by two huge wings: it thus takes its place in the mythology and the symbolism of grand mythical birds.

- **KEO, a satellite with animated wings**

Although "passive" KEO shall have its wings that flutter during the first couple of years of its life. Fabricated by shape memory alloys, the wings spread out and close in rhythm to its passage under the sunrays and the Earth's shadow. KEO shall be visible by powerful telescopes making it possible for us to photograph it while it flutters its wings as it glides through space. These images can be offered to the televisions across the world to remind each one that the core of the "Archeological Bird of the Future" contains the memories of the human community existing at the start of the third millenium.

- **KEO, a satellite that announces its return to Earth**

50,000 years from now (approximately 10 to 15%) some two minutes before its landing, KEO will return to Earth signaling its arrival to our descendants by creating a great panache of luminosity, similar to the northern lights.

Under the effect of the heat and combustion of its thermal shields as it travels across the dense layers of the atmosphere, KEO will let loose a strong ionization associated with the emission of fine reflecting particles that originate from this bright signal.

KEO, is a satellite that is the carrier of archeological gifts destined for our future descendants.

A string of symbolic presents destined for our future descendants will lead them to the final ultimate gift “the Fresco of all our messages”.

● **“Earth 2000”**

In order to immediately let its discoverers be aware of the precious nature of its contents, KEO will emerge free from its protective shields- anti-oxygen atomic, anti-cosmic radiation, anti-spatial debris and anti-meteoritic shields that protect it during its journey through the dense layers of the atmosphere- in the form of a sphere of about 45 cm in diameter, engraved with a representation of the Earth in its actual state: contours of the land and the seas, populated regions, barren lands, location of the metropolitan cities...

10,000 years ago, the Sahara was fertile, as depicted in the rupestrian paintings. The geo-physicians predict that in 50,000 years the sea level of the Mediterranean Sea will rise such that it shall overflow into the Atlantic Ocean. They also predict that the glacial period will reappear on Earth, forming glaciers that shall stretch until the south of Europe and that make the Sahara fertile once again.

● **“The Mosaic of faces”**

After further investigating into the archeological gifts destined for them, our future descendants will find hidden in the core of the satellite a glass plate engraved with portraits of the men, women and children of today. They shall represent the diversity of the existing ethnic groups that would have blended with the interbreeding. Can our genetic manipulations influence our appearances?

● **“The diamond with 4 inclusions”**

Furthermore, our great grandchildren will discover a diamond containing 4 inclusions. The first will enclose a drop of water from our oceans, the second will envelope a pinch of fertile soil while the third will encompass a small volume of our atmospheric air - vital elements of our planet. The fourth small sphere will contain a the double helix DNA, a representation of our life on Earth.

● **“The astronomical clock”**

The position of the planets of the solar system on the precise date of KEO’s launch will be furnished to our descendants in order to permit them to calculate the satellite’s date of departure, keeping in mind that the same planetary configuration is repeated every 250 million years.

● **“The contemporary Library of Alexandria”**

In keeping with the ancient Library of Alexandria, our descendants will find engraved on glass disks that are resistant to cosmic radiation, a true picture of our planet as it exists on the date of KEO’s launch: the level of our development and our knowledge, the description of the current geopolitical world, images of the art across the milleniums...all this wealth of information in the form of sounds, images and writings.

● **“The Fresco of all our messages”**

Without undergoing any censorship, all the messages sent by every man, woman and child at the start of the third millenium, shall be digitized on perennial glass disks and offered to our faraway descendants. This shall be our ultimate gift to them as it shall contain personal information about each one of us.

● **“The decoding guides”**

In the form of some 100 designs and diagrams engraved on glass disks, our descendants shall find guidelines that will enable them to decode our messages and understand their meaning.

7- 2013/14: “THE BIG CEREMONY” OF SHARING OUR MESSAGES

Once KEO is launched into orbit all our messages, after being made anonymous and a copy being preserved on Earth, will be made freely accessible to all over the Internet (under certain protocols, not yet defined, in order to avoid any kind of non ethical utilization).

Like the thumb impression, every human experience is unique. In this sense, every message, irrespective of its contents, may it be an expression of one’s hopes, a tale of one’s daily life, or then a melodious poetry, shall be precious.

What will each person “do” with his four pages of liberty, that allow him to leave his imprint on today’s world?
What important things do you have to transmit to our future generations?
Do you wish to hand down your present for posterity?

Through this invitation, each person can question the words of another by consulting the messages published on the KEO website. Thus, for the first time in history, each person can take a peek into the thoughts of another and can hear what usually goes unheard.

