The Paradigm of Harmonious Progress in Energy

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FOREWORD

“My theory lacks facts”, said Holmes.

(From Arthur Conan Doyle’s “The Casebook of Sherlock Holmes”.)

There is no shortage of facts, both positive and negative, to formulate the theoretical principles of harmonious progress in energy. There is a lack of an essential principle, namely an emphasis on the root causes of such uncontrolled destruction of nature, a generalisation of these assumptions, and, in particular, a broad approach that would provide meaningful insights. Evaluation of the current state is still being left to one side when considering economic issues. In other words, there is a lack of insight when discussing what the harmonious balance between human activity and nature means and why it still has not been achieved. Therefore, the motto of this study is an excerpt from A. Šliogeris’ preface to Schelling’s Philosophical Investigations into the Essence of Human Freedom:

> Schelling was not concerned with the conquering of nature and technical violation, but with the harmonious balance between man and nature; harmony between a human and his origin is of the utmost importance when the human soul does not lose its naturalness, and nature pulsates with the rhythm of the soul.

There is deep wisdom in this phrase: on the one hand, man feels part of nature and, on the other hand, assumes the great mission of spiritualising nature without, of course, denying the laws of improvement, as stated by the Eternal Creator.

First of all, it is necessary to answer the question regarding why I intend to undertake such a difficult, albeit seemingly already being solved, and “polished” task—to substantially revise the concept of sustainable energy development, which conveys the idea of energy progress. However, I want to clarify in advance that in this work, I not only reinterpret the notion of sustainable energy development (currently, it’s too narrow category) but present it as a paradigm of harmonious progress in energy, which, in its essence, is not the same. In the social sciences, the essence of the paradigm is the totality of assumptions, concepts, values and activities that reflect the worldview and perception of reality within a given community. The concept

of sustainable energy development does not have sufficient dynamics and economic viability for implementation. It should be noted that the concept of sustainable development has almost no connection with that particular content, expressing the global nature of the threats and, at the same time, links with the human mentality, which precisely create the problems. I note one important statement—as a result of constant repetition, it seems to be *a priori* correct, that it is "us" who are responsible for this devastation. However, this is a fundamental mistake, since it does not name who those "us" are, nor does it make it clear on what ideological, and, therefore, legal basis this ominous, supposedly unmanageable devastation is taking place. There has been a fundamental mistake in people's minds that justifies the inability of economic theory and economic activity to prevent the destruction of nature, and the origin of this mistake is a depiction of human progress—unrestricted economic growth, the main criterion of which is continuous Gross Domestic Product (GDP) growth. Nature is being sacrificed to this endeavour and it is considered an inevitable necessity. Basing their opinion on some kind of fantastic anthropocentric law, humans have decided that nature is a warehouse, the contents of which must be freely used, and it is nature's responsibility to deal with pollution caused by economic activities. The whole economic mechanism is created precisely based on this anthropocentric worldview. However, activities based on this point of view are experiencing serious and ever-increasing reactions of nature, affecting not only humans but all vegetation and life in general, which is the foundation of human existence. The obvious protests regarding climate change and its consequences—catastrophes—were briefly summarised by Prof. R. Čiegis when he stated that nature will never adapt to the indiscriminate needs of man. Instead, man will have to conform to nature without destructing its laws which have been evolving for millions of years.

The unbridled pursuit of profits is based on a strangely impaired and insanely promoted propensity to consume, in particular, the development of consumption opportunities, considered as an indicator of human well-being.

The paradigm of harmonious progress is based on the humanist worldview that defines nature and its laws, influencing human life, as the main foundation of human existence. According to humanists, nature is the main pillar of human life, therefore, from the economic point of view, nature and all life has to be considered with huge respect, and viewed as an essential value, not as an inexhaustible source of wealth which can be recklessly exploited.

