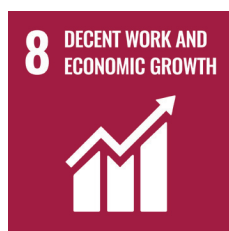




# Challenges for Sustainable Development:

## Climate Change, Land Use and Clean Energy

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Crises and challenges of the modern world that have emerged with particular intensity in recent years: climate change, the COVID-19 pandemic, ageing society necessitating more and more specialised health care, Russia's military aggression against Ukraine causing a humanitarian crisis, economic problems, disruptions in global energy supplies and food production require increasingly decisive actions taken by both the most important institutions in the world and individual units operating on a daily basis in local communities (Stormy Times, 2022).

Universities also implement the vision of a socially engaged institution that asks important questions and proposes solutions to today's crises in cooperation with the social environment. An inclusive university, involving the widest possible group of interested parties in activities for society and the planet, is today a university that fits into the assumptions of the European strategies and agendas.

The University of Gdańsk responsibly works towards the goals set in the 2030 Agenda, fulfilling the role that higher education institutions should play in the process of attaining sustainable development goals. As a university, the UG, above all, carries out its tasks: conducts scientific research, educates and cooperates with the social environment, while initiating and disseminating the assumptions of the 2030 Agenda. Our university not only operates in line with the European objectives but also performs the tasks set in the University's Declaration of Social Responsibility, which the University of Gdańsk signed in 2017 as one of the first Polish universities.

The Centre for Sustainable Development, established at our university in 2021, began its activity by collecting scientific and teaching achievements related to sustainable development, which are the result of many years of involvement of UG employees. Activities initiated by the UGCFSD focus on sharing knowledge that inspires people to take action for sustainable development and to initiate

team cooperation both at the university and in cooperation with the social and economic environment.

The creation of a platform for the exchange of information and good practices in the field of sustainable development at our university, leading to synergy in the activities of our academic community is also very important. We popularise research results and teaching and project achievements referring to the sustainable development goals of our researchers, PhD students and students. On the UGCFSO website, we publish interviews, presentations, reviews and popular science articles.

The Conversations about Sustainable Development series was initiated at the same time when the Centre was established. Since the very beginning of our activity, we have been asking distinguished representatives of the academic community about their understanding of sustainable development, the connection of their research with the goals of the 2030 Agenda and their vision of our green university. In our opinion, these conversations are an element of building the awareness and identity of the UG community as striving to transform the university into a green university and promoting the importance of education and research to achieve the goals set in the 2030 Agenda.

This book is the result of the Conversations about Sustainable Development project. This volume contains interviews with researchers who, in their scientific and teaching work, refer to Goal 7 Affordable and clean energy, Goal 8 Decent work and economic growth, Goal 12 Responsible production and consumption, Goal 13 Climate action and Goal 15 Life on land.

The book opens with an interview with **Adriana Zaleska-Medyńska**, who considers the issues of sustainable development from the perspective of a chemist and technological processes affecting the environment. The researcher mentions studies in the field of new materials, including for hydrogen generation. She works on technologies that can use solar energy and water to produce hydrogen and on carbon dioxide photoconversion technologies to recreate hydrocarbons as a renewable fuel, produced using environmentally friendly technology. She comments on our local and university reality, activities undertaken to make the campus greener and those that could become part of our community in the near future. **Piotr Stepnowski** is the second speaker, discussing issues related to the attainment of sustainable development goals in the context of university management and related activities undertaken at the University of Gdańsk. As a chemist dealing with environmental protection problems, he

talks about his scientific research carried out to prevent environmental threats. **Katarzyna Szlachetko**, in turn, emphasises the normative context, recalling European documents and the Constitution of the Republic of Poland in the context of the principle of sustainable development. The researcher refers to its three pillars in accordance with environmental protection law: the need to meet human needs and create conditions for socio-economic development and economic growth, protection of the environment and natural values, and maintaining good conditions for development for future generations. **Hanna Wolska** defines sustainable development as a set of fundamental global demands, the satisfaction of which is the most important challenge for society in the coming years. The researcher recalls her own scientific research on the impact of SD on the economy and finances in Poland and Germany. In the next conversation, **Katarzyna Smolarz** focuses on consumerism and short-term thinking as key problems of the modern world, while defining sustainable development as the interaction between social, economic and environmental aspects and affirmatively emphasising the systemic activities of the entire university in pursuit of the achievement of sustainable development goals. The next interviewee is historian **Beata Możejko**. From the perspective of a medievalist, the researcher talks about research on the development of ecological thinking throughout history, particularly concentrating on gender equality from the perspective of a humanist in the context of the goals of the 2030 Agenda. The conversation is complemented by a reflection on the role of a humanist in striving for sustainable development and interdisciplinary research. The next interview is another reflection by a representative of legal sciences, **Janina Ciechanowicz-McLean**, stressing the normative dimension of the 2030 Agenda. During the interview, the topics of the Constitution of the Republic of Poland ensuring environmental protection, the Green Deal and the challenges of energy policy are raised. **Beata Grobelna**, on the other hand, focuses on examples of the popularisation of the SDGs in the local and supra-local environment and her own work as a chemist, according to whom sustainable development is the design, manufacturing and use of such commodities in chemical processes and products that enable achieving large economic benefits and are at the same time environmentally friendly. Another researcher – **Ewa Siedlecka** – also specialising in chemistry and water protection, shares with readers her knowledge of effective methods of removing micropollutants, especially pharmaceuticals, from water. Examples of successful cooperation with students and the researcher's recommendations on how to make our campus greener are noteworthy. One more humanist among our interlocutors, **Thomas Aiello**, sees the idea of sustainable development multifariously. In a historical sense, he considers SD as a concept related

to social and political issues, as well as human needs to develop existing technological achievements. However, the researcher is familiar with the perspective of an anthrozoologist and in the context of more-than-human thinking, he understands this idea as human activity in a broader world belonging to animals, in which humans are not superior to animals. According to the historian, the task of a humanist is to study the relationships between humans, animals and the planet. The next interviewee, **Julita Dunalska**, is professionally involved in the protection of water resources and sees her role in this type of activity in the context of achieving sustainable development goals. According to the researcher, the limnological station is one of the ways of working towards the SDGs at the University of Gdańsk, which she calls the cradle of integration and knowledge about water resources of the University of Gdańsk. Sustainable development itself means reducing cultural, economic and financial differences and taking actions aimed at sustainable access to goods, education, science and technology in our communities.

We hope that the conversations contained in this volume are just the beginning of discussions, dialogue, and negotiations related to the future of our planet and our communities. The creation of new narratives, new ways of thinking, and then innovations and new solutions, i.e. opening the future, is only possible through negotiations. We want to co-create our university in an atmosphere of inclusiveness, which is undoubtedly facilitated by qualitative and affirmative conversations about sustainable development in relation to today's crises.

We would like to invite the Readers to study this volume and take up their own initiatives for the university, academic, local and supra-local communities that will creatively respond to the challenges of the modern world.

## 7 AFFORDABLE AND CLEAN ENERGY



### **Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all**

Access to electricity and clean cooking fuels has improved in many parts of the world, but 675 million people are yet to be connected to the grids and 2.3 billion are still cooking with unsafe and polluting fuels. The war in Ukraine and global economic uncertainty continue to cause significant volatility in energy prices, leading some countries to raise investments in renewables and others to increase reliance on coal, putting the green transition at risk. If the current pace continues, about 660 million people will still lack access to electricity and close to 2 billion people will continue to rely on polluting fuels and technologies for cooking by 2030. To ensure access to energy for all by 2030, we must accelerate electrification, increase investments in renewable energy sources and invest in improving electricity grids.

## Challenge 1 Affordable and clean energy

### *The conversation with prof. dr hab. inż. Adriana Zaleska-Medynska*

Faculty of Chemistry, Department of  
Environmental Technology, Photocatalysis  
Laboratory

**Professor, considering your research interests and your scientific achievements, please tell me how you understand sustainable development.**

I understand sustainable development as meeting our needs as a society sustainably. I believe that the use of raw materials, the use of the natural environment, as well as emissions of pollutants into the natural environment and the generation/management of waste should be done in such a way as to enable future generations also to meet their needs. My understanding of sustainable development results, among other things, from the fact that I am a chemist and technologist – I work at the Department of Environmental Technology – and I look at sustainable development through the prism of technological processes that affect the environment.

**How is the concept of sustainable development reflected in your activities?**

Virtually all the scientific research we conduct is focused on technologies that we can call “clean” or environmentally friendly. Our activities include developing technologies that, for example, allow for air purification, i.e., on the one hand, we try to remove pollutants and, on the other hand, reduce their emission into the environment. The other important element of our work is related to renewable energy or clean energy. This direction includes research into new materials, including those for generating hydrogen, which is a clean energy carrier. We work on technologies that will use solar energy and water, i.e., available renewable energy and water, of which we have a lot on the earth’s surface, to produce hydrogen. The combustion of hydrogen produces energy by regenerating water molecules. We also work on technologies for the photoconversion of carbon

dioxide (a greenhouse gas emitted into the atmosphere) to recreate hydrocarbons again as fuel, let's say, renewable or produced using environmentally friendly technology. This process is called "artificial photosynthesis" because in the laboratory we try to recreate the processes that occur in green plants. Some of our tasks are also aimed at removing contaminants from the aqueous phase, i.e., water and sewage. To sum up, all our work focuses on working out solutions aimed at improving the quality of the environment by developing technologies to reduce emissions of pollutants into the environment or technologies eliminating or removing pollutants that have already been introduced into it.

**So, these are activities aimed at developing new technologies for specific goals. Is this how you support and work towards the sustainable development goals – working on these new technologies?**

Absolutely. On the one hand, these are innovative technologies, and on the other hand, technologies that improve the quality of the environment, but also through the environment – the quality of our life, because in my opinion the quality of our life and our health is related to the quality of the environment, we live in.

**And if I asked about the other side of your work because I assume that you also teach at the university, what would you tell us about your activities from this perspective?**

Teaching activities are almost always related to scientific activities. Therefore, what we do in the laboratory, and what we work on, is discussed with the students. We try to involve young people in research work carried out by our team. Thanks to this, students have an opportunity to conduct research on innovative technologies that can be used to improve the quality of the environment, in addition, many of the classes we teach are strictly aimed at familiarising students with environmental remediation technologies or methods of generating renewable energy. When conveying knowledge about technologies and the chemical industry, we pay attention to sustainable development, from the stage of using raw materials, through the design of the chemical process, to the production of a product which, after all, at some point, after the end of its life, becomes waste. In our teaching work, we try to draw students' attention to all these elements. In addition, students have an opportunity to broaden their knowledge of modern materials that are used, for example, to generate clean energy or to store energy.

**Let's go beyond the walls of the Faculty of Chemistry for a moment. I would like to ask you what actions regarding the SDG goals the University of Gdańsk should take.**

I think that the university has many opportunities and even, in a sense, an obligation to take actions consistent with the sustainable development goals, which is particularly important for a chemist. The marine environment is crucial for our university because we are located on the coast of the Baltic Sea, therefore these are goals related to the quality of the sea and possibly ocean waters. In my opinion, actions related to the quality of air, other surface, and ground waters, as well as actions aimed at human health and our well-being are important. I believe that at the university, at the stage of teaching and spreading certain models, it is very important to instil awareness of equal access to both education and work for all genders. Implementing the SDG goals at universities involves not only challenges related to innovation or technologies but also challenges related to improving quality in all other areas: education, security, poverty reduction, and hunger. We, as a university, represent the entire spectrum of disciplines, hence our educational opportunities are very wide. I think it is important to consciously shape certain directions of work or research, but above all, the standards that we pass on to students and young people.