Becoming aware of and sharing each others thoughts, doubts, preoccupation and expectations, could give birth to the new desire of knowing more about our neighbor, of breaking the ice and learning more about him. It could also lead to a collective reflection on our future and our responsibilities towards tomorrows’ generations.

As our descendants will learn about our messages with great curiosity (will they discover their roots?), in 2007/08, we too can analyze the messages received from around the world thanks to the tools and methods of automatic language processing.

Cartography of the meaning and the contents of the messages will be developed by continent, by language, by gender, by age, by culture and by nationality also.

These analyses will be circulated free of cost at an international scale through media houses, schools, universities and governmental and non-governmental organizations. They will reveal an unedited and global image of the human community at the start of the 21st century. It shall help us to reply better to the question “who are we?” and “how can we together build a world that is more humane?”

8 - CREATING THE KEO FOUNDATION

Once KEO is launched into space, the KEO Foundation shall be created, whose objective will be to continue to enrich the élan of collective and individual reflection sowed by the corpus of all our messages that constitute the “KEO effect”.

The KEO Foundation will be committed to undertake concrete actions destined to create awareness of this new collective conscience that recognizes right from today its responsibility towards the human species on this planet with respect to the future generations. This conscience sometimes equals the forces of nature and can reorient its collective destiny.

9 - IMPLEMENTING THE KEO PROJECT

KEO: a project that is being mainly realized thanks to the competencies and skilled offered free of cost.

In order to respect the universal values that are the essence of KEO and to allow every person belonging to the human community to participate in its adventure, KEO is being realized free from any commercial, religious or political influence.

KEO is until today being developed by the competencies and expertise offered by the people and/or the enterprise that benevolently contribute to KEO's success from the core of their business. Thus, KEO can be symbolized as “ a gift from the people of today to those of tomorrow”.

KEO can retain its transparent nature because it is being realized free from any financial gains and thus can avoid any criticism regarding better utilization of funds for humanitarian purposes.

Only the project team and the communication supports require financial resources.

Several forms of competencies are required for the realization of KEO:

- **Technical competencies: spatial technologies.**
- **Communicational competencies.**
- **Competencies for linguistic analyses.**
- **Juridical and administrative competencies.**

III- PEDAGOGIC IDEAS AROUND KEO

Taking ideas from the factual description of KEO, the teacher can organize his course and can spend more time on certain aspects of KEO by providing more details on them.

This chapter deals with the cultural, scientific, technical, artistic and rational aspects of KEO.

1- WHAT WILL KEO CARRY AND WHY?

The symbols carried by KEO have been chosen such that they can be universally received by all persons belonging to the human community that exists both today and tomorrow.

The first gifts carried by KEO shall be easily understandable by a mere glance (glass disks engraved with the mosaic of faces, diamond with four inclusions...).

Besides their personal significance, these gifts play a complementary role of making our descendants understand the other archeological gifts present in KEO's core such as the enigmatic glass disks which are carriers of symbols and/or elements of information.

Moreover, if KEO's body- the satellite and its protective shields- provides proof of the level of technology achieved today (know-how to construct such a marvelous piece of art that can survive a journey of 50,000 years in space) the core of KEO, laden with precious gifts, translates the special characteristics unique to our species: the specificity to have conquered and initiated knowledge, the development of know-how, the demonstration of our aptitude to reflect and to exhibit the level of knowledge achieved.

2- WHY “EARTH 2000”?

After having alerted our descendants about the imminent return of KEO to Earth by a splendid luminous phenomenon in the sky, the most easy and direct way to inform them that KEO, this ‘object that falls from the sky’, comes from their ancestors, is by showing them right from the start, an image of their planet, in the form of a terrestrial globe designed with its continents as we know them.

From looking at these contours and indications that show the deserts, fertile lands and glaciers, our descendants can immediately have an idea of the climatic conditions that exist today.

• Examples of associated pedagogic ideas: What are 50,000 years?

The Earth: an evolutionary planet

- **The genesis of its geological evolution across 5 billion years**
 - The turbulent birth of the Earth's crust;
 - The formation of landscapes, local landscapes;
 - The proof exhibited by rocks.

- **The history of the appearance and the evolution of life on Earth since the past 3.8 billion years**
 - Origin of life (brought about by comets?), the "primeval soup" and the hydrothermal springs of the underwater submarines;
 - Origin of the species;
 - The impact of the climatic variations and of the inversion of the terrestrial magnetic field on the living species.

- **The genesis of the adventure of the human species across 5 billion years**
 - Man in search of his ancestors;
 - From Homo Erectus to Homo Sapiens Sapiens;
 - Migration, expansion and decline of populations;
 - The "success" of the current demography.