From the dynamic point of view, the dimension of harmony means that the process is not being ignored and is being corrected according to all the

related aspects in the long-term perspective. Energetics is a branch of economics, the functioning of which is essential for the development of the economy and causes the most difficult, poorly theoretically defined and practically estimated issues—reliability of the energy supply, environmental protection and quality of renewability. Theoretical and practical evaluation of these aspects is essential; therefore, it is being increasingly discussed, seeking to provide the meaning for harmonious development in energy and to substantiate its contents.

Harmonious progress declares advancement based on deep ecology, which stands for the reversible process, whereas technological progress is based on renewable energy sources and energy preservation as an alternative for energy consumption when due to the use of smart technologies, energy consumers can also become energy providers. This requires a wide and well-structured knowledge of the natural and social processes, which results in harmonious progress and its evaluation.

Thus, this discussion raises questions that will be answered in this study, namely: a) Who is responsible for the devastation of nature and on what theoretical and legal basis—this is a crucial issue for the dominant paradigm; b) What the progress is, and whether or not the nature conservation process can be managed, in other words, whether it can be stopped by intelligent human action, and not merely by a fragmentary response to natural anomalies and catastrophes caused by climate change; c) What is considered as progress in a narrower field of life—energetics—which can and must play the avant-garde role in progress as the burning of fossil fuels and their products in energy and transport, in particular, is already widely identified as the main culprit in climate change.

Many years of experience and intense insight into the problem allow me to think that I have the right and even the duty to fulfil my mission as a scientist: to fundamentally clarify the essence of the problem in dynamics, defining the root causes, looking back to the past, and anticipating the guidelines, or at least a vision for the future.

Concluding this brief introduction, I would like to express my gratitude to Audrone Klevienė, junior research associate at the Lithuanian Energy Institute Laboratory for Renewable Energy and Energy Efficiency, who is essentially the co-author of this monograph, since the whole of Chapter Two, and the analysis of the knowledge economy, in general, is based on her work.

Finally, it is important to add that the evolving concept of the knowledge economy has crystallised the structural elements of knowledge itself. Much of the knowledge is not derived from the individual efforts of our generation but is gained from past generations. Thus, knowledge is, by its very nature,

a public good, the supply of which is not diminished when it is transmitted to another person. Therefore, this monograph also aspires to the status of a public good in the hope that it will serve the advancement of science.

PART I

THEORETICAL OUTLINE OF THE HARMONIOUS PROGRESS PARADIGM

CHAPTER ONE

ANALYSIS OF DIFFERENCES IN PARADIGMS OF PROGRESS AND HARMONIOUS PROGRESS: CHARACTERISTICS OF THE PROBLEM IN LITERARY SOURCES

The concept of the paradigm. The essential attitude of the dominant paradigm in the interaction between nature and man

First of all, one has to characterise in more detail the specificity and meaning of the term "paradigm". In the social sciences, the essence of the paradigm is the totality of assumptions, concepts, values and activities that reflect the worldview and perception of reality in a given community.

To give meaning to the emerging paradigm of harmonious progress, it is necessary to diagnose the origins and consequences of the existing paradigm, its shortcomings, or at least its insufficiencies. However, it is first and foremost a matter of defining the meaning of this category; otherwise, it will be difficult to understand why the term paradigm is used rather than theory, concept or methodology.

In terms of the concept of paradigm and its content, the contribution of T. S. Kuhn is paramount (Andersen, Barker and Chen 2003). T. S. Kuhn claims that theories, laws and concepts cannot function by themselves. They become meaningful only in the paradigm in which they occur, and the paradigm is also a philosophical-social category. In this work, it is necessary to state the already known truth that philosophical systems and insights are far more influential than imagined even in these times of scientific specialisation. T. S. Kuhn has analysed science from a historical point of view, in contrast to K. R. Popper, who begins the analysis and evaluation from a very late period of science (Popper 1959), one which already has a wealth of theories that can be compared to one another and tested by experiment. According to T. S. Kuhn, the paradigm can function without any theory. The paradigm is pre-theoretical.