**Let's focus on models for a moment. Could you say more about your idea of standards? What can we do, for example as a group of academics, to inspire young people to move towards attaining the SDGs? Probably from very simple things to very complex ones, but please think about this issue for a moment.**

In my opinion, the simplest model is our own behaviour. We can't instil a certain thought if our actions don't match what we say. If we, as academic teachers, show respect for other people, if we also respect the environment around us, if we promote a certain lifestyle that is compatible with the environment and is healthy, then I think that in this way we also provide role models. But our actions can't be limited only to setting an example. Working directly with students is essential. Young people are open to new, interesting ideas. Working in scientific circles or on research projects allows them to develop certain passions, which we can direct into activities related to the sustainable development goals. At the same time, the strategy of the university as an institution is important. For example, we work and study at a campus that is green and where we can manage waste appropriately. There are also more and more activities that are focused on treating everyone equally and with respect. In my opinion, all these activities are an inspiration for young people.

And in the context of university infrastructure? Maybe you have interesting ideas? Of course, it would be great if we all protested plastic cutlery in university cafeterias, which may be operating in a limited way during the pandemic. What is missing at our university, what would be good if it appeared, and what would change our university into a more sustainable, green one?

I think that, first, it's possible to use renewable energy, after all, we have a modern campus and we can use solar energy, heat pumps, or possibly wind energy to light or heat the infrastructure. On the one hand, we can introduce solutions that use renewable energy and, on the other hand, lead to lower energy losses.

We've already undertaken some of these activities. An example of this is recuperation, i.e., heat recovery in ventilation systems, which is used in most buildings. This may not be a spectacular action, but it is important from the perspective of energy balance and lower energy consumption in buildings. I think that we are not always able to introduce all technical innovations at a given university because it depends on the geographical location. There are areas where the use of solar energy, wind energy or some other type of energy will be justified to a smaller or greater extent, and we must also take this into account. We can't use a technology just to show that such technology exists, its presence in each given place should also be justified. We should certainly perpetuate the practice of waste segregation, which is still a big problem in our society. At the University of Gdańsk, we have an opportunity to selectively collect selected groups of waste, and this is extremely important. There could also be containers for waste such as light bulbs or batteries. It seems to me that this is what is missing on campus and, in general, these are probably the least available containers in our region. Maybe it's worth investing in containers where you can deposit expired medicines. This is another problem because expired or unused medicines often end up in municipal waste. An open campus, with such a system for collecting selected groups of waste, also available to the non-academic community would also be a very good model. Of course, it seems to be a great idea to promote the use of reusable tableware and cutlery in university canteens and cafeterias. And if disposable cutlery and tableware then those made of biodegradable materials. Currently, these materials are often too expensive, but we as a university should still try to promote such activities here. I think that it's also possible to organise events addressed to children and young people at earlier stages of education, or to various social groups in general, to show these good habits, provide information related to them and thus instil them.

I think these are very simple actions, but at the same time very important, because society often encounters the problem of difficult access to places where specific groups of waste should be deposited. If we had this kind of opportunity at the university, it would be very educational for those around us as many people pass through the campus and perhaps this type of activity would make it even more open. What role do you think education and raising students' awareness can play in achieving the goals of the agenda? Is this an important point?

This is probably one of the most important points because we say that existence determines consciousness, but we can also reverse this phrase. I think that consciousness defines existence, so it is important to raise this awareness. Education through hard knowledge and increasing knowledge in the field of technology and the impact of human activity on the environment. I'm talking about technologies because it is closest to me, but it can be knowledge, for example, in the field of social sciences, if we are talking about other sustainable development goals. And instilling good models during education, because our graduates will later be ambassadors of our university, they'll spread the ideas that were inculcated into them within the walls of the academy. In recent years, I have noticed that our students – and I also work with [young people in interdepartmental studies](#), during which we talk quite a lot about environmentally friendly technologies – are interested in what is currently happening on our planet and how our activities affect the state of the environment. In this context, I believe that our role is to show the problems we face, based on facts, not emotions, and to present solutions that allow us to use the resources of our planet in a sustainable way.

**What main obstacles and challenges do you notice in connection with the goals of the 2030 agenda, where are the difficult points?**

It seems to me that our own habits are the biggest obstacles. Therefore, I'm emphasising once again that it is worth instilling appropriate models at an early stage of education. This is the stage of life when we are most receptive and it's easiest to instil new ideas. Another barrier is the reluctance to introduce changes. Therefore, in my opinion, the challenge is to provide information about the SDGs in such a way as to provoke reflection and willingness to change. When we observe certain changes in activities on a global scale, including the activities of industrial plants, we can see that they are enforced, for example, by financial penalty systems. For example, compliance with environmental pollution emission limits is most often not the result of a person's worldview, but of the desire to avoid financial penalties. However, on a micro-scale, the reluctance

to change our habits means that we don't want to reach for something that is less convenient at that moment and forces us to change our habits. In my opinion, this is the greatest barrier and at the same time the greatest challenge for us to be able to reach the younger and older generations. I think that we can reach the younger ones through our students, to make them think, change their own habits and think in a global way, not only in a self-oriented way.

**And when it comes to challenges, you have already linked them with barriers, would you like to add anything else?**

I am, of course, leaving aside obstacles that are related to the development or implementation of some new technologies. These are barriers that we work to overcome as societies and sometimes they are not easy to cross. An example would be the use of renewable energy sources on a global scale – currently impossible. Hence, I would focus more on social challenges than technological ones, because the latter don't seem to be a barrier but a problem to be solved, related to the current state of knowledge.

**It's just a matter of time.**

Yes, in the case of technology it is a matter of time, but changing habits requires conscious work.

**Finally, one thing is still interesting to me, because we are talking about the fact that technological challenges are a matter of time, and if we look at it differently, the sustainable development goals were created in Western Europe or in the Western world, if we categorise it this way, maybe incorrect these days. The SDGs were formulated in the Western world, and if we think about these developing countries and economies, what hurdles, and challenges can you see here, or is it just a matter of time, or do we need something else, something more?**

It's certainly the case that the implementation of certain technologies requires certain financial outlays, and we are not able to do it. If we look at countries and societies at different stages of development, once a society reaches a certain level of prosperity, it can focus on subsequent goals. Perhaps in our country, we should first meet the goals related to decent work or living conditions. Poverty is not such a general problem in our country, but it certainly occurs in certain regions or in certain social groups. We should face such problems first, and then it will be easier to face the more advanced ones. For example, those related to equal treatment.

**Professor, it went very quickly, you are giving very precise answers, so maybe you would like to formulate a conclusion at the end.**

Maybe not a conclusion, but a reflection. As an academic teacher of this generation, slightly above the average age, I have the following reflection: I have myself achieved many of the basic goals of sustainable development, reaching for positive models from young people. I'm talking about my own children and about university students, so the conclusion would be that not only can we teach students, but we can also, as the older generation, learn a lot from young people and I think we should learn from each other.

## *Conversation with prof. dr hab. Piotr Stepnowski*

Rector of the University of Gdansk, Faculty of Chemistry, Department of Environmental Analytics, Environmental Chemical Hazards Laboratory

**Taking into account your research interests and very impressive scientific achievements, please tell me how you understand the term sustainable development.**

This question can't be answered in one sentence. Why? This term has evolved for a very long time from the original meaning, with the help of which in the history of the 20th century civilization, attempts were made to notice the problem of the imbalance between economic, industrial and civilization development and social needs in the face of environmental or ecological pressure. Agenda 21 should be mentioned as the turning point. This programming document of the first UN assembly strategically presents the issues of world development in the context of sustainable development. However, today's understanding of the agenda is broader and deeper. On the one hand, we have formalized SDGs which are the main benchmarks. On the other hand, sustainable development is a certain state of mind, i.e., actual awareness: scientific, social, political, of local government – depending on the reference points that accompany us every day in self-realization and in setting out our own actions and those undertaken by institutions for which we are responsible. In conclusion, it seems to me that sustainable development is a sure way of coming to this state of mind that will lead us to an ideal picture in which all SDGs – not fully describing what the world should look like, with respect for what values, ideals – are imprinted in the minds of as many people as possible. We want them to be both decision-makers and – perhaps most importantly – individual societies of the world. This is a philosophical definition of sustainable development. This way of coming to thinking about the planet can't be detached from our daily activities and from the situation in different regions of the world, because everyday events accompany us with varying intensity. What can we expect from people in Syria and

the Middle East today in terms of achieving SDGs, when everyday life in those areas is about surviving? We must be aware that we're talking about idealistic thinking in which we start from one point of specific prosperity. It mustn't be forgotten that we formulate SDGs in Western culture, while the lion's share of the world isn't at the stage of such prosperity, such stability, and will probably have to follow the path that we have followed in an increasingly industrialized economy, and consequently affecting the environment. However, there is hope that developing countries will shorten the path to achieving these goals.

**You have brought up the important subject of cultural differences. What is your approach to this issue? How to encourage and promote the pursuance of the sustainable development goals?**

We should find specific points of reference. In given social habits, in each culture, there are many points of contact with what we now call the goals of sustainable development. Only the ways of achieving them are different. If we define the area of sustainable development as a world in which we want to introduce the fullest possible element of balance between economic development, social equality, and ecological pressure – then it is good. I also think that mutual civilization assessment is an extremely difficult issue, you really need to be very well and deeply prepared to speak on such a topic at all.

**Let's now turn to your initiatives related to sustainable development. How is the concept of sustainable development manifested in your activities? I'm asking about the implemented initiatives and plans in the context of scientific work and directional activities undertaken by the Rector of the University of Gdansk.**

From the beginning of my scientific and professional career, I have been dealing with the problems of environmental protection in the context of preventing possible environmental threats. As a chemist, I mainly focus on the dangers resulting from environmental pollution with chemicals that are in the environment and can be reduced, but also those that could arise if they were to be mass-produced. In my scientific career, I have dealt with, for example, the prognosis of the effects of the presence in the environment of a fascinating group of chemicals – ionic liquids, hailed quite uncritically modern environmentally friendly solvents. It was an example of a very pioneering study in which we decided to thoroughly investigate what would be the effects of any leakage or penetration of this type of chemical compounds into the natural environment before their industrial production. We conducted research from many perspectives: the toxicological one, persistence and spread of these substances in various

components of the environment, as well as long-term effects of their presence. I think that what was achieved then led to a significant, deep reflection of the chemical industry on whether we are really dealing with safe substances, because that is how they were trying to define them. It did not win me, or other scientists investigating this topic, supporters in the chemical industry. It is obvious that such interference is never welcome, but I'm pleased to say that indeed these recommendations or our prognostic studies have been considered and the plans that the industry had associated with ionic liquids have been changed. For many years I have also been studying the effects of the presence of medicinal substances in the environment, which leave our body in a great part in an unchanged form in amounts up to 90 percent of the initial dose. Next, together with municipal sewage, they end up in the environment. Without going into details, sewage treatment plants can't cope with the treatment of these types of compounds. Non-steroidal anti-inflammatory and analgesic drugs, antibiotics, beta-blockers, neurological or anti-cancer drugs – all these substances are already present in the environment at such a level that it's possible to detect them using modern analytical methods. Until a few years ago, no one treated medicinal substances as pollutants, and at best – as negligible, trace contribution to global environmental pollution. The research that we have been conducting in my research team for several years proves that, however, despite the low concentrations of pharmaceuticals in the environment compared to typical chemical pollutants, they have a significant impact on the environment, because they are compounds with specific biological activity. Communicating this to the scientific world, we are convinced that the awareness of the risks posed by the presence of this type of unusual pollutants has an impact on the fact that one thinks differently about designing new or modernizing existing wastewater treatment plants. It also pertains to such a simple activity as returning drugs to a chemist. Common awareness that drugs shouldn't be thrown into a litter bin or flushed down the toilet is necessary. Legal regulations are also important, which should force the introduction of this type of substances to the lists subject to mandatory monitoring. We feel socially responsible for what we do and what we communicate. This is probably often unpleasant information but intended to have a specific effect. It seems to me that these activities are fully in line with the goals of sustainable development.