- **The recent exponential acceleration of our knowledge and know-how**
 - The scientific method, the industrial era: their global impact;
 - A species sharing an equal footing with the forces of nature (atomic engineering and genetic engineering);
 - New responsibilities of the human species:
 - .coexistence among species,
 - .the ecosystems (of associated flora and fauna).
 - Is Man for or against nature?
 - Is Man for or against himself ? (the only species which can destroy itself)

- **The earth as a part of the universe (cosmology, cosmogony)**

Links: *astronomy, cosmogony, cosmology, geology, geography, demography, history, geopolitics, history of sciences and techniques...*

3 – WHY THE “MOSAIC OF FACES”?

Currently on our Earth, some people still live in the Stone Ages while some live in technologically developed societies.

Currently 4 to 5 thousand different languages are spoken across the world, with about twenty of them disappearing forever each year.

Currently several ethnic groups disappear from the face of the earth, succumbing to the diseases and the introduction of foreign cultures that are different from their own.

Currently due to work, war and tourism, journeys and human migration have statistically increased. This has resulted in a distinct growth of interbreeding among the different population.

This is the reason why KEO will carry with it a glass disk engraved with a kaleidoscope of human faces to exhibit the wealth of the ethnic groups present on the Earth at the start of the 21st century. Will people belonging to the “pure” black or white race exist later on...? Will we develop new distinct characteristics?

● Examples of associated pedagogic ideas:

What is a species?

- **From the anthropomorphous to the man:**
 - The animal intelligence, instinctive and/or developed;
 - The animal societies: organization, hierarchy and solidarity;
 - Animal and human behavior.

- **History of man**
 - The dawn of the modern humanity, Paleolithic art;
 - Cultures and values of ancient civilizations: What is a culture?
 - History of how the world was discovered by the West;
 - Destruction (culture and health) of the native and primitive tribes (Aboriginal, Indians, Pygmies,...) by ‘civilization’;
 - The major religions: common points and divergences, comparative analysis;
 - The great utopias and ideologies: the ideal city, the religious societies, socialism, communism, fundamentalism, sects;
 - Cultures of the 21st century.

Who is man?

- **The human body**
 - A highly adaptable organism, its different organs and their functions;
 - Diets, ways of life and health;
 - Chromosomes, genes and DNA;
 - Perspective of the predictive medicine.

- **The mind and the thoughts**
 - The malleability of the development of the human brain
 - The mental mechanisms to learn, the adaptability of our brain. The role (critical) of the first few years of learning;
 - The human intelligence;
 - The cognitive thoughts;
 - The perspective of the evolution of the human brain.

- **The ethnic diversity of the 21st century**
 - The irreversible historic reduction of the ethnic groups present on Earth;
 - Interbreeding: acceleration due to modernism;
 - The different ways of life;
 - The cohabitation of differences: intransigence or enriching?
 - The example of the Reunion Island.

- **The differences in the levels of life**
 - The question of sharing our wealth- the water, the undernourishment in the world;
 - The question of the rights for education.

Links: the body, meaning, image of the body/image of oneself, the position of the body with respect to the different cultures, seduction, representation, communication, language, images and texts, art, paintings, bodily expressions...

4 - WHY THE “DIAMOND WITH FOUR INCLUSIONS”?

Offering a gift to someone is a sign of esteem, love and openness towards them. Its preciousness enhances its value and this value translates into the esteem that we have for the person to whom we offer it.

This gesture of “offering a gift to another” and its paroxysm of being an “offering” is inherent in the human species. It is thus present in all human societies to mark the human rapport that we share.

And so how can we not offer a diamond, the most precious of all gifts, to our faraway descendants whom we love and respect so much? And how can we not let them know that more precious than the diamond itself, are the four small golden spheres embedded with chemical elements that make life possible on Earth: water, air, fertile soil? ...And how can we refrain from enclosing a drop of human blood, our common genetic signature...?

• Examples of associated pedagogic ideas:

- **Gifts offered in different human societies: their role and function**

- Their symbolism;
- From a ‘small’ present to a valuable gift.

- **Water: the Earth, the blue planet, covered with liquid water**

- The cycle of water;
- Water, a source of life, cartography;
- The terrestrial biomass function according to climate and hydrography;
- The relation of man with water, cultures and traditions, symbols and myths;
- The collecting and domestication of water by man, ways of exploiting the water resources;
- Agriculture, urbanization and pollution, medium and long term consequences;
- Water, its stake in the 21st century;
 - . Shortage in abundance?
 - . Main critical zones where conflicts could arise (Middle East, Asia, Africa);
 - . What solutions?