A theory is a much later and paradigm-dependent phenomenon. Without it, science would not be able to progress, or at least, progress would be slow. The paradigm allows researchers to expand their knowledge faster without having to re-prove their underlying assumptions. Often, there are underlying implications, and the primary origins only appear when problems arise. "When an individual scholar can adopt a paradigm without proof, he no longer has to try to reconstruct his field of work starting from the original principles and justifying the use of each new concept" (Kuhn 1970).

Paradigm is a much broader term than theory because it encompasses an entire worldview or ideology. If these tools become inadequate, the emergence of new tools aimed at solving the problems more efficiently may lead to a new paradigm. But a paradigm can also be changed by painful events, such as ecological and economic crises, which has happened many times, but the essential paradigm of the interaction between humans and nature has not changed from the New Times and the teachings of Descartes, who might be named the initiator of the epoch, based on science and mathematics, as the arbiter of absolute truth. In this paradigm, nature is considered to be an inexhaustible source of physical resources and an infinite absorber of by-products of the production processes. It is believed that environmental damage will always be repaired if necessary. As Schelling put it, "The common flaw of the modern European philosophy (starting with Descartes) is that for it, nature does not exist and has no viable foundation" (Schelling 1995). Particular emphasis should be placed on the remoteness of urban residents from nature. The view of the relationship between society and nature "is based on a vision of unrestricted growth as the progress of humanity. According to this perspective, technological development is aimed at increasing the power of socio-economic systems, increasing production and using the environment to accumulate negative effects. Encouraged by technical progress, in practice, the technocratic paradigm has increasingly displaced the humanist and environmental paradigm" (Čiegis 2002).

Therefore, one of the major obstacles to progress might be the fact that people's mentality has changed fundamentally in a historically short time. The rapid flow of technology is creating an artificial world, pushing society away from nature. The Lithuanian philosopher, A. Maceina (2004) wrote:

> The cultural world and cultural life do not stand on the natural world and natural life as a palace on the foundation. […] Nature is disappearing from our horizons. It begins to exist not as nature, but only as the material basis of the new world.

According to the discussion of the concept of the paradigm of harmonious progress in energy, it is necessary to elaborate its content (basic principles) and consequences, and finally to link it with the concept of the sustainable development of energy. Given the current state of the global economy, the ecological crisis and the real steps towards a global agreement in 2015 concerning the measures to prevent the catastrophic consequences of climate change, we must point out that the underlying contradictions remain in the basic paradigmatic assumptions that no one doubts anymore. The basic paradigm that has dominated for several centuries regarding the interaction between the economic activity of humanity and nature remains unchanged. What is worse is that the concept of progress is identified with the pursuit of economic progress, while the individual and his life goals remain within the frame of the economic man (*homo economicus*). And this is undoubtedly a major obstacle as regards progress.

In this work, we declare that the paradigm of harmonious progress is based on a worldview which, in short, recognises nature, including the laws which govern man, as the determining power for humanity's existence. I refer to the great humanists who created the philosophy of the meaning of human life and its human purpose, which views nature as the basis of human beings and existence. Economic progress is closely linked to great respect for nature as an intrinsic value, not just an inexhaustible wealth of resources that can be recklessly exploited.

Problems of the formation of the paradigm of harmonious progress of energy in the context of the sustainable development doctrine

According to the general concept, the notion of harmonious progress must have a link with the concept of sustainable development, which was formulated in the relatively recent time of 1987. The Doctrine of Sustainable Development, formulated in 1987 and published in the Brundtland Commission report "Our Common Future", clearly represents nature's response to unprecedented levels of pollution and resource over-exploitation in history, causing the devastating effects of climate change, as well as the uneven economic development of individual countries. But this currently exceptionally fashionable term—sustainable development—is manipulated by constant new insights and attributes. It has become a sort of obsession, blocking the progress and advancement of thought. I will explain this situation briefly.