As a rector? I think this question concerns the directional measures that appeared at the very beginning of this term of office. I established the Centre for Sustainable Development, whose task is to support, coordinate and disseminate all activities taking place at the university related to the achievement of

the goals of the 2030 Agenda. The Centre is also responsible for the popularization of these research results of our scientists and cooperation with the environment in the field of SDGs. We have also tried to ensure that the university is comparable in achieving SDGs to other universities in the world in the Times Higher Education Impact Rankings. We did well in it compared to Poland and the world, we know what else we should do, but this is a reference point for us. I think the ranking will have its deserved place in the university promotion strategy. We want to be a place where we talk about SDGs, teach about them and also, we actively show how to contribute to the attainment of the sustainable development goals.

The equality package should also be mentioned, which we haven't talked much about so far as we have focused on nature and the protection of the environment. But it's a parallel and equally valuable area of activity and the goals of sustainable development, which I also addressed as the rector, for example by amending our statute and comprehensive implementation of the policy of equality or counteracting mobbing. Here we should also mention the new ombudsman and his office dealing with these issues.

We undertake many activities for sustainable development, also from the technical side. We dream of a campus that will be a set of good technological practices in the field of renewable energy sources or micro-water management. Soon, more and more photovoltaic panels will appear on the buildings of the UG. We want every employee and every student, when entering the university building, to be able to see how much energy their building saves through its own production, or how much it reduces the carbon footprint. We are also thinking about equipping the campus with the so-called rain gardens that use rainwater collected from gutters. Now, our application for funding the first such initiative is being considered. Other long-term activities include development of the limnology station in Borucino, which we want to transform into a local monitoring and ecological volunteering center, especially for kids from small towns or rural areas. We also constantly support the development of our research stations that deal with maritime education, above all – the sea station on Hel. Now, there is an in-depth discussion on how we could show society how important the sea and its ecological sensitivity are even more intensely, and not only by means of the seal center.

**The next question was to be about educating and raising the awareness of students about the pursuance the agenda's goals. There has already been a lot of**

**information on this subject, so I guess you see a huge role of education in raising students' awareness about attaining SDG goals.**

It is exactly one of the tasks of the Centre to develop and recommend such didactic modules not necessarily as obligatory elements, but as one of the elements of general academic courses in any field of study. There are also plans for postgraduate studies in this area. They are also being designed right now, so we will only see what their precise scope will be. The beginning was very cautious, but today the plans are really broad, and the studies are to cover many aspects – from the socio-political, through natural to technical and technological – that's how we should talk about it.

**Certainly – to think about research and teaching in a transdisciplinary way. And if we're talking about sustainable development in the context of interdisciplinary research at a university, should we think about carrying out art-based environmental research projects that would be locally embedded, such as the Wetland LIFE project exploring the social, ecological, economic, and cultural aspects of UK wetlands? It would be great if we implemented projects of this type locally in connection with maritime education and activities for SDGs at the University of Gdansk.**

The effectiveness of such an undertaking depends on the willingness to communicate between disciplines, and many initiatives of this type have failed mainly due to poor communication. A lot of effort must be put in explaining the language of our fields and disciplines to one another, which is not so obvious at all. I see from the perspective of university management how much we differ: we understand the term scientific research or teaching excellence differently, we have different methodological workshops, and in scientific research we define the term research hypothesis differently.

**What barriers and challenges related to the goals of the 2030 Agenda about the university and local environment do you see?**

I've mentioned these barriers at the beginning. The stable and prosperous Western economies with a very well-developed middle class, which constitutes most of the society, approach the issue differently. Then probably most of these goals are not very exotic, they are a natural factor, an element that enters general consciousness. In the case of the up-and-coming economies, one of which Poland undoubtedly is, (although it is more and more advanced in large cities) it is more difficult for SDGs to set foot in social perception. We can see that the path to reach these seventeen areas, which are indicated as filling the concept of sustainable development in the socio-political-economic-technological-natural

sense, is easier in richer countries, because you can focus on more than just meeting current needs. We can then think about the climate, gender equality and the fact that water is clean, and we need to save it, not buy something made of plastic. In turn, at the University, we must provide the tools and foundations for employees, students and people who work with us daily from the social and economic environment to see that we are an institution that cares about achieving the goals of the 2030 Agenda. For example: introducing elements related to sustainable development to the tender provisions, portfolio of achievements of the service provider, care for the quality of the environment, equality matters. In conclusion, let's do everything to make the path to this state of mind and the achievement of sustainable goals as short as possible. From our university perspective, we can do it!

## Conversation with dr Katarzyna Szlachetko

Faculty of Law and Administration, Department of Administrative Law

### Thank you for the opportunity to talk. The first question is: how do you understand the idea of sustainable development?

I'm an administrative lawyer, so when I talk about the idea of sustainable development, I mean the normative context. For me, sustainable development is about the principle of law. The way of understanding sustainable development results from many international documents, primarily those adopted by the United Nations. The turning point was the Rio de Janeiro Declaration of 1992, which not only linked environmental protection with sustainable development but also emphasised the social and economic dimension of this principle, drawing attention to the need to eliminate poverty and reduce differences in the standard of living of people around the world. However, it must be remembered that although human needs are very important, their satisfaction must respect the protection of other values: natural, environmental, maintaining ecological balance and biodiversity, which is being talked about so much today (for example in the context of the EU Strategy for Biodiversity 2030). International and EU documents express the principle of intergenerational solidarity. The Polish legislator also considers the principle of sustainable development already at the constitutional level – in Article 5. There is a clear declaration that the Republic of Poland ensures environmental protection, guided by the principle of sustainable development. This is a guiding principle that should influence the shape of state policies at every level, both central and local. The principle of sustainable development is defined in the Environmental Protection Law and refers to its most important aspects in the international sense. The first is the necessity to meet human needs and create conditions for socio-economic development and economic growth. The second is the protection of the environment and natural values. The third one is to create or maintain good conditions for development

for future generations. I think this “triad” expresses how I understand the idea of sustainable development. This idea is also closely related to spatial planning, including the principle of spatial order. This is also one of the basic principles that should be followed by the legislators and entities equipped with tools to implement social policy. In my opinion, it is very important both in the process of making and applying the law to “stick” to the original meaning of the idea of sustainable development. It is about skilful “balancing” and “harmonising” three pillars: social, economic, and environmental, which, however, does not mean their absolute equality in every case. I share the views presented in the legal doctrine, according to which, in certain circumstances, the legislator or the body applying the law must recognise the priority of values and needs related to one of the pillars. These are situations in which it’s not possible to reconcile the values and needs arising from each pillar or, in a specific case, priority must be given to the needs and values related to only one of the pillars. This is then justified by specific protection requirements.

### **You mentioned the European Union. What do you think is the EU’s role in supporting the sustainable development goals?**

Currently, the famous European Green Deal is of great importance, which is the European Commission’s flagship document in the field of zero-emission policy and counteracting climate change. The goals are very ambitious – carbon neutrality by 2050. Creating a supra-state discourse is very important in this regard. I hope that the European Union will be a leader that will lead the Member States along. Of course, there’s also a legal context, to what extent the EU can impose certain solutions on the Member States, guided by the principle of subsidiarity. However, taking joint actions is a necessary condition for adapting to climate change, because the related problems are universal and cross-border. Some scientists believe that we have already exceeded the planetary resilience boundaries, others that we still have some time, but everyone seems to agree that we need to act now with a long-term perspective. On the other hand, it is worrying that the EU’s flagship documents are not comprehensive. They can’t be treated as documents that fully address the issues of SD. I have been interested in the issue of artificial light pollution for two years. Unfortunately, neither the European Green Deal nor the Biodiversity Strategy 2030 mention this problem although this pollution has a huge degradative impact on biodiversity. A year after the latter of these documents was issued, the European Commission, because of the opinions of experts, scientific communities, and some Member States, declared that its policy would include new categories of pollutants. The concept of light pollution even appeared in the

operational document “Zero Pollution Action Plan”, but without detailed implementation measures. It is a challenge to ensure that the law both at the EU level and of individual Member States keeps up with the very dynamically changing needs and conditions resulting from technological progress and the increase in consumption. This is where the key role of public law comes into play – to ensure sustainable development, considering non-legal circumstances, such as the current ones related to the energy crisis and the war in Ukraine. In my opinion, the obligation of the Member States to introduce solutions in national law that strengthen the climate dimension of urban policies is also very important in the context of sustainable development.

**You’ve mentioned your interest in artificial light pollution. Do you conduct research related to various areas of sustainable development?**

I’m primarily interested in the legal regulation of the investment and construction process, which often has a huge impact on the environment and changes in it, so issues related to environmental protection law are important for me, as has for some time been the role of law in relation to climate change. As part of these broad interests, I pay special attention to sustainable spatial planning, hence, among other things, the organisation in May 2022 at the Faculty of Law and Administration in cooperation with the Metropolitan Institute of the so-called Green Conference, where experts and scientists discussed the need to change certain paradigms in sustainable spatial planning. The conference was interdisciplinary, we cooperate with lawyers, urban planners, geographers, and everyone who deals with spatial planning. In addition, I also conduct research as part of my own Good Light Law research programme at the Metropolitan Institute. I deal with sustainable outdoor lighting policy – I’m interested in the legal and administrative aspects of planning, arranging, installing, and controlling outdoor lighting infrastructure. This relates to important extra-legal aspects, including the issue of energy efficiency, environmental protection and counteracting environmental pollution with artificial light, issues of safety of roads and users of public space after dark, the problem of protecting the dark sky, because, unfortunately, we are systematically losing this heritage due to the uncontrolled emission of artificial light in places where it’s unnecessary. We are dealing here with various non-legal issues, which prompted me to study how law and administration can help in this area and ensure that people’s needs related to artificial light are well met while respecting environmental and natural values. The utilitarian needs and those related to the above-mentioned safety are obvious, but there are also aesthetic ones, and some mention economic needs. In April this year, as part of a grant financed by the National Science Centre,

I had an opportunity to learn about solutions in the field of sustainable outdoor lighting policy in Copenhagen – a city where sustainable development is not talked about. It just “is” there. Copenhagen effectively implements a sustainable outdoor lighting policy, even though national legislation doesn’t provide a “hard” legal basis for its creation and pursuance. This is an expression of the bold and effective use of tasks and competences independence, which the Danish Constitution grants to the municipalities.

I’ve never thought about outdoor lighting in this way, although I also suffer sometimes, I can’t sleep when the light pours through the window after dark...

...unfortunately, this has a very negative impact on human chronobiology because it disrupts the production of melatonin, which means that we can’t regenerate. Scientists confirm that excessive exposure to artificial light at night is also a carcinogenic factor. Social awareness in this area is still quite low, and the problem in Poland is to convince people that light can also have negative effects because it’s usually associated with something good.