- **Air**

- Air, essential element of the biosphere: its composition;
- Danger in the lungs of the Earth, the depletion of the ozone layer;
 - . The negative tribal habits,
 - . Industrial deforestation.
- Industrial development and pollution;
- Growing urbanization and pollution;
- The Man, sorcerer's apprentice: the state of the noosphere, impact on vegetation and the human health;
- The challenges to be faced;
 - . Individual and collective behavior,
 - . From the Congress at Rio to the Conference in Tokyo.
- How should we save the planet and make its inhabitants more responsible?
 - . The Earth’s Charter,
 - . The political responsibilities of the nations, the role of NGO’s and international organizations (UNESCO and the UNO).

- **Fertile soil**

- A nourishing and fertile environment, geographic division;
- A delicate and thin film, intensive cultures, soil exhaustion;
- Temperate climates;
- Extension of deserts;
- The diversity of food resources in the world;
- Relation between local geography, climate, food and lifestyles of the populations;
- Advantages and disadvantages of globalization.

- **Human blood**

- A genetic signature that is identical for every human being irrespective of his race;
- An “internal vital sea”, the bridge to exchange and transfer information.

Links: physics, biology, medicine, health, environment, the elements, the morals (responsibilities towards others and towards nature), demography, division of natural wealth, consumption, history, the commercial world...

5- WHY THE “SIDERAL CLOCK”?

In order to appreciate an object it is important to know its age and its origin (bones, utensils, works of art, texts...). KEO does not date back to the dark ages, but however belongs to the 21st century. We need to thus guide our descendants to appreciate this “time gap” through which KEO shall survive. Several ways of achieving this were at our disposal: to put a small radioactive material aboard KEO which will permit a dating due to the decline of its intensity, to indicate the rotation speed of the pulsar particles in the sky when we know that this speed declines linearly with the passage of time. These methods, no matter how precise and rigorous, would necessitate knowledge of complex technological tools.

But we have no idea whether our descendants shall have an advanced technological background or not.

Hence, the simplest solution has been adopted. This involves using astronomy to provide our descendants with the precise position of the different planets of the solar system on the day KEO is launched (some 4,000 years ago, the Egyptians already knew how to mark the position of the planets in the sky). Keeping in mind that the same planetary configuration is repeated only once every 250 million years, our descendants will be able to calculate KEO’s exact launch date with the help of the planetary positions at the time of KEO’s departure and arrival.

● Examples of associated pedagogic ideas:

- **Time:**
 - Earth’s age;
 - Time with respect to the evolution of man: what are 50,000 years?
 - Time with respect to life;
 - The measurement, from the clepsydra to our automatic quartz watches and to the atomic clock.

- **Universe**
 - Our solar system;
 - Sun: an ordinary star in the universe;
 - Its planetary procession (what is a planetary configuration?);
 - Our galaxy: the Milky Way;
 - Position of our star, the Sun;
 - Beyond the Milky Way: history of the universe from its birth till today:
 - . related across the knowledge of scientific origin,
 - . related in the tales and legends of the different cultures, both past and present (the place accorded to the sun).
 - Man’s place in the universe;
 - The conquest of space: the moon, Mars and next?

- **Space, time and the cosmos**
 - The historic evolution of astronomy: from its optical description to its physical description;
 - The role of science in our current vision of the world: the scientific method and the knowledge that it induces.
 - .../...

Links: time and its measurement, space, origins of the universe, origins of life, history of religions, myths, eternity and its representations, astronomy, astrophysics, geophysics...

6- WHY THE “CONTEMPORARY LIBRARY OF ALEXANDRIA”?

The fine tuning and the sophistication of knowledge, know-how, laws, commercial rules of different human societies as well as their degree of wealth are precious indicators of the human competencies and evolution. Moreover, customs and ways of life are other symbolic indicators that represent the human essence.

Therefore KEO wishes to create an awareness of the state of our knowledge and know how, of our daily practices and of our lifestyles that are unique to the different human groups.

● Examples of associated pedagogic reflections :

● The human species:

- 5 million years: appearance of the species,
- 2.5 million years: fabrication of the first tool,
- 500,000 years: man tames fire,
- 100,000 years: the first sepultures,
- 50,000 years: appearance of art,
- 30,000 years: fine tuning of the tool,
- 10,000 years: agricultural practices and rearing activities,
- 3,000 years: invention of numbers and writing,
- 2,500 years: fabrication of the first metallic alloys,
- 2,000 years: conception of philosophy,
- ... /...
- + 1450: invents printing,
- + 1550: discovers the solar system,
- + 1700: constitutes the sciences,
- + 1870: undertakes industrial expansion,
- + 1880: invents electricity,
- + 1890: transmits sound at the speed of light,
- + 1940: domesticates nuclear energy,
- + 1950: transmits images at the speed of light,
- + 1960: conquers space,
- + 1980: develops a network of data processing,
- + 1990: manipulates the living,
- + 2000: deciphers the human genome.