Sustainable development is increasingly being presented as a pathway to all that is good and desirable in society. Some of the proposed national

indicators of sustainable development from the United States, the United Kingdom, and Finland illustrate this point. They include such factors as crime rate; participation of 14-year-olds in social organisational work; teacher capabilities; workforce skill level; classes taught in a minority language; children in public care; number of smokers; internet users; how children get to school; obesity rates; and R&D expenditures, etc. (Banister 2008); (Holden 2007); (Holden and Linnerud 2007). Unquestionably, sustainable development is still an important concept, which was clearly illustrated at the United Nations Conference on Sustainable Development (Rio+20), held in Rio de Janeiro in June 2012. One of the conference's main outcomes was the agreement by member states to set up sustainable development goals, which could be useful tools in achieving sustainable development. Thus, achieving sustainable development is still high on the international and national agendas 25 years after the concept was launched with the publication of "Our Common Future", commonly referred to as the Brundtland report. According to the World Commission on Environment and Development (WCED):

> Even though there is not yet any political or scientific agreement on a definition of sustainable development, it remains remarkably persistent as an ideal political concept, similar to democracy, justice, and liberty (Meadowcroft 2007). Indeed, sustainable development is now like "democracy": it is universally desired, diversely understood, extremely difficult to achieve, and won't go away (Lafferty 2004).

In other words, additions to the definition of sustainable energy development, and its enrichment with various nuances, are virtually useless. Although there have already been endless additions to the definition of sustainable development, the list grows longer yearly. Thus, the concept of sustainable development has become so comprehensive and complex that it is no longer useful in guiding policymaking. Not surprisingly, many scholars have argued that the sustainable development concept is in danger of becoming irrelevant e.g. (Hopwood, Mellor and O'Brien 2005); (Redclift 2005). In support of this view, one has to agree that the concept of sustainable development must acquire a clear and coherent direction and the prerequisites for achieving a common goal. To expect real progress, there is a need to distinguish between essential aspects that must inspire fundamental paradigmatic attitudes, and, in the case of our planet's situation, the quest to save nature, in regards of which all other aspirations based on various indicators are expressed. Time is running out, therefore, it is necessary to act, instead of working on new definitions. The key point, summarising the above statements, is that the concept/theory of sustainable energy

development is based on the old paradigm. The Brundtland report did not set a taboo concerning nature, which means that the basic paradigm approach to the unbridled exploitation of nature has remained, which is precisely what leads to a dead end. Any attempt to implement a noble idea of sustainable development is undermined by the notion of economic advancement. Economic growth has remained an essential goal in almost all countries, and it is officially proclaimed as an infallible panacea for resolving all hardships. Without a basic paradigmatic approach to nature conservation, the relentless pursuit of economic growth beyond natural boundaries will not help to achieve the goals of sustainable development. Sustainable development remains a slogan without real content. Therefore, the concept of sustainable development needs to be fundamentally replaced by the concept and content of the paradigm of harmonious progress in nature conservation and regeneration. At the same time, it is a plan for the salvation of all life and humanity. Bearing in mind that in social sciences, the essence of the paradigm is the totality of assumptions, concepts, values and activities that reflect the worldview and perception of reality in a given community, it can be stated that it is also an aspiration of the progress of life in general, and the directions of this path can be called a methodology.

In energetics, the concept of limited development has existed since the global oil crisis in 1973, in dissonance with the dominant concept of economic progress. First of all, the main difference is that the end-user, in favour of which the production process is happening, has to dispose of the used goods, including food waste, into the environment (landfill) at the end of the product's life cycle or, simply, if so decided by the consumer. Characterising the contemporary economic trends, I quote the statement from Bauman's book, "Culture in Fluid Modernity":

> Shifting the emphasis from possession to disposal, elimination, and discarding is perfectly in line with the logic of a consumer-oriented economy. People clinging to yesterday's clothing, computers and mobile phones can bring disaster to an economy, whose primary concern and *sine qua non* of survival is the rapid and accelerating disposal of purchased goods into landfill (Bauman, 2015).