### **What solution, in your opinion, that would contribute to the attainment of the sustainable development goals could be introduced at our university?**

I think that the University of Gdansk has enormous scientific, teaching, and infrastructural potential. Today, almost every researcher in his field reaches for, to a greater or lesser extent, the principle of sustainable development. We have scientific and teaching staff who can play a huge role in creating scientific discourse around this idea, especially through conferences, seminars, and scientific publications. A popular science initiative would also be important. The idea is for the University of Gdansk to become a meeting place, a space for exchanging ideas among various communities, not only scientific and expert but also political ones and local NGOs. It must strive to raise society’s awareness of the role and importance of sustainable development in everyday life. As a university, we should also act in the teaching field, i.e., shape the awareness of the young people we deal with every day. I think that the ideal solution would be to introduce a mandatory lecture, a general interdisciplinary academic course, during which representatives of various fields of science could teach their modules. The circumstances in which universities operate are changing, but I think that this potential of young people must be well used. In addition, it is important to show that nature-based solutions can be introduced on the campus, i.e., solutions related to the retention of water reservoirs, to green infrastructure, and that it’s possible to use the interesting shapes of our very modern buildings

and the space around them. The idea is to show that certain solutions can be introduced, although I realise that this involves various financial and technical challenges. As far as possible, the University of Gdansk could become an example of a “green university”, showing how sustainable development can be implemented in practice on the university campus.

**You’ve just answered one of my questions regarding the role of education. Do you take up the topic of SD in your teaching activities?**

Yes, to the extent that the curriculum of lectures and classes allows me to do it. When talking about detailed issues of administrative law – the investment and construction process or spatial planning, it is impossible to avoid this topic. It is a necessity, one of the paradigms when it comes to the legislator’s legislative activity to adopt solutions that will enable the implementation of sustainable development in practice, and the role of public law in this respect is enormous. The lack of legal solutions can often be a barrier to achieving the sustainable development goals, as indicated in the 2030 Agenda. The law should facilitate and support the implementation of private and public projects that serve the lasting and sustainable development. The initiative should be on the side of the public authorities, but society, individual entities and students should also be encouraged to introduce innovations based on the goals of the 2030 Agenda on their own.

**And what are your experiences? Are students interested in this issue?**

I think they’re already aware of the importance of sustainable development because they are keenly interested in public discourse. The topic of sustainable development may be a bit problematic because it’s “fashionable” (some even identify it with a certain kind of ideology) and at the same time, it is the subject of many political disputes. It’s difficult to ignore the issue of sustainable development. I see this interest, of course from the perspective of our law and administration students who deal with the legal and administrative environment.

**What barriers and challenges do you see in relation to the goals of the 2030 Agenda?**

First, mental barriers. Convincing society that this is an important problem the solution of which we can’t postpone. Today, a lot is being said about the Anthropocene epoch, some scientists even believe that it is necessary to introduce the name of a new geological epoch. It doesn’t officially exist, but this concept reflects the essence of the problem – we are dealing with enormous, dynamic development, urbanisation, and progressive environmental

degradation that need to be curbed, the way of perceiving sustainable development should be changed, and, to some extent, it should be put on a pedestal. Lack of sufficient public awareness is, I think, the first barrier. Legal solutions are the second barrier. For example, the burning issue of adapting cities to ongoing climate change. In Poland, there are still no appropriate legal tools to implement an effective adaptation and mitigation policy. Even if there is goodwill, especially of local government entities (I believe that the implementation of adaptation tools and solutions is primarily the task of decentralised entities), there is a lack of the central-level legislator's specific actions that would enable the effective pursuance of sustainable development policy. Although we do have the Act on the Principles of Development Policy of 2006, which was amended quite recently, the barrier is that the Polish legislator has problems with observing the principle of coherence of public policy acts. There are many different planning acts, strategies, and programmes, but there are no "links" that would allow these activities to be carried out in a coherent, complex, and comprehensive manner. The last barrier is, of course, the financial one, i.e., obtaining external and internal funds for the implementation of projects and investments that are, for some reasons, profitable, but also expensive. The lack of funds from the National Recovery Plan is a sin of the government of the term of office of Parliament in 2019-2023, for which generations will pay.

**I really like what you think about the law – the law does not exist in isolation. This social factor is extremely important.**

Persons who are sceptical about sustainable development very often stress the fact that people and their needs are "most important". Man is important but does harm to himself by destroying his surroundings. Everyone should be aware that by not taking initiatives in the field of sustainable development, they are harming themselves and subsequent generations: children, grandchildren, and intergenerational solidarity within the smallest social unit is important to us. Maybe this is a way to reach society and make them aware that we all have a common, very serious problem today.

**I will come back to the law, one of its functions is to protect, isn't it?**

The protective function of law is multi-faceted because people need to be protected, but also landscape, cultural, natural, and environmental values need to be protected, so here the principle of proportionality is extremely important, and in my opinion, the idea and, at the same time, the legal principle of sustainable development should bring this proportionality into effect. Of course, sustainable development can be defined in law in various ways, but maintaining

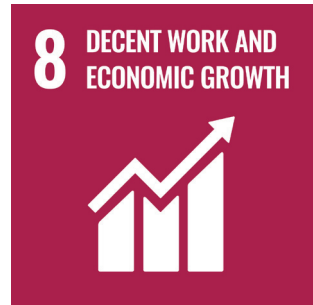
balance comes down to ensuring that all values are mutually respected, without excessive damage, and this is what the legislator should also be guided by. Let me clarify – it's great that there is a legal definition of sustainable development, but it must be followed by specific measures, actions and legal tools. This is what is missing in our legal order and in the practice of applying the law, that's my opinion.

**So we have a definition, but not much results from it.**

The problem is the implementation. This requires specific tasks and competences, sometimes some “courage” of officials, heads of public administration bodies and judges in making the principle of sustainable development more realistic.

**But probably we have such problems not only in law. Everything's before us. I have one more question for you. Which sustainable development goal is the most important for you and why?**

I think it would be difficult to choose one of the SDGs. It certainly is meeting basic human housing needs and, of course, those related to food. It's difficult for me to accept the fact that so much food is wasted in the world, and at the same time we have people who suffer from hunger in the 21st century. The issue of access to clean water and broadly understood adaptation to climate change are also very important goals for me. I see huge potential at the local and local government level in this area. I think that as a local government community, we can cope with this task, on our own behalf and on our own responsibility, in accordance with the principle of independence, with appropriate support from the state and ensured sources of financing. In fact, almost all the sustainable development goals come down to a pressing problem: combating climate change. In fact, even some lawyers say that a separate field is beginning to emerge, that is climate law or climate change law. This is also a response to the needs of sustainable development and many individual tasks related to it.



## **Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**

Progress towards achieving SDG8 has been challenging and the world is far from reaching most of the targets. The lingering effects of COVID-19, cost-of-living crises, trade tensions, uncertain monetary policy paths, rising debts in developing countries, and the war in Ukraine can each significantly set back global economic growth. Combined, these crises are placing the global economy under a serious threat. Global real GDP per capita is forecast to slow down in 2023, putting at risk not just employment and income but also advances in equitable pay for women and decent work for young people. Achieving SDG8 will require a wholesale reform of our morally bankrupt financial system in order to tackle rising debts, economic uncertainties and trade tensions, while promoting equitable pay and decent work for young people

## Challenge 2 Decent work and economic growth

### *Conversation with dr Hanna Wolska*

Faculty of Law and Administration, Department  
of Public Economic Law and environmental  
Protection Law

#### **How do you understand the idea of sustainable development?**

The idea of sustainable development should be understood as a set of fundamental postulates of a global nature, the implementation of which will constitute the most important challenge for modern society in the coming years.

#### **How do you think the goals of the 2030 Agenda can be achieved at the local and micro scale?**

The goals set out in the 2030 Agenda for Sustainable Development are a response to the diagnosis of the most important civilisation threats for the world. Therefore, the only way to achieve these goals at the local and micro-scale is to raise awareness and educate individuals that their individual attitudes and behaviour influence the attainment of the SDG goals. Each goal should be given a narrow meaning so that in the individuals' consciousness the achievement of the goal wouldn't be too difficult for them.

#### **Do you conduct research related to the areas of sustainable development?**

I'm the manager of an international scientific project entitled Economy, finance, and sustainable development (Wirtschaft, Finanzen und nachhaltige Entwicklung), financed by the Polish-German Science Foundation (PNFN). The project leader is the University of Gdańsk, while the project partners are Justus-Liebig University in Giessen, Adam Mickiewicz University in Poznań, Jagiellonian University in Krakow, University of Silesia in Katowice, and

Wydawnictwo C.H. Beck. The main goal of the project is to conduct scientific research on the impact and implementation of the value of sustainable development on the economy and finances in Poland and Germany. The project includes an analysis from a comparative perspective – both horizontally (i.e., at the national level) and vertically (from the point of view of state-European Union relations) while considering the similarities and differences between Poland and Germany in this respect. The research is conducted at the same time on several dogmatic levels, from the perspective of public economic law, financial law, constitutional law, and environmental protection law. The implementation of the value of sustainable development includes many socio-economic schemes in which the processes integrating political, economic, and social activity take place while maintaining the balance of nature and the durability of basic nature processes, to guarantee the possibility of meeting the basic needs of individual communities or citizens of both the present generation, as well as future generations. The value of sustainable development therefore goes beyond issues strictly related to environmental protection. It is also a reference point for the issues of business activity, infrastructure development, building social bonds and shaping spatial order, thus gaining a universal character.

**What solutions contributing to the attainment of sustainable development goals could be introduced at the University of Gdańsk?**

I see the University of Gdańsk as one of the leaders in the field of ecological education and the promotion of the 17 sustainable development goals of the 2030 Agenda among students and residents of the Pomeranian region. University employees and authorities have been involved in various activities in the field of environmental protection for many years. If the planting of trees and cleaning of the Tri-City's forests were initiated by students and employees of the University of Gdańsk, I would be happy to take part in such an initiative.

**What role do you think education and raising students' awareness can play in reaching the goals of the agenda? Do you take up this topic in your teaching activities?**

This is certainly an important element of the system and making young people aware of the goals of the 2030 Agenda at each stage of education is very important. In my teaching work, I show students various legal solutions regarding sustainable development, which they can use in their future professional work. Year by year, I also notice that students are more and more interested in this issue.

### **What main barriers and challenges do you see in relation to the goals of the 2030 Agenda?**

First, I notice the mental and awareness barriers of individuals who aren't convinced that their actions can improve the global condition of the modern world. That's why education and raising public awareness of attaining the goals of the 2030 Agenda for Sustainable Development are so important.

### **What is the EU's role in supporting the Sustainable Development Goals?**

It's certainly an important and multi-faceted role. The European Union is an initiator in implementing the 2030 Agenda for Sustainable Development together with the Member States. The sustainable development goals are also reflected in all 10 priorities of the European Commission. Moreover, as a lawyer, I see the particular importance of the European Union in harmonising legal provisions that combine economic, social, and environmental issues.

### **Which of the sustainable development goals is the most important for you and why?**

Goals 5 and 15 are the most important to me, i.e., goals related to ecology as well as achieving gender equality and empowering women and girls. This is since I'm the mother of a 16-month-old daughter and I'd like her to live in a natural and healthy environment, and in the future to have a chance to achieve any goal she sets for herself.



## Goal 12. Ensure sustainable consumption and production patterns

The world is seriously off track in its effort to halve per-capita food waste and losses by 2030. The COVID-19 pandemic has had significant impacts on consumption and production patterns, with disruptions to global supply chains and changes in consumer behaviour. Responsible consumption and production must be an integral part of the recovery from the pandemic. But the global economy also needs to speed up the decoupling of economic growth from resource use by maximizing the socio-economic benefits of resources while minimizing their negative impacts. Reporting on corporate sustainability has tripled since the beginning of the SDG period, but the private sector will need to significantly improve reporting on activities that contribute to the SDGs. To deliver SDG 12, it is crucial to implement policies that support the shift to sustainable practices and decouple economic growth from resource use.