● Writing

- Oral and written civilizations across history;
- Late transcriptions of oral traditions (the Bible, the Iliad and the Odyssey...);
- First writings: Sumerian ideograms, Egyptian and Hittite hieroglyphics, cuneiform writings, syllabic writings, appearance of linear and consonant alphabets, creation of vowels;
- Evolution of memory supports, their durability (from clay to KEO's glass disks);
- 25 alphabets currently used in the world;
- 4 to 6,000 different languages are spoken today; around twenty disappear each year.

Links: history, geography, development of techniques, sciences, biology, literature, philosophy, history of religions...

7- WHY THE “FRESCO OF OUR INDIVIDUAL MESSAGES”?

To invite each person to take a moment off to ponder...like a long walk across his thoughts...Who are we? What are the life styles, the hopes, the fears and the dreams of our brothers and sisters?

What would each man, woman and child wish to transmit to out future descendants? Which words will they choose to express their lives? Will we hand down our dreams, our daily preoccupations, our faults, our sentiments, our revolts, our expectations, our thoughts and our spontaneous reactions to our faraway great grandchildren?

Enough representative elements, enough revealing secrets and enough individual ideas have been confided in KEO by people from across the world to create a world that is more human, where each person can know the other, discover one another and learn about his neighbor.

Till date, messages from over 200 countries have been received by KEO. These messages are not yet sufficient to give us a complete global vision of out human community. That is why **YOUR MESSAGE IS IMPORTANT** because it will contribute to the general vision of the men, women and children that live on our planet today. During the statistical analyses, KEO shall attribute an equal significance to each message irrespective of its origin, be it written by someone small, powerful, weak, rich, wise or illiterate.

Steps: to invite the students to write their personal message (this exercise should not be graded and the student should be left free to express himself). The text can be edited on the message form available on the website www.keo.org under the channel “Your Message” or handwritten on the message forms provided at the end of this book. These can be photocopied for every child, letting him know that he has 4 A4 sized pages or 6,000 characters at his disposal. The messages should be sent to Programme KEO, 15 rue de l’Ecole de Médecine, 75006 Paris – France.

• Examples of associated pedagogic ideas:

- The writing (please refer below);
- The human willingness to conserve, the traces;
- Texts left behind by our ancestors: their rareness;
- What they teach us about themselves.

8- KEO AND THE INTERNET

KEO’s international principle communication tool is its website www.keo.org.

The first version of the site in 1999 was extensively appreciated and has won several prizes. The second version of the site has been online since September 2001. This version of the site is richer and more interactive without being subject to any commercial publicity thus respecting KEO’s ethics. KEO offers to all professors an original, aesthetic and easy to use multimedia tool that can be instrumental in encouraging the students to discover the Internet.

KEO’s goal which is to address a message that will fly through time and space to return to Earth after 50,000 years is an exceptional way to motivate and to kindle the curiosity of all students across the globe.

IV- EXPERIENCE OF A PROFESSOR

A CLASS PROJECT GUIDED BY AN EXPERT

Like several teachers around the world, Marie Sarif, Professor of Chemistry, at a high school in Canada, made her students participate in Programm KEO because of its different pedagogic aspects.

We were absolutely impressed with the collection of messages that she had systematically arranged, illustrated and presented to us. Here, she relates to us the fruits of her experiences, that she wishes to share with all the teachers from across the globe.

“ It was by a stroke of luck that I came to know about the KEO project that immediately fascinated me. It is a satellite sent into space to tell the world of tomorrow who are the people of today, to deliver to our faraway descendants a collection of the messages that their contemporaries wish to send them and a souvenir of our history, based on the model of the Library of Alexandria. Some may call this project insane! For me, this initiative represents the essence of humanity, the desire to share one’s acquired knowledge and the need to leave behind one’s trace on Planet Earth. And it is for these reasons that I decided to participate on this grand project with my students.

My name is Mary Zarif. I am a professor in Chemistry (since 7 years) at a secondary school (Secondary School Saint-Luc) at Montreal, Canada. Thanks to the KEO project about forty young students from 16 to 18 years of age were able to express themselves and to reflect and rediscover the differences and similarities of the human race. This group was thus able to contribute to the archeological gift by unveiling a little color of their life to our faraway descendants at the dawn of the third millennium.

Since the very beginning, KEO seemed just the project that I would have liked to share with my students. Therefore, I decided to use it as a pedagogic tool of reflection and expression, as an integration of the transversal knowledge of science, history and French. Moreover, KEO will be a source of motivation for the students. I therefore discussed this issue with the administration board of my school who financed my extracurricular activities. KEO represents an inexhaustible source of reflection, concentration and expression that I had to exploit.