While energy is being fully consumed, this is defined by physical law. In other words, the nature of the commodity is fundamentally different and, for decades, the aim has been to reduce energy consumption and increase energy efficiency. This will be discussed in more detail in other chapters. The unique property of energy, as a commodity, is the ability to express all forms of energy at any stage of production, transformation and end-use in

specific units—J (joules), kWh (kilowatt-hours), toe (tonnes of oil equivalent).

Therefore, if the dominant economic theory is that growth, which is considered equal to advancement, is driven by consumption at the highest possible level, and is directed at the mass consumption of things, including unnecessary and surplus items, then, in energetics, it is already clearly recognised that for energy growth (and not just growth), the inevitable alternative is energy conservation, which is understood as saving energy (at the end-use stage) and increasing energy efficiency (at the energy transformation stage). Bearing in mind the enormous amounts of energy consumed that can be reduced not only through direct savings, but also by home renovation and increasing energy efficiency, I introduced the concept of energy conservation (Klevas 1998). In my later works, I developed this concept further (Klevas 2015).

However, the most important problem that forms the core of the solution to the problems of harmonious progress is that waste—including waste in the form of harmful emissions causing climate change—is generated during the process of transforming (burning) fossil energy, especially in transport. Therefore, the most important emphasis in attempting to define the paradigm of harmonious advancement in energy is the breakdown of energy resources into fossil fuels produced over millions of years by natural evolution (e.g. coal, oil and natural gas) and renewable energy sources (solar, wind and environmental, etc.), that do not pollute the environment. In the last decade, the development of renewable energy sources has become a major trend in the development of energetics. The long-term goals of the individual energetics strategies of Europe, especially Denmark and Germany (Hansen, Mathiesen and Skov 2019), of replacing burning fossil fuels with renewable energy by almost 100%, is stunning in terms of innovation and courage. During this period, other countries, including Lithuania, have also been embarking on this path, declaring a strategic target of up to 80 per cent of the use of renewable energy sources by 2050. However, it should be noted that northern European countries have been preparing for this for a long time—politically, scientifically and practically (technologically)—in terms of infrastructure construction for almost five decades since the oil crisis of 1973, and after the shock caused by it in the entire industrial world. But most importantly, and above all, these countries have laid the foundation for reshaping people's mentality in their countries, which is inevitable for the creation of a new type of energetics (Broto and Bulkeley 2013). Basically, that means switching to efficient energy consumption and replacing fossil fuels with renewable energy sources.

Not by coincidence, according to the happiness index which has been published since 2012 on the Solutions Network of the United Nations, and covers 156 countries, Northern European countries are leading: Finland (for the second year in a row), Denmark, Norway and Iceland. The list is established based on various factors: per capita GDP, data on population health and access to medical services, social benefits, civil rights and the prevalence of corruption (Castells and Himanen 2002).

The residents of Finland simply cannot be unhealthy due to the number of forests, covering 60 per cent of the country's land, which determines the purity of the air. Also, almost every second family has a sauna, which shows their extraordinary need for cleanliness and hygiene. Even having these huge areas of forests, they choose to preserve them and do not clear cut them but use a technique that allows selective logging instead. Countries, such as the Netherlands and Switzerland, where environmentalism prevails over the greedy profit interest, also rank high. Meanwhile, in countries where there is a greater amount of greed and a lower level of intelligence, the situation is the opposite (Routti and Yla-Anttila 2005).

