

Appendix D: Core Components of a Planetary Sustainable Ecology

<p>→ Energy</p>	<p>There is a gradual but fast transition to renewable energies from fossil energies. This must be made in a balanced manner in order to achieve sustainability. Technology will play a key role in incrementally making the production of renewable energies more efficient. All human activity that requires energy will also bank on technology to increase efficiency exponentially at the end use side of the process. Yet the key factor in achieving sustainability will be the drastic reduction of energy consumption by society at all levels, as a direct result of a radical cultural change in our forms of social organisation and individual lifestyles. Regulating systems ensure that energy consumption does not fall into the Jevon's paradox.</p>
<p>→ Economy</p>	<p>The economy is anchored on systems of production designed to fulfil the demands of goods and services consumed by the frugal but dignified standards of living deemed by the communities to achieve sustainable ecological footprints. It is an economy of collaboration, sharing and redistribution. The core indicators to measure economic progress and development are the ecological footprint, human development and equality/inequality indices. Indicators such as GDP, GNP, income, inflation, exchange rates, etcetera, from the marketocratic paradigm, will no longer serve a purpose.</p>
<p>→ Currency:</p>	<p>Geocratia lacks a monetisation concept based on accumulation. Instead, it uses a concept developed by Andrea Surbone in his "Filopony", denominated as "Social Esteem Certificates" (SECs). Goods and services available in the market will be exchanged using these currency units. Instead of being based on competition for accumulation, the SECs are anchored on a culture of collaboration, making money a virtual form of exchange that makes financial markets, lending, debt and interests redundant. The SECs are used as units for the remuneration of work for the community. The SECs can be managed by a software application, have a fixed value and are personal, because they can only be used by the holder, and are ephemeral because they are cancelled once spent. The essence of the SECs is the representation of the social esteem awarded to a member for its contributions to the community. (Dunia Astrologo, Andrea Surbone, Pietro Terna: <i>Il Lavoro e il Valore all'epoca dei Robot</i>, Meltemi, 2019, Pp 111-113). Work is the main activity rewarded with SECs, but the entire spectrum of human labour/activity to be esteemed by the community has no limits as long as it is deemed to be a sustainable contribution to the sustainable enjoyment of life, be it strictly practical or philosophical.</p>
<p>→ Commons' contributions in lieu of taxes in a society of cooperation:</p>	<p>In line with Geocratia's intrinsic nature, of being a paradigm of cooperation to achieve a holistic sustainability, there should not be monetary taxes. People support the structures and institutions of society through societal contributions by means of the work they perform. Human labour is at the centre of the entire existence of humanity, without which, no economic system would exist. Capitalism is the result of labour organised in a specific manner. Likewise, labour in a system of cooperation is the contribution that we all make to provide us with all the material resources and services necessary for the functioning of society, be them streets roads, hospitals, schools, administrative offices... For example, if the community needs a new school, a hospital, a bridge, a field of solar panels, a dam, the cooperative enterprises that specialise in these projects (construction, cement, steel, wiring, plumbing, solar panels, equipment...) would take charge of the project, design the engineering and architectural plans and build the new resource. All workers involved are already earning a living and sustainable remuneration; the construction materials such as cement, stones, bricks and steel beams are provided by the co-op enterprises that do this work at no monetary cost to the community. This contribution is tantamount to paying a tax through all the human labour that is provided to complete the project at no monetary cost to the communities involved. In this way, all the human labour used to fulfil a real and sustainable need of the communities is provided by the communities themselves in the form of human labour and materials, making the need for taxes irrelevant and anachronic in a society of cooperation.</p>
<p>→ Degrowth and Steady State economies</p>	<p>Degrowth and Steady-State economies are complimentary. They are both part of the same idea to achieve a sustainable economic, social and ecological ethos through a safe and just transition. First, we need to drastically decrease our completely unsustainable ecological footprint. This would be stage one. But many decades later—perhaps more than half a century later if Mother Earth grants us the time—once we descend to the desired plateau that is scientifically deemed to be sustainable, we move into a SSE, namely a zero-growth economy. This would be stage two and the final one.</p>