KEO did not only turn out to be a text that the students had to write for their future generations, but it was an intellectual learning process that the students accomplished through different activities. I selected 3 activities to prepare my students for this reflection. First there was a visit to the Cosmodôme (Canadian space agency). The aim of this visit was to know about man’s conquest in space. Then we visited the paleontological museum of the McGill University (Redpath Museum). This pedagogic activity accentuated man’s past and the traces that have survived the evolution of time. Finally we completed our preparation by visiting an exhibition and by watching 2 movies at the Planetarium of Montreal. This aspect highlighted the future of the human race.

The students adored their participation in the KEO project. They learned a great deal from the diverse activities. But it was the texts that they had to write that presented the biggest challenge. What is important and what do we wish to share with our future unknown correspondents?

In the beginning the students found this idea rather eccentric...write a message for strangers to read after 50,000 years!

“We will not even be present to see if this idea works or not Madam!!!!” they said to me.

“Even if there is just one in a million chance for this crazy project to succeed, I don’t want to loose out on participating in it and thus being a part of History!” I replied to them.

Thereafter the pupils composed their messages and we sent them to France. There is an excitement in the air each time we talk about the KEO project. Moreover, the students wished that the collection of the texts form a part of the annual exhibition of our academic institution: “ Everybody should be made aware of this project so that a large number of people can participate in KEO”.

We had therefore put up a stand containing the collection of texts for KEO for more than 2 days. Now everybody at the Saint-Luc School knows about the project KEO. Some of the parents who visited the exhibition noted down the postal address of KEO so that their children too could participate in it.

I firmly believe that as a professor, we have to encourage the scientific curiosity amongst the children by making them participate in projects such as these. One should not live in the regret of not having reacted at the right time. One should always have the vision to go a long way. KEO has made this possible for me and my students.

PS: To all the professors and teachers on this planet, KEO represents a beautiful experience that you must share with your students. You will not see them the same way after that! And neither will they!”

Mary Sarif, Professor of Chemistry, Saint-Luc Secondary School, Montreal, Quebec.

V- KEO: FREQUENTLY ASKED QUESTIONS

- Why have you chosen the name KEO?
- Why have you chosen to send “this souvenir of humanity” in space rather than burying it under the earth?
- Why 50,000 years?
- What are the possible risks of collision with meteorites and debris?
- Can KEO’s safe and sound return to Earth in 50,000 years be guaranteed?
- Even if the satellite survives in space for 50,000 years, how would we know that our messages are intact?
- How would our future descendants be able to read our messages?
- Do we need to pay anything to participate in this project?
- When can we start sending in our messages?
- Can we write what we please?
- Can we also send drawings, photos, sounds ?
- What about those people who are illiterate?
- What about those people who do not have access to the Internet?
- In which language will the messages be preserved?
- Can we consult the contents of the messages?
- How is this project being financed?
- What energy resources will KEO utilize?
- Can we communicate with KEO during its flight?
- Why does KEO have wings?
- If KEO is a passive satellite, how can it flutter its wings?
- How will the information forming the “Contemporary Library of Alexandria” be chosen?

Jean-Marc Philippe, the creator of KEO replies to you:

• **Why have you chosen the name KEO?**

It was necessary that the name of the project reflected its spirit of sharing and exchange. This name had to be acceptable by all people irrespective of their age or culture. Since no such example of universality existed in our past or our local mythologies, one partner came up with the idea to research the sounds (phonemes) common to the most widely spoken languages today and to choose the ones that are used most frequently: [k], [e], and [o]...and hence was born KEO, a name that is pronounceable by all cultures.

• **Why have you chosen to send “this souvenir of humanity” into space rather than to bury it under the earth?**

Space appeals to the human imagination and KEO is addressed to the imagination of each person. Moreover, if we would have decided to bury this Fresco of Messages, we would have had to select a place, a country... whereas space belongs to everybody...or nobody.

KEO will certainly encounter dangers in space but will be immune to any catastrophe on Earth. In fact if any calamity was to occur, KEO would indeed play the role of a guardian of this “souvenir of humanity.”

• **Why 50,000 years?**

50,000 years is the mirror date to a milestone in the evolution of our species: the first traces of art reveal the human capacity for abstract thought and symbolic expression.

50,000 years is a distance in time so compelling that it forces us to shed our worries and daily routine and puts us each on an equal footing, inviting us to bask in our thoughts, intuitions and deepest convictions...

However 50,000 years only represent only 1% of the evolution of the human species that have appeared on Earth some 5 million years ago.