In the concept of the paradigm, there is also a totality of assumptions as regards the realisation of the aspiration that manifests itself in the content and comprehensiveness of preparation. Namely, it is the dynamism of the implementation of harmonious progress. In other words, it is a methodology that covers the theoretical tools, organisational assumptions and methods. An example could be the mere fact that masses of modern renewable energy sources (RES) are being deployed in the use of smart grids, essentially turning ordinary energy consumers into consuming manufacturers. This process requires an intense teaching procedure, not only to change the mentality of the people but also to prepare the next generation of professionals. Economic incentives alone are far from able to make this process happen. It requires big organisational and technological improvements, ensuring adequate funding for revolutionary administrative reforms. In terms of the implementation of the Lithuanian Energy Strategy, by 2023, the Energy Service Organisation (ESO) plans to purchase and equip approximately 1.6 million remote-controlled power smart meters for all electricity consumers in the country—from the smallest to the largest. Although the tender has not yet been announced, the company estimates that the value of the project of smart accounting implementation in Lithuania could reach more than 200 million euros. Also, bearing in mind that the use of RES technologies is an essential tool to reduce emissions, which is critical to preventing climate change, it can be argued that energetics, based on RES technologies, is potentially penetrating all spheres of economics. Recently, northern European countries have prepared a programme to meet

climate change commitments. In this programme, the dominant theme is the introduction of RES technologies (Nordic Council of Ministers 2019). Among the defined measures, significant importance is placed on the reforestation programme.

Therefore, the transformation of energy from exhaustive fossil fuels, causing enormous pollution, to RES, is considered an expression of the progress of life in general, as this process no longer contradicts the fundamental laws of nature which seem to be disappearing from the horizon of human life due to the incredible advancement of technology. Sadly, it seems to be lost from the perspective of scientists as well. This means that a change in people's mentality is crucial for success, and the most important element in terms of energetics would be the understanding of the importance of RES. This is particularly noticeable in cities. That is why, when it comes to progress, one has to look back at the philosophical reflections of humans as the apex of the evolutionary process of nature, to which thousands of years of philosophers' efforts have been devoted.

The concept of progress and the necessity of its transformation

If the term "harmonious" means a connection with nature, then the essence of the concept of advancement remains the fundamental problem, since it contains extremely broad content. The notion of progress has captivated people, especially those living in Western countries, for centuries. In his monograph, Professor Čiegis aptly stated: "Probably, speaking in general, no concept was as important to the Western world as the idea of progress and the belief in the continuous improvement of imperfect humanity. But the modern world is increasingly losing the momentum of real progress, as the thinkers of the enlightened age understood it, and is far from being in harmony with nature" (Čiegis 1997).

The Lithuanian philosopher, A. Maceina stated:

> Half of the nineteenth century was enslaved by the so-called theory of evolution, the origins of which were published by Darwin and Lamarck. In various forms, this theory has been repeated by various scholars: it has been modified, supplemented, criticized and corrected. Today, in its primal form, evolutionism no longer exists. The mechanical and materialistic basis of it is completely demolished. Today, no one dares to proclaim that the development of beings is driven by the struggle for survival or adaptation to the environment. Today, natural science proponents are observing the evolutionary pattern of the living world, a kind of plan executed by living and purposeful forces of nature. There is a certain grand, pre-determined and

> defined plan of nature, and living life is not stagnant in its kinds and forms (Maceina 2004).

But you must have in mind that the basis of life is the Earth, climate, atmosphere, air purity, and many other phenomena to which human activities pose a threat. According to Prof. J. Brėdikis:

> The driving force behind evolution is far from Darwin's premise of the "eternal struggle for existence", and the struggle of the species for survival and natural selection, when the strongest wins. That power is the programmed survival of those who can adapt, unite and collaborate. Darwin's view is unacceptable simply because, according to his point of view, the struggle for survival is inevitable not only for wildlife but also for nations, races and states (Brėdikis 2015).

The problem, however, is that evolutionary theory is not being related to humans' relationship with nature and its laws.