## Challenge 3 Responsible consumption and production

### *Conversation with dr hab. Katarzyna Smolarz, prof. UG*

Faculty of Oceanography and Geography,  
Division of Marine Ecosystems Functioning

#### **How do you define sustainable development?**

Generally, in my professional work, I focus on environmental aspects, especially the marine environment. However, sustainable development is a much broader concept and includes the interaction between sociological, economic, and environmental aspects. However, from my perspective, environmental elements are an essential part of sustainable development. When it comes to the presence of this topic in public discussions, social and economic issues are generally in the foreground, although I've recently noticed a positive change in this respect in favour of environmental issues. The marine environment, which is particularly of concern to me, and to the inhabitants of coastal regions, the sea is at the centre of discussions about sustainable development and generates many important topics: sustainable use of sea resources, related safety, and social and cultural issues.

#### **Sustainable use of marine resources isn't easy. What biggest obstacles related to this can you see?**

Undoubtedly, striving for continuous economic growth is inconsistent with sustainable development. One of the most problematic elements is, at least from my perspective, far-reaching consumerism. Now – during the pandemic – we seem to be moving away from this a bit, we notice that we can't develop forever. From an environmental perspective, consumerism must be limited. However, it's not easy. Apart from the political aspects, there are also various stakeholder

expectations. When it comes to the sea, each decision is related to an attempt to reach compromises between various stakeholders. Often, during such a decision-making process, economic and environmental arguments collide. Some say that they must support their families somehow, others say that's fine, but if you support your family now at the expense of the environment, you won't support it for long and in ten years you'll have to change your career and change your approach anyway. Most people, however, think short-term and what happens here and now is more important to them than what will happen in ten years, regardless of whether they have children or grandchildren or not.

**In your opinion, how should social awareness in this area be raised? Do you notice any positive effects of the currently used tools?**

I believe that we've already achieved some successes in this matter. An example is waste segregation. Some time ago it was unthinkable to segregate anything. Everyone thought it was a strange idea. However, financial pressure has had a positive effect. The fact is that if we don't sort it ourselves, it will be done for us, but for an appropriate fee. It was the increase in costs that suddenly made us start sorting waste and it turned out that it was possible. Reaching public awareness isn't easy. People are tired of the negative narrative. If we are constantly told that something bad will happen and it doesn't happen, trust in information decreases. Another important issue is the education of educators. There is also a lack of consistency in educational content. Let's take our university as an example, where, despite its systemic operation, until recently there were no consistent regulations. That's why I believe that everyone has an important educational task to do. I am sure that everyone, through their educational, scientific, or administrative activities, can contribute to supporting the sustainable development goals, regardless of the function they hold. However, it's necessary to work out a coherent action plan.

**Could you expand on the need for coherent systemic action of the entire university to support the sustainable development goals?**

I think this is a fundamental issue. We'd be able to do more if we had responsibilities adapted to our role at the university. Not everyone is a good teacher or a good scientist. Therefore, combining many functions and the need to report the effects results in a mechanical action, we only do what we are accountable for. A good scientist can find scientific solutions important from the point of view of sustainable development, while a good teacher is able to convey a convincing message to students and engage them in a given topic. The university needs innovative educators and science popularisers. I see three levels of university

activity in the context of sustainable development: scientific, educational aimed at students and popularisation of science addressed to the social environment...



## Goal 13. Take urgent action to combat climate change and its impacts\*

The world is on the brink of a climate catastrophe and current actions and plans to address the crisis are insufficient. Without transformative action starting now and within this decade to reduce greenhouse gas emissions deeply and rapidly in all sectors, the 1.5°C target will be at risk and with it the lives of more than 3 billion people. Failure to act leads to intensifying heatwaves, droughts, flooding, wildfires, sea-level rise, and famines. Emissions should already be decreasing now and will need to be cut almost by half by 2030 - a mere seven years from now. To combat climate change and its impacts by 2030, urgent and transformative action is needed to meet the commitments under the Paris Agreement across mitigation and adaptation efforts.

## Challenge 4 Climate action

### *The Interview with prof. dr hab. Beata Możejko*

Faculty of History, Institute of History,  
Department of Polish Medieval History and the  
Auxiliary Sciences of History

**Professor, considering your research interests and scientific achievements, please tell us how you understand sustainable development.**

I'm a medievalist, I research the late Middle Ages, but I also deal with history auxiliary sciences. I also think that historical geography, i.e., research on changes that have occurred in the environment over the centuries, is important. Sustainable development is a topic that is slowly becoming important for medievalists. It seems that ecology is closer to our contemporary generations, and this is indeed the case, while medievalists also try to ask questions about what it was like in the past and how a certain change in thinking about nature and our surroundings occurred. A symbolic example of this is the fact that in 2021 the motto of the International Medieval Congress in Leeds, organised since 1994, was climate, climate change and various issues surrounding climate. We from Gdańsk talked about water, about the importance of water and the Baltic Sea for ancient societies. It seems to me that regardless of my research field, I don't need to be convinced that the issues of ecology, climate change, water and plastic are very important things. We are also very pleased that the Centre for Sustainable Development was established at our university. For me, as a researcher, it's important when a person becomes interested in nature and what surrounds them, and here we can cite a very beautiful example of the medieval Japanese. Our Middle Ages and the Middle Ages in Japan were two different worlds, both chronologically and mentally. In Japanese poetry, for example, admiration for nature, interest in wind, water, seas, and mood swings related to weather changes appeared much earlier than in European poetry. This was the first issue that surprised me when I compared medieval poetry,

e.g., European poetry, in which no attention was paid to matters of nature, to the Japanese approach. Sustainable development, from a global perspective, concerns social changes that have taken place over the centuries, striving for what one of the points of the agenda talks about, i.e., gender balance. We need to understand why today I and my colleagues are at this point at the university and not another, why we need to encourage our female students to speak more often, e.g., during course classes. It's also thinking about the language that has changed, analysing how it is changing today, and making us sensitive to the way we speak and address other people, because sometimes we think that the use of an adjective doesn't hurt anyone, but it does. This is more socially open thinking, and I would call it more sensitive, and this sensitivity has been developing over the centuries. These issues are a very interesting research subject for me, e.g., why certain topics discussed in the Middle Ages later become taboo, it's no longer appropriate to talk about something, and in turn certain issues are the order of the day. Equally interesting is the study of the issue of changing the attitude towards the individual, towards man as such. Here I mean, for example, the issue of the eighteenth- and nineteenth century (Professor Jerzy Zajadło wrote about this in one of his books) attitude to slavery: a slave as a thing and a slave as a person in a court case. Seeing all changes from a historical perspective, trying to understand why we are at this point and not another. For the historian, sustainable development would, on the one hand, be related to ecological issues, and on the other – gender equality, equal opportunities, and a change in a certain sensitivity to language. Czesław Miłosz said long ago that we, the people of the university, are on an island and it's important that we get off this island. However, it's important that we first know that we are on an island and today there is a nice word for it – a bubble: this is my bubble, not my bubble, we are in our own bubble. According to the 2030 Agenda, the university also means cooperation with the environment, but it doesn't have to be what we, humanists, are a bit afraid of because we imagine that it's supposed to be cooperation with industry. What can we do for industry or business? I think it's worth taking a broader look at this problem. Humanists' involvement in the environment may begin with supporting various sectors in the dissemination of ideas and products, e.g., by explaining some phenomena or processes. As humanists, we can try to speak a simpler language, that is, not a university-like, hermetic one. The agenda forces us to think about 2030, but trying to understand the world around us, for example, the phenomena of the coat of arms, logo, or the recently changed symbols of the University of Gdańsk, explaining how important the sign and brand are – this is a task for us. We can cooperate with colleagues from psychology, sociology, economics, or management, thus becoming

interdisciplinary. Of course, not everyone will want to listen to us, but there will always be a group that will say: yes, we want to listen to popular science lectures, we want to know what is happening at the university. I will refer to “my field” of the Uphagen House Society, with which I cooperate and run its fan page on Facebook. It isn’t a large society, nor is it particularly numerous, but its goal has always been to popularise the history of Gdańsk. The pandemic showed that our regular or occasional participants got used to our activities and wanted to continue our meetings. For a long time, I’ve been asking myself why, for example, the inhabitants of the Tricity willingly come to events popularising science organised in the city: lectures, team games and city games, but they don’t come to the university. We announced that we were preparing a popular science conference at the university. There were many questions in response from those interested: whether they could come, whether there would be tickets, whether the event would be open, whether there would be an entrance fee. There was no such barrier when we organised a university conference, but online. When we prepared a popular science conference about celebrities, we had numerous participants. I saw on the list that people came from everywhere, not just from the university. On the one hand, time is indeed a barrier – you have to get there, you have to devote some time to participate in the event, but on the other hand, I’m afraid that the reason for this phenomenon is the invisible walls of the university and it’s not even about the fact that there is a gate, and it doesn’t concern only our university. The problem concerns the university as an institution not only in Poland but also around the world. People are afraid to cross this threshold, lest they stand with a grade transcript, be questioned, and feel uncomfortable. I think that the goal of a sustainable university is to try to find a tool to open the university. When I sometimes send an invitation to my collegemates, many of them shyly ask if they can come, if it will be an open event. Even graduates who finished their studies some time ago and previously attended seminars, lectures and additional events are reluctant to return, probably not only because it’s a place of stress and exams. But why? It would be interesting to diagnose where this invisible barrier comes from to build a sustainable university. We can create our internal model and answer important questions for us, the people of the university: academic staff and students, but the point is to open to the outside world so that people want to come here after work and not be afraid and they feel that it is a friendly and open environment. A great example of this type of activity was the science picnic that took place at the university in autumn 2021.

Some passers-by even ask if they can enter the university premises. This is an area to work on. In the context of your statement, I must ask about the practical turn in the humanities and the desire of humanists to open laboratories. Is this a step towards sustainable development, towards interdisciplinarity, or is it a desperate attempt to find their own place in the modern world?

Both. I am a historian, we are historians, and as humanists, we are very focused on individual work. Everyone, either in the privacy of the library or in the privacy of the archive, works individually in their office, and the first barrier is group work. This is also my view because I had an opportunity to cooperate, and I do cooperate with colleagues from the Faculty of Biology and the Department of Plant History. Initially, I looked at them with envy because they work as a team, they created a team and understand each other without words, and know what they are talking about without blinking an eye. A dozen or so years ago, even the language differences between us were striking, e.g. my colleague and I understood the word manuscript differently and when she said that she would come to us with a manuscript, obviously meaning a computer printout, a colleague from my Department was terrified that she would bring something written by hand because for us a manuscript is a text that is most often in the archive and written by hand. But it turned out that we had to find the proverbial Ariadne's thread that would connect us. On the one hand, there is, at least in me, because I don't want to speak in the name of others, a longing for interdisciplinary work, which is a great experience. Even without looking for cooperation with faculties dealing with exact sciences, cooperation between humanists can be an extraordinary adventure: with art historians, philologists, archaeologists. On the other hand, you asked whether the desire for cooperation is not desperate. It seems to me that when we talk about sustainable development and cooperation with, for example, the industry, it varies. The industry is also changing, but we humanists associate the industry with the 19th century, a century that had little to do with sustainable development. We associate it with large factories, with production halls where women stood at machines while producing yarn, or with large industrial Łódź, with Reymont and his "Promised Land", that is, with nothing interesting, but with something that was depressing and sad, which contributed to the condition of the planet, with profit-oriented thinking. Of course, we still see a profit-oriented approach, but today it's no longer that type of industry. We participate in discussions about the problem of coal and energy, obtaining energy sources, and new technologies. I think that in the context of new technologies, it's important whether and how an individual, a person and a story about a person will be perceived. Are we the proverbial hamster running around in a cage, or are we, in other words, a cog in this great machine, or can we

build relationships? I really like the Erasmus programme, for example, because it builds and this is also a part of my research, i.e., research on the Hanseatic League, cooperation, networking, networks of connections. Modern technologies can help us build networks, as we saw during the pandemic. What would we do without the Internet in times of pandemic? How would we find ourselves in this whole story? What would we be condemned to without these Teams and Zoom, hated by some? To phone and sending traditional letters? Someone wrote that some people had learned how to use a computer at an accelerated pace. I can't imagine my functioning without it, surviving through this first pandemic year, with all flights suspended, without the possibility of going to conferences or talking to students. I recently had such an experience: in the morning I signed up for a workshop broadcast from Helsinki, where most of the lecturers were English from various places in the UK. It was about domestic violence, a very valid topic, but we also talked about domestic violence in the Middle Ages and modern times, how to research it, how to ask questions. Later in the evening, I took part in a meeting of the scientific circle of students and PhD students from the University of Warsaw, where the speaker talked about emotions in the Middle Ages. In fact, without leaving home, I travelled all over Europe, I could be here and there. Then I thought that it would end soon, on the one hand, it will be fantastic, it will open opportunities to meet in person again, travel to conferences, go for a coffee break, but on the other hand, I will no longer be able to attend such a seminar because no one or few will organise it. I believe that the best form of meetings after the pandemic would be a hybrid one...