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<p>→ Enterprise:</p>	<p>Enterprises are owned and operated by the community under the format of cooperatives but not by the state. Their purpose is to generate the people’s welfare in a sustainable manner. Consequently, the means of production are organised in enterprises that operate as cooperatives owned by communities at all levels, from local to national. They are democratically managed and are dedicated to the production of goods and services approved to operate with a sustainable footprint for their activity. Their market supply and demand is limited by the jointly-agreed (governments and communities) ecological footprint, by the sum of all the footprints, of everything that is produced together, locally and globally, and which must maintain a balance so that its sum does not exceed the sustainable threshold. For example, a household appliance can be in great demand, but it can only be gradually fulfilled because all production will have a maximum quota, which can be reviewed quarterly, biannually, yearly or by whatever time lapse determined by the communities. Transnational enterprise will be dismembered through a process of transition from marketocracy to Geocratia that will take decades. Private ownership of existing enterprises will also be gradually transferred to the communities.</p> <p>Not all work will take place in cooperatives or in the community’s government. Autonomous workers can work performing their own economic activity. This allows private ownership of small family enterprises, such as bakeries, restaurants, plumbing or carpentry services and farmers among many others. In this case all the family members own the means of production. If they need extra labour, they would need to set-up small cooperatives under the same principle of co-op ownership and joint decision making. Many other autonomous activities are allowed by consensus, such as those requiring a university degree: lawyers, accountants, physicians, therapists, architects or art professionals creating a variety of art forms (painting, sculpture, music, theatre, film, dance, and other performing arts, as well as literature, among others). The underlying regulating principle is the sustainable ecological footprint. Thus, all activities are subject to a maximum footprint for each individual, including that produced by his/her professional activity as well as by his/her consumption to live. Autonomous work can set a remuneration for the work performed; a painter can set a remuneration for a piece of art, but the total SECs that he or she will receive is commensurate with the ecological footprint allowed per person to be sustainable. This means that the highest amount of remuneration in SECs currency that an autonomous person can earn, cannot be higher than the maximum footprint allowed for the highest sustainable standard of living approved by the community.</p>
<p>→ Work and Labour Rights:</p>	<p>People are free to choose their work activity. Correspondingly, they enjoy equal opportunities by having full access to the education that will allow them to develop the capacities they choose according to the way they want to live and the material standard they desire, in the context of sustainability. It is a society of solidarity, cooperation, sharing and contribution for the benefit of all. It follows that there is no longer need for trade unions. People can work as members of a cooperative, work for the governing body of the community or become autonomous workers. If they choose the former, they enjoy equal right of participation and decision making for all relevant decisions that determine the long-term functioning of the cooperative. For the day to day operation, they are subject to performing their specific work responsibilities in accordance with the organisational structure and operational hierarchy designed and approved by all the community members. The remuneration in SECs currency units is determined and approved by all the co-op members for each specific position. With new technologies, artificial intelligence and an emphasis in more personal time in Geocratia, all co-op workers will be entitled to a maximum number of hours of work per week, that will be clearly less than today, around 32 hours or less per week. If they work for the governing body of the community, they are also entitled to the same rights and responsibilities as those members of cooperatives. If they are autonomous, they are free to organise their activity and the time spent working in their independent profession and time devoted to personal time. In the case of co-op and community workers, they are all entitled to remunerations in SECs currency units that guarantee the enjoyment of a dignified standard of living for them and their families. In all three cases, their remuneration is subject to a maximum limit deemed to be ecologically sustainable and takes into the account the SECs remunerations of all members of a household and the maximum per capita footprint allowed in a year. All co-op and community members are entitled to vacation, sick leave, maternity, sabbatical and any other entitlement approved by the community. As described in the human rights and well-being section, all members of the community are entitled to their right to universal healthcare, education, basic income, housing and a dignified retirement pension.</p>