In modern society, especially in the Western world, progress is, unfortunately, in many cases perceived as technological advancement and economic growth, whose ideological basis lies in the supposedly free market glorified by Smith, the effectiveness of which was linked to the liberation from any legal or other restrictions in the 19th and 20th centuries (Smith 1999); (Friedman 1998). Even after the Brundtland Commission report of 1987, the debate has continued with fierce attacks on those who, from their point of view, try to put the halter on the free market (Beckerman 1994). However, it is gradually becoming clear, even without specific proof, that the free market is the free exploitation of nature and, indeed, of people. The concept of progress and its content are still relevant globally, especially to Western society, but the problem is that there is a need to correct the meaning of the concept of progress that has become evident due to the errors in economic theory. The concept of progress has undergone a significant historical transformation in a very short time. The achievements of the sciences, especially the applied ones, and their very practical military applications have shaken the consciousness of humanity to the point of losing the concept of evolution as a law of progress. The belief that human evolution has reached its peak and has nothing to do with the evolution of nature has come into being. Instead of the advancement of species, there is a decline of species at an unprecedented rate. The predominance of technology in life has created an artificial sphere of life that is supposedly independent of nature, where progress is considered in isolation from the powerful laws of evolution, though, in fact, they are the fundamental laws of progress. The scale of technological innovation is impressive and causes

fascination with the progress that is supposedly taking over the evolutionary relay. But the threatening reaction of nature to this direction of "evolution" shows that those authors who declare the need to find a way out of the dead end, in one way or another, are completely right. There has not been such technological progress in terms of advancement and pace, although ancient scientific achievements are also surprising in some respects. However, is the concept of progress correctly treated? The problem is that the concept of technological advancement has been consecrated to such an extent that no one in the Western world is resisting the penetration of this idea into all spheres of life. Even worse is that "Progress is first and foremost considered to be an unstoppable process that takes place independently of our desires and regardless of our feelings—a process in which victorious power requires our humble obedience" (Bauman 2015). Indeed, modern society blindly relies on self-advancement, which, unfortunately, is almost merged with the growth of the economy in terms of GDP, achieved through the progress of technological advancement and its implementation.

Many authors also note the parallel decline in attention and funding for basic sciences in favour of applied science (Teilhard de Chardin 1995).

However, natural disasters, recognised by the scientific world as a consequence of CO_2 emissions caused by fossil fuel combustion, make even the most short-sighted optimists think about the direction in which technological progress is developing. The balance of nature, achieved through millions of years of evolution, has been seriously disturbed in the last century alone. This is an undeniable proof of the "breakthrough" in applied science. What is more, this fact is already acknowledged not only by scientists, but also by global politics: at the end of 2015, countries of the world succeeded in signing the Paris Agreement on Climate Change, which demonstrates the global importance of the problem, but this is only the beginning of major changes in economic and, especially, energy policy for most countries. Never before has there been such a unanimous decision on any other issue. Unfortunately, relapses are also possible, as shown by the US withdrawal from this treaty. However, the fact that the treaty has been signed by almost all countries of the world proves that the burning of fossil fuels and their products in the energy and transport sectors is identified as the main cause of climate change. Agreements have been made as regards the indicators, but not on how these indicators could be pursued in the context of the mass Western level of consumption. It is unanimously acknowledged that the most important direction of energy development is the mass utilisation of renewable energy technologies, however, fierce resistance, including an ideological-methodological one, has arisen and is still going on. What's more, there are new, extremely threatening phenomena