**...so that you can still listen to valuable statements from around the world and take part in various events.**

So that you can click and take part in such a seminar. I think that the pandemic opened new opportunities for us. Many people emphasise that the gain of the pandemic, apart from many, many losses, is the opening of the world of universities to a wider audience who don't have to turn on the camera, they can only write "good morning" in the chat, sit quietly, and listen. And people with various mobility problems who won't go to a conference due to their health condition can participate in various events online. This is a clue for us. I think today we need to redefine the sustainable development goals. The seventeen goals described in the agenda require the addition of certain tasks that the pandemic taught us about. Among people who worked in front of a computer during the pandemic, there is a problem with returning to stationary mode, because some people felt good sitting on the other side, not having to speak, not having to be seen, i.e., not participating in social life, even our academic one.

**I think some of us got used to the online mode because sometimes it's easier to give a lecture at home and then switch off the computer than to come to the university, meet fifty students and try to interact with them.**

I think that some meetings will be held online. For example, a meeting of the doctoral committee can be successfully held on MS Teams without having to leave home. This is part of human nature – we also get used to it and thanks to this we can survive. But I'm thinking about one thing that is slowly emerging in the discourse. One of the SDGs talks about gender equality, and we even discussed it at the Social Responsibility of Science Committee to expand this committee to include men, because their perspective is also interesting and important.

**Great!**

It would be against the principle if only women were on the committee. We also wanted to invite men who are also interested in this topic. Coming back to your question, the research we have access to shows that the share of women in publications and grants has decreased. All in all, women are burdened with home office work and taking care of their children. It isn't a problem only in Poland. For example, I've talked to my friends from the Netherlands, the Czech Republic and Germany, and it's the same everywhere, even though we are talking about equalising opportunities. In some Western European countries, equalising opportunities has been a top topic for a long time. However, it turned out that during the pandemic, it was mainly my female colleagues who complained about working from home, and only one male colleague who explained his delay in editing texts by the fact that he had children to take care of. We see that this is a big problem, after all, we have single mothers who had no support at home, or mothers whose partners simply didn't work at home and the woman was left with the children in the home office. I think that interesting research will emerge from the pandemic period, but the fact is that the decline in women's participation in grants and articles is visible.

It was particularly difficult during this period when kindergartens and schools for grades 1-3 were closed. Older children, however, cope better, although, as observed, not entirely. I watch friends who have older children. They also constantly check whether teenagers participate in lessons.

It's not just about those children who are absorbing all their time and to whom it's difficult to explain that mommy or daddy must work at home. Sustainable development after the pandemic poses new challenges.

### **Undoubtedly. Let's go to the next question: how does the concept of sustainable development manifest itself in your activities?**

I can see that the scientific and humanities community is opening to new research topics, e.g., issues of demographic development. The topic of pandemics and their effects is obviously a new and old topic that has become extremely fashionable because we are trying to see what the problem looked like in history, that is, to tell what epidemics were and how long they lasted, what social effects they had and how society dealt with these effects when they were not yet called psychological. Research is being carried out, e.g., on the cholera and Covid-19 epidemics, or the flu epidemic, which affected Europe and the world demographically more than World War II and Covid-19. We already know that we need to react quickly and not wait with research because society is interested in the issue and is trying to find answers in history. Looking more broadly at the humanities, I think activism is important. Activities such as sorting waste and saving water can change a lot if we build a network of people who will think and talk about it. Sooner or later society will slowly change its thinking and habits. We achieve the goals of sustainable development through such activities as ecological education, awareness-raising and introducing habits. I've recently reviewed a work on the attitude of pre-industrial societies towards animals, and the medieval debate on whether animals had souls. If so, they should be held accountable and treated differently, because it's one thing to kill an animal that has a soul and another thing to treat it as soulless, which is immediately accompanied by a story of sin. It seems to me that our task of humanities scholars is to try to tell an interesting story. The only question is whether anyone will want to listen to us. We should remember that it's worth telling interesting stories so that people want to listen to us because the fact that we are today at this stage of development didn't come out of nowhere. It's not that we were born in the 21st century with a laptop and a mobile phone in our hands, but we are the heirs of our ancestors, and it's not easy to understand our place here and now through the prism of history. I'll refer to my bailiwick. I ask my students why children are interested in history and then, as teenagers, they are not, and where the mistake has been made. I don't want to blame the school, the teachers, the overloaded curriculum. Under the influence of various factors, history ceases to be an interesting story and becomes boring. Why are chemical experiments more interesting? Crowds often come to watch experiments but not to listen to our story. Where have we lost interest? Do you remember the moment from the film "Out of Africa" when the main character, when asked: "What can you do?", replies: "I can tell stories." People want to listen, but maybe it must be a 30-second or a 5-minute story, I don't know.

You probably must adjust the right narrative to a specific target group, and this is my childhood experience. Why did I stop liking the history? It stopped being a beautiful story told by my grandmother and grandfather, my uncle and became dates in a notebook, the causes, and effects of specific historical events. If there hadn't been this story of my family, or my uncle, who isn't a historian but a regionalist and writes books about Teutonic castles, and if these stories hadn't been present in my house all the time, I would have probably chosen experiments. If my uncle hadn't created his narrative and continued this story at every possible meeting and if he hadn't given me access to his library and to those beautiful stories that were everywhere in his house. I remember that for me it was an entry into another world, extraordinary, crossing the world of stories. In his words history was alive, but in school it was dead.

Exactly, in school it was dead. I was so lucky to have history teachers who could tell interesting stories, but I was equally happy to go to history lessons and to chemistry lessons in primary school, where I had a fantastic chemistry tutor who taught us these simple formulas, all these connections through experiments. I remember these revelations from my litmus test class. I remember the laboratory, test tubes and our beloved chemistry teacher with the litmus paper that was changing – I still remember it to this day. Her lessons were also stories, with various tools in the background, but still about this world, which on the one hand has the past and on the other – the present. I also think, half-jokingly, half seriously, that preserving our childhood curiosity when building a sustainable world is crucial. Good quality education is not about scoring, a fear that the teachers will ask us about things we are no longer interested in, a fear of getting bad grades. We must, on the one hand, write our scientific works, which are hermetic works, because this is what the academic discourse requires (we write for a degree, we overcome subsequent barriers or steps in the academic career), and on the other hand, which is also difficult, translate the research results into a more understandable language. When I meet my friends or colleagues, I expect a popular science explanation of the world of physics or mathematics, which for me at school was terribly depressing, I had a knot in my stomach. We shouldn't limit ourselves only to the Polish reality, as I said, Erasmus is very important. I also see it in my students who dare to go because it's some kind of courage to leave home, even if someone lives in a dormitory, they must find another dormitory abroad and overcome their fear of the language barrier. Not everyone will speak English in each city where the university is located. Students must overcome the natural human fear of foreignness to go on a scholarship. When they come back, various new doors open for them, and they start to see a new

horizon. In this case, we can simply cooperate with our students and cultivate these contacts, and then they will form their own groups, have their own peer groups and do fine.

**I'd like to continue the topic of education and raising students' awareness about achieving the goals of the agenda. You mentioned Erasmus, and what other activities can be added when we think about the role of education and raising students' awareness of attaining the sustainable development goals?**

If we are talking about gender equality, then everything must be balanced, there must be multidirectional thinking, and we must be careful not only about gestures but also about language because language can easily hurt people, even unconsciously – there is a huge role of the university in such education and in various courses. We also talk about it at the Social Responsibility Committee. Someone will think about equal pay in a new way when they are shown the poster “Did you know that your daughter will earn less than your son?”, because we want our children to earn money, so that every child, regardless of gender, can live well. Only with such a poster, with such an action, can we show the problem so that someone stops and starts thinking. The recent appointment of a spokeswoman for equal treatment and counteracting mobbing at the university is certainly important. It's a very important step that we have a spokeswoman who deals not only with unethical behaviour in education or society but also with mobbing issues because this problem concerns not only academic staff but also students, so opening a discussion on this topic is a challenge. There is a need for staff and student training, some kind of occupational health, and safety training, but it shouldn't just be clicking. There needs to be a discussion about how to do this, and about what tools can be effective to engage the student community. Of course, there's no denying that we won't be able to engage 100% or even 90% of the community. Training, education and more education, Erasmus, all contacts, and foreign cooperation are important. The more people will come to us, the more open we are to others, the better it will be, in my opinion, because we'll see that introducing changes for sustainable development isn't so scary. Sometimes a very simple poster, a discussion about global problems, interviews, a university website that can also educate us, the use of social media – these are simple and effective tools. Let's not be afraid of social media, let's not say that Facebook is stupid. Students have recently explained to me that TikTok doesn't have to be stupid at all, there are mostly images and videos, I haven't used TikTok yet, but I'll see what it is because I just want to know what new tools there that are appeal to young people. If we stop at Facebook, it will turn out that they have already escaped us and that we won't speak to them.

This doesn't mean that I must produce videos for TikTok and use only it, but it's good to know it, it's good not to shut myself off from these new tools because using them is also a challenge. I'll never speak a youth language again. There has recently been a programme that presented a youth language. I don't understand anything from it anymore. Let's not delude ourselves that we'll speak the language of young people, but let's ask ourselves what language they speak and what new technologies they use. Using them for sustainable development is, in my opinion, very important. If we say that computers repel us or that we don't want e-books, then in my opinion we won't get very far with sustainable development. Of course, I honour and respect a printed book and there's nothing better than having a new book from a bookstore, from a printing house, but my possibilities of collecting books and shelves are increasingly limited. Maria Janion's photo is beautiful, showing her in her studio or her own private library, sitting in the middle on a chair and surrounded by books, but this is not behaviour in line with the SDGs because it means the consumption of paper. We also use energy to produce readers... Aren't we a bit too optimistic to set the agenda for 2030? After all, it includes goal 10, which is to eliminate barriers between poorer and wealthier countries. The pandemic teaches us that as the European Union, we have access to the vaccine, but in India it is very limited. Not only UNICEF and WHO are obliged to act, but grassroots initiatives, such as the work of social activist Janina Ochojska, are extremely important for sustainable development. So, on the one hand, we have huge, centralistic, organisational behemoths, from which the impulse comes, and on the other hand, we see that something isn't working. If you talk to young people, they are very sceptical. On the one hand, there is an ecological group that will say that you need to cooperate with various UN agencies, but there will also be a group that will say that it's a bureaucratic world and it needs to be reformed. I would probably have a Nobel Peace Prize if I knew how...