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<p>→ Markets:</p>	<p>In Geocratia there is no capitalistic concept of supply and demand. The core indicator determining the size of markets is the per capita/ecological footprint, from the global to the small community perspectives. Some approved production/consumption processes in a community will surely exceed their sustainable per capita footprints but the real yardstick is the total footprint for the entire consumption activity of the local, national and global communities. This cannot be exceeded in order to sustain our life systems and protect the planetary boundaries. Correspondingly, the products and services offered must be determined by the goods and services that are approved to be part of the sustainable standard of living. People will have access to them based on their contribution to the tenets and measurable goals of Geocratia. Their contribution is measured on the time devoted to work for their communities. The maximum ceiling for the highest standard of living will likely be a frugal dwelling (house or apartment) with the number of spaces determined to be sustainable and inhabited by those who have met the contributions necessary to access them. Conversely, there will be people who aspire to more frugal spaces requiring smaller contributions. The products approved as having sustainable footprints would receive supply quotas, based on closely regulated demand for them, always anchored on their ecological footprints as part of the total combined footprint allowed for all the goods and services consumed by a community in a year. Planned obsolescence would be completely eliminated from any production process. Each community should have a predetermined maximum sustainable footprint based on a per capita footprint for the entire human population. All technologies are considered public goods and shared extensively. Trade within and between national communities is limited to what is absolutely necessary to fulfil real needs to enjoy their sustainable life systems. Communities will strive to be self-sufficient, particularly in food and energy, as much as possible. Goods that are genuinely necessary and have sustainable footprints but are impossible to produce in a community, will be requested from other communities that have a surplus or that can produce additional stocks when requested. The additional ecological footprint generated by the additional production is transferred (including all costs of transportation) to the footprint metric of the importing community. There is no fiduciary exchange. The supplying community will supply in the form of a collaboration. All communities support other communities and exchange goods and services when they are genuinely necessary and sustainable in the form of cooperation, in line with the Geocratia's societal ethos of solidarity, cooperation, sharing and contribution for the benefit of all.</p>
<p>→ Human Rights, Well-Being and Responsibilities:</p>	<p>The entire spectrum of economic, social and cultural rights are legally upheld within the predetermined standard deemed sustainable: access to universal healthcare and education, universal basic income, housing, a dignified retirement and everything necessary to enjoy a simple and dignified life. Conversely, everyone has an inherent responsibility to contribute to the well-being of the community in a sustainable manner, making their choice to use their skills and talents. It is a free choice. You can aspire to be a scientific person or a carpenter. You can choose a university education or just a basic one and learn a trade. It depends on your aspirations and ambitions in the context of sustainability. But the essential thing is that every individual will enjoy equal opportunities because everyone will have access to education and healthcare that will allow them to develop the skills they choose, not according to a marketocratic logic but according to the way you want to live according to any of the standards of living deemed sustainable and designed for everyone to collaboratively participate to achieve it. It is a society of solidarity, cooperation, sharing and contribution for the benefit of all. Conversely, individualism must be eradicated in Geocratia's cultural framework. For example, individual vehicles of motorised transportation must cease to be used as means of transportation for being the epitome of individualism (and producing very large footprints) and in lieu use mass and ecological forms of transportation.</p>
<p>→ Private Property:</p>	<p>Private property is a basic human right, which includes housing, clothing, furniture, books, food, bicycles (or other means of transportation for people living in rural or remote areas) and devices to facilitate life. Families have one dwelling as their place of residence. The place of dwelling constitutes the households' property as long as a family or individual user lives in it. If people own more than one property, they will have to gradually transfer it through a democratic process to the community. If homes have an unsustainable footprint, they would need to be retrofitted by the community to make them sustainable. If they cannot be made ecologically sustainable, they would need to be used for purposes other than dwelling or, if still unsustainable, be destroyed if their annual footprint is greater than the footprint produced by their demolition and recycling of materials. By default, there is no private ownership of the means of production.</p>