It is also the concept of time and distance that will give our treasures a genuine archeological value because it is very probable that definitive traces of the activities of the Man of today will be in turn rediscovered by the Man of tomorrow.

• **What are the possible risks of collision with meteorites and debris?**

The main risk for KEO is the possibility of a collision with micrometeorites or space debris of human origin. This is the reason why the core of KEO is protected by several layers of shields made from aluminum, titanium and tungsten that are separated by a vacuum.

Nevertheless, if the pollution of human origin in space continues to grow at its present level over the next fifty years (+5% per annum), KEO would have practically no chance of survival.

There is no doubt however, that restrictive measures will be taken to prevent this since space debris is not only endangering the operation of costly military, scientific and commercial satellites, but more importantly threatening the lives of astronauts in space shuttles and stations. Thus, the big spatial groups like the NASA or the ESA are already developing programs to “clean” this debris. This is the reason why we consider this risk as non significant.

• **Can KEO’s safe and sound return to Earth in 50,000 years be guaranteed?**

A technical feasibility study carried out during the years 1996-1997 concluded that KEO’s safe and sound return to Earth in 50,000 years was possible. This means that KEO has reasonable chances of attaining its objective of an interplanetary mission being launched today. For this, KEO takes advantage of our present day capabilities in precision design, technological mastery of capsule re-entry and uses materials that have demonstrated their durability in nature (eg. titanium, tungsten).

(For more information, you could refer to the site, www.keo.org and download 3 pages in English that talk about the technical feasibility of the project at the 48th International Astronautical Congress, Turin, October 1997.)

- **Even if the satellite survives in space for 50,000 years, how would we know that our messages are intact?**

In July 1998, the National Grand Accelerator of Heavy Ions (GANIL) conducted an experiment whereby glass disks on which our messages will be engraved were exposed to intensive radiation. The experiment showed that the disks and their data remained intact even after they were exposed to an equivalent amount of cosmic radiation that they will undergo in 50,000 years.

- **How would our future descendants be able to read our messages?**

It is evident that what is a “must” in our technology today -a laser reader- will be absolutely obsolete in the future. However, due to its volume and innate fragility, a DVD disk reader cannot be included in KEO’s payload. Therefore we are currently working on creating diagrams bearing simple symbolic explanations to construct a DVD disk reader in order to make it possible for our future descendants to access the contents of the disks. Following the example of the Rosetta Stone, this information will be repeatedly made available to them such that it is clear and easy to decode.

- **Do we need to pay anything to participate in this project?**

No. KEO is an operation that is open to everybody free of cost.

In order to make it possible for everybody to participate in this project, we have managed to restrict the cost of individual participation to the cost of an Internet connection or a postal stamp to send the message.

- **When can we start sending in our messages?**

You can send your message right now, either via Internet through our site www.keo.org by visiting the page titled “Your Message ”or by post to: Programme KEO BP 100 - 75262 Paris Cedex 02 FRANCE

- **Can we write what we please?**

Yes. All messages received by KEO will be sent aboard the satellite without undergoing any censorship.

It is upon each individual to decide what he wishes to write in his message.

The only restrictions are the length of the messages that cannot exceed 6,000 characters or 4 A4 sized pages (so that each person has the right to contribute) and the obligation to fill the information asked so that our future descendants know who is the author of the message (name, sex, date of birth, nationality, country of residence, maternal language, address, profession, hobbies and how did you discover KEO).

- **Can we also send drawings, photos, sounds ?**

No, only written messages will be accepted. Drawings, photos and sound are heavy consumers of disk memory and would not permit each person living on this planet to express himself. Keeping in mind the physical constraints of the memory space, a certain form of restriction or censorship would have been necessary. This contradicts the spirit of the project that is collectively open to everybody. However since images and sound form an integral and important constituent of our times, they will be represented in the “Contemporary Library of Alexandria” , the encyclopedia of all the knowledge, habits and customs of the Man of the 21st century.

- **What about those people who are illiterate?**

KEO depends essentially on the human solidarity to receive messages from those people who are illiterate.

We are currently working with several international networks to publicize the project and to help in the collection of messages.

When a child hears about KEO at school, on television, in the library or at the dispensary, we hope that he talks about this to his parents or his grand parents. If anybody amongst them do not know how to write, don’t you think that this child would pen down their oral message?

• **What about those people who do not have access to the Internet?**

If you do not have your own Internet connection you may try and find it in the neighborhood-at a friend's place, at a cyber cafe, at the library, at school or at the city hall. Or you may address your message by regular post at: : Programme KEO BP 100 - 75262 Paris Cedex 02 FRANCE.

• **In which language will the messages be preserved?**

The messages will be stored in the author's original language, the language that he has chosen to express himself.