**That's true. The last question concerns the barriers and challenges related to the goals of the 2030 Agenda. We have already talked about many of them today...**

Barriers may vary. It may be simple indifference. What I mean here is this approach to life: "I am in my own world, and I don't care about anything except myself." It's very difficult to overcome this barrier of indifference. When we study past societies, we find that most of them lived to survive. If someone was born in the Middle Ages, even in a higher social class, first, they had to survive: women – childbirth, children – childhood diseases, epidemics, invasions, wars. You had to live until you were thirty-something and take care of providing

yourself with the necessities of life. Some time ago in some TV programme, someone explained that we buy so much food because we can afford it. We go to a shop and put more products into the basket without much thought. In my opinion, when building sustainable development, the barrier is indifference, resulting from various reasons. Another issue is building a community. What is the benefit of membership of the European Union? Some young people today will say that they don't see any benefits from the European Union, that it's a bureaucratic world that imposes on us that bananas should be yellow, and carrots should be orange. After all, the value for each of us is freedom of movement, democratic freedoms, and taking care of these democratic freedoms. It seems to me that all dictatorships, I may be wrong, do not strive for a sustainable world, this is not their goal, i.e. building a world without barriers, on the contrary, they create various barriers, starting with those we've already talked about here, i.e. communication barriers, access barriers, the fact that early education is included in various social programmes of various countries and some say that it deprives children of their childhood. But on the other hand, I also hear this from my students, they come from different backgrounds, from different homes, and some of them had contact with books, theatre, and art for the first at the early school stage, and in big cities we don't think about it at all. When the UN was creating this agenda it certainly saw in sustainable development the elimination of the differences between the north and the south, between the more or less satiated Europe and Africa, between Africa, Asia, South America, the differences between the native populations that demand their rights in America, Australia or New Zealand, which is all very difficult, because if we grow up in a certain environment and we are stuck in our bubble again, it is difficult for us to step out. I try to be apolitical, and I don't tell my students to vote for this or that party, it's not allowed. I shouldn't do it, but I can persuade them to vote, and I tell them that our great-grandmothers chained themselves to lampposts not so that you, ladies, can now say that you won't vote. Someone fought for it, and in the 18<sup>th</sup> century men also fought to be able to vote, the aim of the French Revolution was to allow a larger social group to influence change. I don't think we would have enough time to say how many threats there are. There are also opportunities, for example in levelling barriers such as access to books, because again the pandemic taught us that open access was our chance. The more we agree to share, the more we will read. There was a discussion that maybe we should have online tickets to theatres because we understand that we must pay for these technical measures, but let people have access to the theatre. We won't go to Warsaw because we don't always have money or time. Social exclusion is an important topic, we also talk about it in Poland, and we are

discussing the fact that many students escaped from the educational system because they lacked access to computers. Before we start setting great, enormous goals, we should first take these first, basic steps and actions: education, openness to different age groups, to explain to them, for example, the history of Gdańsk, but also to take advantage of the important opportunity that modern technologies give us and which we can take advantage of when crossing these barriers. It will also be important to build connections between us academics. It's great that you invited me to this interview, and we can talk like a humanist with a humanist. What is valuable is that you invite people from different fields, from different disciplines, and that we try to talk about the same thing in our own language. Thanks to this, we are building a network of connections at the university, not only Polish or European ones. There are opportunities to expand our activities because we have EU funds. Perhaps my statement will be a bit political, but these funds should go to local governments, because in the local environment, people know best what needs to be changed around them and of course, it needs to be controlled, this is money from our taxes, but the local community knows best what the barrier is and has ideas on how to overcome it.

### **We should act locally, and what about a macro scale?**

If we read about what is happening to glaciers, about endangered species, see what is in the water, read the reports of our chemists, we start to think differently, so global thinking about nature, about the fact that we want to leave something to the next generations after us, we must think globally...

Similarly, it is worth thinking globally about key competences, multilingualism, and developing intercultural or transcultural competences.

Intercultural competences are very important. We can plan to raise them in university activities and in our education system. After all, in the syllabus we have the so-called KRK system, we plan the improvement of social competences in learning outcomes. First, teaching our students conversation skills, encouraging them to develop social competences, which they develop from an early age because they start developing them as children when they learn that a toy isn't just for one child. I think that developing social competences is what we can offer, regardless of whether we are humanists, chemists, or work at the Faculty of Biology or Mathematics and Computer Science.

## *Conversation with prof. dr hab. Janina Ciechanowicz- McLean*

Professor Emeritus of the University of Gdansk

### **Considering your research interests and your scientific achievements, I would like to know how you understand sustainable development?**

Thank you for this question because it's an introductory question for any talk about sustainable development. I'm a lawyer by education, and I'm probably also a lawyer by nature, so for me the understanding of sustainable development is normative, legalistic. We have the Act on Environmental Protection; the concept of sustainable development appears in the third article. It is, one might say, not very juridical. Why am I saying that? Because it is a descriptive definition that is difficult to apply for judges and the judiciary. Therefore, here, in this normative or legal definition, sustainable development is defined as socio-economic development in which the process of the integration of political, economic, and social activities takes place while maintaining natural balance and the durability of basic natural processes. All of this is done to ensure that the basic needs of the international community are met, both of this generation, us, and future generations. Concluding this normative presentation of sustainable development, it should be said that it's based on several pillars: natural, environmental, social, and economic ones. It is worth emphasizing that the definition of sustainable development also appears in other disciplines. It is important that lawyers, judges, attorneys, and prosecutors interpret this definition well, because their interpretation will determine the application of the law and the implementation of sustainable development. What eludes many people in this definition is the subject. Who is all this to be preserved for? For what subjects? For us and for future generations? For lawyers, very important information appears at this point, not only that future generations are empowered and have some rights, and therefore lawyers or solicitors can't think only about what is good for me here today, but about whether it will be good in 50, 100 years for

successors or residents of this municipality, children, or great-grandchildren, etc. This definition provides guidance on how to understand sustainable development. Besides, as a lawyer, I should actually start with the Constitution, because in the fifth article of our Constitution we introduce sustainable development as a systemic principle and the fifth article at the beginning of the Constitution, which addresses the most important matters, that the Republic guards the independence and inviolability of its territory, ensures freedom and human and civil rights as well as the security of citizens, protects the national heritage and, and this is where our field comes into play, ensures environmental protection pursuant to the principle of sustainable development. So, please note, among the main rights and obligations of the Republic of Poland, there are both the concept of sustainable development and a clear interpretative guideline: the Republic of Poland ensures environmental protection in accordance with the principle of sustainable development.

**It is very interesting; I think few people know that there is such a provision in the Constitution.**

Yes, but this provision means that we don't protect the environment as a priority, and environmental protection should be consistent with sustainable development. So, the protection of the environment must consider the right to economic development, which implies that sometimes it's necessary to give up the protection of nature or the environment in favour of economic development. And environmental protection is to take heed of social needs. So, what if we come up with a landfill or waste incineration plant. It is obvious that it must be located somewhere, and sometimes in each municipality the social needs are different, e.g., the municipality is applying for the status of a health resort and in this municipality and in the buffer zone of this municipality there can't be such facilities protecting the environment against waste, such as an incinerator or a landfill. Therefore, this is what I emphasise, which people do not pay attention to, that sustainable development is environmental protection, but it is in quotation marks "tempered" by sustainable development, to protect the environment at the same time caring for economic development and social needs.

**Yes, indeed, because we most often think about climate protection when we mean sustainable development, and, as the name suggests, this is supposed to be sustainable development.**

Yes, all international definitions go in this direction to protect the environment rationally and reasonably, not forgetting that there are also other areas of life,

such as the economy and society. Besides, we need money to protect the environment, and who will generate it? Only economic activity.

**All these are interrelated. I really liked what you've said about the subject, about the future generations. This is also the specificity of legal norms that someone has the right and someone else has a duty. Do you conduct research related to the areas of sustainable development?**

Oh yes. In fact, please note that the name of the department which I have headed for over twenty years, perhaps 24 years, is economic, public law and environment protection. This research has been related to ecology, the ecological side of economic activity, what limits economic activity from an ecological point of view, and there are some different factors there. My latest research concerns climate, climate protection law, international, EU and Polish standards, because this is the order in which they came to us. Climate protection is not only air protection, which appeared in Polish standards as early as the 1960s. There are also other factors, and this climate protection came to us from international law. And now I am dealing with the European Green Deal, the responsibilities of states in implementing the European Green Deal.

**Could you say something more about this latest project?**

This is a new idea that came to the European Union after Ursula von der Leyen became a new President of the European Commission in December 2019, and this Green Deal started from the European Climate Law. Various climate protection regulations were promulgated in spring 2020, and climate protection standards are still being worked on, which emphasise this economic activity that doesn't have a negative impact on the climate. Economic activity promoted and financed by the Union is the one that will not adversely affect the climate, will not emit gases, and will not produce waste. It's supposed to be a closed economy, so-called circular, reuse of materials, the fight against plastic. The Union wants to make the obligation of the European Union countries not to use plastic even stricter. Here, by the way, I'll say that in the case of sustainable development and the Green Deal, the European Union is a leader in the world because it signs and accepts all the largest international conventions on matters seemingly related only to environmental protection. I'm talking here about the 1992 climate protection convention, the so-called the Climate Convention, the Convention on the Protection of Biological Diversity also from 1992, the Paris Climate Agreement from 2015. The three universal conventions that I've mentioned have been ratified by over 100 countries. The European Union, as an integrating organisation, assumed an obligation to raise the standards in the

conventions under study to introduce even more stringent standards and certificates. The Union carries quite a heavy burden. This new European Deal is an idea at the European level, supported and developed by many experts. You can't pick holes in it. However, meeting these obligations is left to states. Member states are to bear this burden of implementing the New Deal, and the Union, through the European Environment Agency, is primarily to supervise, monitor and control. And in the Green Deal the EU set this ambitious goal that by 2050 we are to be climate neutral, and by 2030, i.e., 20 years earlier, over 80% of energy is to be obtained from RES. Unfortunately, there are no clear funding rules for this transformation towards the Green Deal. Of course, this renewable energy, especially sea-based, area-based, and massive-scale hydrogen technologies are being encouraged. They are being tested in the EU to generate energy from renewable sources, while Poland wants to return to nuclear power plants. On the other hand, in the EU, there is a tendency to abandon nuclear power, but it also depends on the state, because while Germany has closed nuclear power plants, France uses its nuclear power plants, because it has over 50, 55–56 of them. France has no problem meeting the goal of climate neutrality in 2050. It is certain that we must give up coal.

**Exactly. This is one of our biggest and most difficult problems to solve.**

Yes, yes. More social than economic, because please note that from the economic point of view, we are doing well. Even a few days ago, when the Bełchatów power plant went out, we immediately imported additional energy from Germany and Sweden. So, such international cooperation is possible when someone fares badly. On the other hand, the social problem with energy is of this kind: what to do with the miners, with their families, with the whole of Silesia, how to find employment for these people? Here you can see this “limping” sustainable development, that there is no recipe for it yet.

**It's also probably connected with the miners' culture, their traditions.**

You are right to emphasise this point. Yes, these traditions are important there. Once, I was at a conference in Silesia and a beer inn was organised as part of the integration evening. I hadn't seen anything like this before. It was an integrating event on a huge scale. Lots of people, lots of alcohol and good food, mainly beer, and company. Mining families do cherish these traditions.

**As you have noticed, achieving SDGs by 2030-2050 will be difficult. I see a certain danger here related to the economic situation of individual EU countries. It is very diverse and leaving the attainment of the goals of sustainable development to the EU countries is perhaps an overly optimistic solution. What do you think about it?**

Well, I think you're on the right track. Due to the pandemic, the economy of many countries in Europe is at risk, it's not as good as the EU authorities would expect, and it's even more visible in different statistics that after the pandemic both inflation and employment as well as GDP increases are very different. The variety of economic positions of countries may result in a variety of decisions regarding the implementation of the Green Deal.