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<p>→ High Quality of Life Standards:</p>	<p>All decision-making and conceptual solutions must be anchored on the ecological footprint determined as the "sustainable footprint". This will determine the sustainable standards of living. They will have different degrees or layers that will depend on our freedom of choice and on our contributions, but whose maximum limit, the highest standard of living, for the person and the family remains frugal, dignified and sustainable, while the lowest level is also frugal, dignified and sustainable. Together, they all form the standards of living predetermined by society through a democratic process based on scientific research that guarantees that they do not exceed the sustainable ecological footprint. Therefore, everyone will enjoy sustainable housing and respect for their human dignity. The gap between the highest and lowest dignified standards of living should be not more than three times to drastically reduce inequality and achieve sustainability in our consumption of goods and services, securing sustainable ecological footprints. Our new lifestyles are bound by the sustainable footprint levels but they also provide ample freedom to chose how we live as long as we do not cross the predetermined sustainability boundaries. For instance, a community determines that each household may have—among other items—one TV set, one computer, one washer, one stove and one-week vacation trip by train per year. However, a household may decide to choose not having a washer and in lieu extending their annual vacation trip to two weeks, because the trade-off, measured in footprints, between the consumption of a washer in a year and the consumption of a household of four members in a two-week trip by train keeps their footprint within predetermined sustainability parameters.</p>
<p>→ A Culture of Frugality:</p>	<p>Within the parameters to attain the ecological sustainability of our footprints, living a culture of frugality is quintessential. This does not mean, however, that our new lifestyles will be dull and that there would be an undesirable trade-off between living ecologically and socially sustainably and living happy and enticing lives. Changing our culture by transforming our values system from Darwinian competition to sharing, collaboration and redistribution is inherent in the transformational and transitional process to build Geocratia. There is no other way to do it. But instead of preaching a change of moral principles to change our lifestyles, we can build systems that reward the embracing of new sustainable frugal habits and penalise the refusal to adopt new lifestyles. Social pressure exerted from the community would increase or decrease our social esteem depending on our contribution and our adoption of new habits for food, clothing, the use of appliances and materials for everyday life that reduce our footprint and increase the sustainability of our community. If we embrace new frugal lifestyles, we can receive bonuses in SECs that we can freely use in many ways creatively and that do not increase our per capita consumption footprint above sustainable thresholds. For instance, the annual remunerations of a household in SECs allows a family to live frugally in the lower end scale of the community's sustainable lifestyles, and its ecological footprint is significantly below the maximum allowed sustainability threshold. However, the family in question is used to a daily diet of red meat. If the household reduces red meat to twice a week, it would receive a bonus that would allow it to add additional sustainable items to its lifestyle that it currently lacks (a coffee brewing machine, or a laptop computer, or a bicycle, or a vacation...). The more that we embrace and adopt new lifestyles, the more social esteem rewards that we receive within our sustainability parameters to freely choose the traits and habits of our lifestyle. <i>In the area of lifestyle change, human behaviour responds to incentives, much more than to moral principles and reasons</i> (Ingrid Robeyns: Freedom and Responsibility - Sustainable Prosperity through a Capabilities Lens, The Jus Semper Global Alliance, March 2020).</p>
<p>→ Poverty:</p>	<p>The entire spectrum of human rights (civil, political, economic, social, cultural, ecological, cultural, gender, animal...) are upheld in a new, binding and a closely protected universal declaration of human rights. Poverty is gradually eradicated as Geocratia is implemented. This will materialise in a relatively short span of time, much sooner than the completion of the long process of consolidation of Geocratia and its Steady-State economy. Once the new Social Contract between humankind is sanctioned by national communities, the universal basic income would be one of the first entitlements to be implemented, making the eradication of poverty occurring much sooner than the rest of paradigm.</p>
<p>→ Population:</p>	<p>Procreation is a fundamental human right, but communities will democratically decide if they want to commit to decreasing their population, by how much, how fast or if they refuse to do it, which is also their prerogative. Drastically reducing our global footprint to sustainable levels is contingent on replacing our culture of consumerism and concurrently reducing our population in the shortest period of time possible. But it is imperative to do it gradually and by consensus instead of autocratically. Each community will know the amount of consumption footprint that needs to be reduced and the size of the population required to be sustainable. Thus, communities will know whether they need to reduce their population or not. Because Geocratia is anchored on a truly democratic ethos, they will be free to determine whether they want to reduce their population, by how much, how fast and through what policies, or not.</p>