• **Can we consult the content of the messages?**

Yes, all the messages, after being made anonymous, will be made available for consultation. We ourselves are looking for a wide coverage and readership of the messages. We believe that without a real exchange of messages between us, KEO will never be able to completely attain its goal.

In fact even though KEO constitutes a formidable gift for the future generations, its real interest lies in the impact it will have on us today.

Slowly and gradually as the messages arrive they will be stocked in secured databases which will be made accessible via the Internet after the launch of KEO in 2013/14. Each person can thus inquire about the human community that exists in Africa, America, Australia, Asia and Europe...

• **How is this project being financed?**

KEO is a non-profit undertaking which is being realized solely through the benevolent contributions of several professionals, individuals, enterprises and institutes who pool in their knowledge free of any charge.

Thus, Programme KEO being an ethically transparent organization can avoid all criticism regarding better usage of resources for other objectives such as humanitarian goals.

Only the Project Co-ordination Team of Programme KEO that works full time to manage the different activities and participants has to find ways of financing its daily operations.

• **What energy resources will KEO utilize?**

KEO does not have its own energy. It is a passive satellite which means that it does not contain any energy sources or active instrumentation on board. Once injected into the orbit, it is only subject to the laws of nature (ballistic forces, terrestrial, lunar and planetary attraction, pressure from solar radiation and breaking due to the Earth's residual atmosphere), that will be responsible for its long journey of 50,000 years before it returns to its native soil.

• **Can we communicate with KEO during its flight?**

No, because KEO is a passive satellite that cannot be contacted once it is launched into its orbit. Since it will be orbiting around 1,800 kilometers above the Earth it will be possible to view its flight with the help of powerful optic telescopes. On the other hand to survive 50,000 years KEO has to be made up of stable materials alone: interactive materials like batteries which would have permitted us to communicate with it, would have in return endangered its life due to their unpredictable decomposition.

• **Why does KEO have wings?**

Purely for symbolic reasons KEO is adorned with two big wings. This image will appeal to the human imagination as the mythical figure of a bird that is the messenger of the people of the 21st century.

- **If KEO is a passive satellite, how can it flutter its wings?**

To allow its wings to flutter, KEO uses a leading-edge technology “ shape memory alloys”. These are metallic alloys that are able to assume different shapes according to different temperature ranges and are able to revert to their original shapes each time they are brought back under their original temperature.

In this case, the difference in temperature between shadow and sunlight is exploited, so that during its orbit around Earth, KEO will spread its wings when it is touched by the sun’s rays and fold them when it re-enters the Earth’s shadow. Therefore, no form of energy is needed to make KEO’s wings function.

- **How will the information forming the “Contemporary Library of Alexandria” be chosen?**

A multicultural, multidisciplinary and multidimensional « Committee of Learned People » has been assigned with the responsibility to classify all the information, both geopolitical and cultural (translating our habits and customs) of the people of the 21st century for the benefit of our future descendants.

VI- MODEL OF THE FORM NEEDED TO SEND YOUR MESSAGE TO KEO BY POST

◆ You have from 1 line to 4 A4 sized pages (6,000 characters) to express all that you wish to transmit about yourself to your future descendants: your name, your age, your way of living, your daily life, your dreams, your revolts, your hopes, your aspirations and why not how you think you can reinvent the world of today.

◆ KEO is an operation in which you can participate free of cost. It guarantees the liberty of expression and confidentiality. All the messages received, without undergoing any censorship, shall be stocked aboard KEO. The closing date to receive the messages will be announced through the press and on the KEO site, www.keo.org.

◆ Once KEO is launched into space, all the messages shall be made anonymous. Each person shall have access to the messages (under certain protocols) on KEO's site. By sharing each others' messages, a true mirror reflection of our interrogations and values, KEO wishes to evoke an élan amongst the human community and to contribute to the reflections that could lead to creating a world that is more human.

Send your message to KEO by post at :
Programme KEO
BP 100 - 75262 Paris Cedex 06 – France

So that our descendants can know us better, please do not forget to mention:

- . **Date of birth** : □□ /□□/□□□□ (day/month/year in 4 figures)
- . **Nationality** :
- . **Country of residence** :
- . **Country from which the message has been sent** :
- . **Maternal language** :
- . **Language in which the message is written** :
- . **Sex** : Feminine Masculine

- . Name (optional):
- . Surname (optional):
- . Address (optional):
- . Profession (optional):
- . Hobbies (optional):

This form is to be photocopied and given along with 4 A4 pages to all students who wish to send their message to KEO by post

All the messages received by KEO will be made anonymous and will be freely published and/or consulted.

You can also leave your message by the Internet on our website www.keo.org

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