that are being built on the foundations of the lobbying industry. The major one among them is deforestation in many parts of the world. Paradoxically, in the spotlight of the apotheosis of biofuels, or, indeed, mass deforestation in Europe, in Lithuania, the incentive to use renewable fuels is taking place on a huge scale. The mere fact of a numerical indication of RES does not mean that progress is being made. First of all, it should be noted that types of RES are different in origin, as well as in their renewability cycle, therefore, classifying biofuel as a renewable energy source is a true misunderstanding. On the other hand, there is complete uncertainty about the impact of biofuel combustion on emissions. Climate change reports show that burning of biofuels generates significant CO_2 emissions, while, at the same time, biofuel is treated as CO_2-neutral in energetics, and is considered a "big achievement": in Lithuania, up to 60% of heat is produced using biofuels. This is the strangest and most controversial phenomenon in terms of combatting climate change. This extremely dangerous trend has already been highlighted by many scientists, specifying extreme pollution of biofuel combustion and the negative consequences of tree destruction as CO_2 absorbers. And yet the mass use of biofuels is called progress in terms of economic advancement, which in this case is in stark contrast to the logic of nature conservation. Recent European Union (EU) resolutions express a clear concern about such destruction.

Numerous facts show—and prove to those seeking harmony with nature—that a strictly anthropocentric and, at the same time, technocratic paradigm leads to catastrophes, and the only way to salvation might be the aspiration to change the direction of the progress that is particularly defined in energetics, in terms of environmentally friendly technologies. Technological progress in the use of RES is encouraging. This is especially true for solar technologies that are developing at an incredible pace and are gaining widespread application. In other words, technological progress and its evaluation require a new direction. The increasing use of RES, the application of circular economy principles, eco-cities and green settlements (communities) are new signs of a rebirth, the emergence of which is a symbol of a new reverse direction in nature, which could connect technological progress with the human mission in nature. The task of forming a paradigm of harmonious progress means combining the latest positive trends and theoretically developing these phenomena to reach, if not the end, then at least an intermediate long-term goal. It is necessary to lay down the guidelines for the transitional period, based on the latest technological advancements, the purposeful application of the circular economy and the mass ecological movements of people appalled by such apparent tech domination into art, science, and cultural life in general. The

concept/paradigm of harmonious progress differs from the one-sided conceptualisation of technological progress and the pace of economic growth, in that it synthesises and summarises thoughts and knowledge that provide meaning to human existence and "reconcile" scientific and technological achievements with the eternal laws of nature's evolution that have been expressed by prominent authors long ago, even though they are pushed aside by historical thinking.

I strongly believe that it is essential to synthesise these concepts in order to make the consequences of the brutal destruction of nature evident through the education system and to shift the application of technological advancement solutions in the right direction—I call this "harmonious change".

CHAPTER TWO

A PROJECTION OF THE PARADIGM OF HARMONIOUS PROGRESSION INTO CHANGES IN HUMAN MENTALITY

Changes in mentality in terms of the interaction between nature and man

Nowadays, harmonious progress can be described as what to modern man would look like an attempt to revive the thoughts, worldviews, and attitudes that emerge from the writings of the great thinkers of past centuries. However, to fully evaluate the essence of progress, it is essential to renew the bond between the philosophical origins of harmonious advancement theories, which are related to the development of evolutionary theory over the centuries, and the current worldview and attitudes that have changed in a very short period, and there is a significant gap. Some of the most significant and explicit scientific principles of ecological-economic organisation, which explain the dramatic change in worldview and mentality of people, were provided by Čiegis (2003). The question of the purpose of a human's life has long been disconnected from the laws of evolution, and even more so, humans' relationship with nature becomes consumerist, although the current situation of climate change shows that fostering this relationship is crucial. Evolutionary theory has undergone many changes due to critics and one-sidedness and currently has probably the least defined expression. Inevitably, the question arises as to the role of man in the context of the natural processes that take place, and ultimately in the realisation of man's goals and aspirations for life. That divide between man and nature, especially due to the incredible scale of urbanisation, should also find a place in the explanations of the progress paradigm. Technological advances seem to have interrupted the continuity of evolutional theory previously nurtured in the works of these great personalities: Goethe, Albert Schweizer, Henry David Thoreau, Ralph Waldo Emerson, Jean-Jacques Rousseau, Abraham Maslow, Erik From, Carl Gustav Jung, Victor Frankl, Max Weber, Vladas Jurgutis, Ortega y