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<p>→ Food and Land Use:</p>	<p>In Geocratia’s agribusiness as well as inhumane factory farms producing industrial amounts of animal products for human consumption are replaced by ecological agriculture and animal husbandry that restore soil fertility. A significant reduction in the human consumption of animal products is encouraged, for both health and environmental reasons. Animal products have a huge impact on the environment. A study published in Science Journal, based on 40.000 farms in 119 countries, found that more than 83% of farmland is used for livestock but it produces just 18% of food calories and 37% of protein. It also produces 58% of greenhouse gases, 57% of water pollution, 56% of air pollution and 33% of fresh water withdrawals. (J. Poore* and T. Nemecek: Reducing food’s environmental impacts through producers and consumers, Science 01 Jun 2018: Vol. 360, Issue 6392, pp. 987-992). The greatest finding is that we can stop being a predatory pest, and that is by changing our diets and abstaining from eating dairy products and meat. If we do it, we can reduce global farmland use—an area equivalent to the U.S, China, European Union and Australia combined—and still feed the world. According to the authors of the study, <i>A vegan diet is probably the single biggest way to reduce your impact on planet Earth, not just greenhouse gases, but global acidification, eutrophication, land use and water use. It is far bigger than cutting down on your flights or buying an electric car,</i>”. (Damian Carrington: Avoiding meat and dairy is ‘single biggest way’ to reduce your impact on Earth, The Guardian, 31 May 2018.</p>
<p>→ Transportation:</p>	<p>Except for bicycles, individual vehicles of transportation must be phased out except for people living in rural or remote areas where there are no public means of transportation. Mass transportation in cities and intra cities should be the main means of transportation to be used by society (metro, trains and busses). Air transportation is reduced to long distances, transcontinental and coast to coast, whilst trains cover shorter distances. Although electrical vehicles are by no means green, using electrical power for mass transportation is the most efficient and less dirty mode. Fossil fuels are phased out as the source of energy for both vehicles of mass transportation and smaller vehicles, such as cars, vans and motorcycles. The bicycle should be the main vehicle for transportation in the cities for short distances. Contrary to what is being promoted by capitalism, electrical vehicles for individual transportation have a huge ecological footprint that offsets the fact that they indeed do not produce CO2. So they are clean in that sense but are quite dirty in the sense of the entire industrial process to produce them, from raw materials to the manufacturing and the waste they leave at the end of their lifecycle. Michael Dawson ponders that there are a number of issues that would need to be considered for these vehicles to be regarded as truly green: <i>1. Sharply reduce both the overall amount of materials and the level of non-renewable materials presently going into the making and use of personal transportation machinery; 2. Sharply reduce both the overall amount of materials and the level of toxic materials coming out of the making and use of personal transportation machinery (such as batteries); 3. Sharply reduce the overall amount of energy required to make, use, and eventually trash personal transportation machinery; and 4. Score better in all of the above areas than alternative forms of personal transportation machinery would, if given the chance</i> (Michael Dawson: Electric Evasion, Counterpunch, 15 October 2010). It follows that alternative forms are walking, bicycling and the aforementioned mass transportation systems, which have much smaller footprints. Also, individual vehicles for personal transportation are incompatible with Geocratia’s cultural tenet of cooperation, sharing and collaboration. In the same way that growth is antithetical to sustainability, so is individualism, a core attribute of capitalism and its consumer society.</p>

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<p>→ Housing:</p>	<p>Housing in the current paradigm is completely unsustainable ecologically and socially, with one of the greatest degrees of inequality and exclusion, and is designed to expect unlimited supplies of energy and water. In Geocratia, housing needs to be completely re-conceptualised to provide levels of comfort efficiently and sustainably. New housing is designed in line with the tenets of ecological sustainability and justice to provide frugal but dignified accommodations for families of any size and individuals, using the most durable and sustainable materials and sources of energy to operate them. Frugality in this sense is that homes include the rooms that are only strictly necessary and nothing extra (living/dining room, kitchen, bathroom, bedrooms, cleaning and storage), but sustainably equipped and comfortable. Old homes are retrofitted to make them sustainable. Ownership of second homes is gradually phased out. Older homes are gradually replaced after many decades by modern structures that fully meet the standards of frugality, comfort and long-term sustainability. Single-family homes are gradually replaced by multifamily structures and condominium buildings. Communities work to stop any further expansion of suburban life and encourage a recovery of life in the cities, not using new space. Population decrease is the single most important factor in stopping the expansion of land use to house families and to provide comfortable and dignified places of dwelling. Homes are private property and constitute the homeowner's property as long as they live in them. Prices of houses are set by the community and are directly linked to the level of comfort. Housing is planned to offer a variety of comfort standards, all within the predetermined standards of sustainability, in such a way that every family would be guaranteed having access to affordable and comfortable housing, from the lowest to the highest approved standard. If there are ten levels of comfort, there are ten prices. There is no speculative housing market based on supply and demand. Homes are sold when a family moves to another area or wants to upgrade to a higher standard, but they would be sold at a fixed price set for that specific dwelling standard. Loans are redundant for access is immediate. Families pay a monthly price in line with their capacity to cover it in SECs. This could be confused with a rent, but there is no landlord. You own the home that you can afford with your level of remuneration. If you move, you transfer ownership to the new occupants and move to another home of the same, higher or lower standard depending on your situation and choice, but you always have the guarantee of access to a dignified dwelling in line with your remuneration and family size. If your household has only two members you obviously cannot move to a house designed for a family of four.</p>
<p>→ Locality:</p>	<p>Closely linked to Geocratia's housing vision and its emphasis on urban as opposed to suburban life and on mass transportation and bicycles as opposed to individual electrical vehicles of transportation, is the concept of locality. If families live close to their place of work and their societal activity, transportation becomes much more efficient and sustainable. Social life as well. It follows that in the new paradigm, communities organise their lives to keep all of us travelling much less and spending the vast majority of our time in the area belonging to our local community. Efficient, socially and ecologically sustainable smart cities constitute the standard in Geocratia.</p>

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→ Technology:

Technology will play a major role in increasing efficiencies to achieve a holistic sustainability. Technology will be instrumental in the systems that produce the energy required to meet our standards of living with incremental levels of efficiency that gradually reduce the ecological footprints of our sources of energy. Technology will also increase the efficiency in the way we live and work. For instance, it will enable us to drastically reduce the need to use air or land travel to work-related meetings and conferences. Virtual meetings and events will become the standard. The COVID-19 pandemic has already shown that many of the activities that we normally perform physically can be performed virtually, from our home. This also includes leisure activities. Instead of going to a gym, which increases our footprint, we can take a live yoga class from our home. Physicians can perform many consultations with their patients on line and have physical appointments only when necessary. Many courses can be taken on line as well. This way, air and land travel will diminish significantly, making a major contribution to decreasing pollution, global warming, climate change and our entire ecological footprint. Technology will also contribute significantly to end the logic of capitalism and develop the logic of contribution and sharing. Paul Mason argues that *the real danger inherent in robotisation is something bigger than mass unemployment, it is the exhaustion of capitalism's 250-year-old tendency to create new markets where old ones are worn out*, and points out another major obstacle for capitalism in today's information based economy: property rights. Mason uses Karl Marx's "law of value", where the price of everything is derived from the amount of labour used. Yet, in an information based economy, *Information goods exist in potentially unlimited quantities and, when that is the case, their true marginal production cost is zero*. A digital video or music audio have no supply limits and no human labour and production cost. In Geocratia's economic culture of sharing, technology will make a major contribution to transition (Paul Mason. "Postcapitalism", Farrat, Strauss and Giroux, 2015, Pp 163, 164 and 175.) Because there is no system of reproduction and accumulation and in lieu you have basic income and a guaranteed dignified standard of living for your contribution to the well-being of your community, robots do not eliminate jobs in the Geocratic paradigm, they free personal time that we can spend aesthetically, socially, helping our community, doing sports or whatever we enjoy doing. Furthermore, all technologies are considered public goods and shared.

Artificial intelligence (AI) will also make a major contribution to reducing human work and increasing personal time for leisure, cultural and community activities. It is closely regulated to replace human work that brings no satisfaction to the human being but requires energy, dexterity and precision, as well as in activities that normally require human intelligence, such as visual perception, speech recognition, decision-making and language translation. It is applied in fields such as healthcare, education, manufacturing and traffic controlling, but not in the military or advertising that have no place in Geocratia. AI in Geocratia is used without crossing ethical boundaries that transgress our right to privacy and that pointedly block any practice likened to "Big Brother" behaviour. It is also controlled in a way that it only assists humans but does not become autonomous, to makes its own decisions, out-think humans and harm them.