**Exactly, 2030 is too optimistic a date. Let's look at the situation in our country, for example.**

Yes. And yet the Green Deal is just a very good-sounding slogan. Let me remind you that in the 1980s there was such a new international economic strategy. There was one lawyer who did habilitation, the New International Economic Order, an economic strategy with a very similar name. It failed.

**Precisely.**

Yes, the New International Economic Order. Although many countries of the West and the East endorsed the UN concept, it wasn't implemented at all. In my opinion, too many goals are set in the Green Deal now, because it's impossible to be very good economically, while satisfying the needs of all social groups, especially educational, liberal, cultural ones, and the needs related to nature conservation. You can't enforce the acceleration of economic growth, because if the economy is being boosted strongly, then social issues will be left behind. Environmental probably too.

**So, we're coming back to the concept of sustainable development again. Even when it comes to the economy, it must also be sustainable. And what role do you think education and awareness-raising can play in implementing the agenda's goals? Do you take up this subject in your teaching activity?**

When it comes to education, I've always seen two obstacles in fostering sustainable development and environmental protection. First – environmental education, second – financing. These are absolutely two factors that slow down the pace of introduced changes. If you're talking about education, environmental education is obligatory from the legal point of view, i.e., there's an obligation in the "Act on Environmental Protection" that in schools at different levels there

should be lessons devoted to these issues. Some universities respect this very much and they teach about environmental protection law in all fields of study. If we disseminate environmental education, we'll at the same time instil environmental ethics in students, true, they'll have certain values in mind and these values won't allow them to compromise the goals of environmental protection in their professional and private lives. And this is where education is extremely important. Have I dealt with it? Yes, to be honest, for quite a long time, because there were a lot of classes on sustainable development in the nineties at the university, especially at the Faculty of Law. At that time, the Spatial Planning acts and the Building Law Act introduced a very clear obligation for planning and construction to conform to eco-development, because this term was used at that time. Today, this term has been changed in these legal acts, and sustainable development has replaced eco-development.

### **And what actions, do you think, should be undertaken at our university in the field of sustainable development goals?**

We can pursue SDGs at any field of study. As we know there are over 80 fields, and these seventeen SDGs can in fact be reduced to three. The first one – sustainable economic growth and development based on knowledge and organisational excellence. This is the curriculum of many fields of study, for example our Faculty of Economics, our Faculty of Management. The economic sphere is represented here and in this sustainable development the emphasis is placed on building a strong industry, coherent, comprehensive investments, especially currently investing in innovation, in the expansion of Polish business, green business, green public procurement. Please note that these Economic Faculties are the addressees of this education. When I look through studies, especially from the management faculty, there is a very modern curriculum there and they see this sustainable development in economic processes and in the economics of various industries. This is one group of faculties, but in the second group we'll be able to easily pursue the second goal of sustainable development, i.e., sensitive, and territorially balanced development, development that accepts social cohesion as a condition of an economy that should be characterised by a high level of employment. This goal is pursued primarily at the Faculty of Social Sciences, but the implementation of the elements of sustainable development is visible in all faculties. It's the education framework for all types and fields of study. Well, now the third goal. It is related to the achievement of an effective state and institutions conducive to growth as well as social and economic inclusion. This goal is taught in the fields of study at the Faculty of Law, but also at the Faculty of Social Sciences. It is the third leg of sustainable development. We

can't forget about biology, because biologists naturally deal with the issues of environmental protection and sustainable development. After all, our biologists very often prepare opinions for courts. I've recently read the opinions of biologists about harming the environment and nature on the Hel Peninsula where camping sites are. The owners of the campsites expanded them by appropriating the shoreline, or by adding sand, adding more meters of beach, thereby destroying some plant habitats. These cases ended in prosecution and court proceedings, and the court asked our biologists to give their opinion on sand-dumping: is it environmental protection or is it an expansive economy. They unequivocally stated that it had affected the ecosystem, especially on the Puck Bay side and interfered with Natura 2000 sites. So, the answer to your question, what the university can do... the university can do everything and here the curricula could be improved. The staff is prepared because our employees go to international conferences and training courses, and they are up to date with all trends. The staff is prepared, there's only a question of didactic methods to provide this environmental education, foster environmental awareness; instill this ecological ethics in the student, the future professional. This is how I would see it.

**Do you think that we should have some additional subjects that would deal with issues related to sustainable development, or can we introduce them within the framework of the curricula we already teach?**

The answer to this question isn't easy, because as my previous statements show, we have subjects scattered around various faculties, fields of study, but we don't have such subjects as, for example, the law of sustainable development. By teaching this subject, we could make students of all faculties aware that sustainable development is a whole and they, while studying selected elements of economy or biology, can't only look at their priority, but should see their role in socio-economic development. I would simply call this subject "The Law of Sustainable Development". Anyway, the shorter the name of the subject, the more capacious and legible it is, so maybe just such a university-wide lecture, maybe even obligatory, should be a clamp. The following would be presented: legal regulations in Poland, in our Constitution, in laws, as well as what comes from the European Union in the form of regulations, directives, resolutions and what comes from the world, from conferences and international conventions. In such a subject, "The Law of Sustainable Development", one could also present the concepts of sustainable development from the point of view of other sciences. One part would be the general one, showing the institutional framework for sustainable development, which is what I've said before. The other part

would detail this sustainable development according to various disciplines and fields of study. This is how I would see it.

**Thank you. I think this subject is a great idea. It could be a certain module where everyone could join in, present issues related to sustainable development from the point of view of various disciplines.**

Because the easiest way to introduce it is precisely within these subjects, university-wide lectures. I don't know how many credits they carry, but if you gave a lot of credits to "The Law of Sustainable Development" at the same time, it would mean that most students would enrol and come, so in the future they would have a normative basis and a framework for sustainable development provided.

**I'd like to go back to the Goals of the 2030 Agenda for a moment. What main barriers and challenges in relation to the Goals of the 2030 Agenda do you notice?**

The main challenge is energy policy. Please note that this has already been reflected in our project of the Polish energy policy 2040. In fact, it's written there that it's to be a climate-neutral policy and that this neutrality is to be achieved through forests, absorption of carbon dioxide. After all, the European Union is introducing such solutions. Afforestation subsidies are already being granted. All these private forest owners now have an application deadline of sometime in June and they receive a subsidy for keeping the wooded area wooded rather than clearing it up for parcels of various kinds. If we're talking about energy coming from the sea, from wind, then of course we can build wind farms, we will, but fishermen from Ustka are protesting because these fisheries in the vicinity of wind farms will be inaccessible to fishermen, for sea fishing. Consequently, they will bear the costs (as a social group) of wind energy. There is always some great plan, but on the other hand, it shows the flip side of the coin, the difficulty of getting it done. Please note that it's also supposed to be green here, there should be green forests. Everyone can see what Masuria is like, everyone knows, forests and lakes, but now, for better transport there is to be a road from Olsztyn to Białystok through lakes there, so that there is better transport. But what do roads bring? Certainly, increased traffic, noise, waste, vibrations, interference in these ecosystems, and even interference in the landscape. After all, today's environmental protection is since landscape conditions are also extremely important, which means that these aren't easy decisions. Our students must be prepared for such decisions, once they work professionally, to make them judiciously and consider what is in the overriding public interest.

Such a category is in law. We remember the famous case with the Rospuda Valley. What was in the overriding public interest at the time, the protection of the Rospuda Valley, where the priority species of musk orchid grew, or a ring road for Augustów leading to Suwałki and the Baltic states? Here it was necessary to consider what was in overriding public interest and that was considered, right? There were protests, environmentalists and others began to be involved, and an alternative variant was found. A 17 km longer road, but respecting the Rospuda Valley, respecting nature. Preparing our graduates to make economic and social decisions is our didactic goal. Equipping them with such multifaceted, comprehensive knowledge that shows various aspects of a given issue. It's not that only one thing is sacrosanct. I will come back to where we started our conversation, Art. 5 of the Constitution – Environmental Protection, that the Republic of Poland ensures environmental protection in line with sustainable development, which means that sometimes the environment must be sacrificed for the sake of economic decisions.

**Yes, it's true and it seems very important to me to bring the society round to certain issues, because one thing is to make a decision, but the other is to get social support. I think it's extremely important in our case.**

Well, you raised this important issue, even regulations necessitate it, in Poland we have a law that requires public participation in decision-making and this law is a mirror image of the Aarhus Convention, a European convention that also requires consulting the public. There is an obligation for the public to participate in decisions concerning environmental protection, etc. The obligation is there, it's up to us how we will fulfil it. Why am I saying that? Because when the Nord Stream was being built, there was an obligation to get to know public opinion, because as I mentioned, the Aarhus Convention is binding for European countries and the community of our three coastal provinces was asked for their opinion. An advertisement was placed in Gazeta Wyborcza, Pomeranian, West Pomeranian and Warmian-Masurian voivodship offices from 22 December 2007 to 11 January 2008. Maybe a year earlier. In any case, it was so cleverly devised by lawyers or managers to ask the public between Christmas Eve and sometimes after Epiphany. Who of us currently pays attention to what is happening outside? I presented it somewhere in a paper long ago in the Senate of the Republic of Poland that social engineering was used so that the opinion of society was positive.

**It is always done like this. Unfortunately.**

Unfortunately, yes. We have Nord Stream one, the public did not protest.

### **Satisfied.**

They didn't comment, and we have Nord Stream two now, don't we.

### **I have one last question. Which of the goals of sustainable development is the most important for you and why?**

There are seventeen of these goals, but for me the goals related to environmental protection are the most important, because it's not only water protection, climate protection, but also the protection of natural processes, i.e., nature, and this is mentioned in several goals. Are you asking me here which goal is chosen by me...

### **There can be several.**

I'd say there are several of these goals. Definitely one of them, I think the seventh – clean and affordable energy, which we've already talked about a little, then the thirteenth – activities in the field of climate protection, the fourteenth – life below water, yes, it is very important, after all, whether we say, I won't interpret it anymore, or life on land – fifteen and goal six – clean water and sanitation, and the twelfth – economy, consumption and production, so here it pertains to organic farming, food security is at play. It is this broad framework of the legal protection of the environment. There are nearly 50 acts of various types, and they sometimes overlap. Their application pursues SDGs. And these environmental goals contain climate protection, energy, protection of waters against pollution, protection of fauna and flora in general against pollution, life on land, that is, protection of arable land, water, sanitation, and this responsible consumption and production. Thus, environmental goals are important for me and there are six of them. So, if we have seventeen minus six, we are left with eleven other goals to be divided into social and economic matters. You can even see these in the statistics here, right, these three pillars of sustainable development. Six environmental goals and eleven divided into two, that is, there will be six economic and five social goals. Here, even in this construction of the goals of sustainable development, these tiles, because they're presented in the form of tiles, you can see this tripod and the pillars of sustainable development.



## **Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss**

Continued global deforestation, land and ecosystem degradation, and biodiversity loss pose major risks to human survival and sustainable development. Even as efforts are made in the domain of sustainable forest and natural resource management, commitments and instruments designed to protect, restore and sustainably use forests and biodiversity need to be urgently implemented to ensure healthy, resilient societies.

The world's forest area continues to decrease but at a slightly slower rate compared with previous decades. The proportion of forest area fell from 31.9 per cent of total land area in 2000 to 31.2 per cent of total land area in 2020. Despite the overall loss of forest, the world continues to progress towards sustainable forest management. Between 2010 and 2020, the share of forests under certification schemes, the proportion of forest within a protected area and the proportion of forests under a long-term management plan increased globally.

Safeguarding key biodiversity areas through the establishment of protected areas or other effective area-based conservation is an essential contribution towards Sustainable Development Goals 14 and 15. Globally, this coverage of marine, terrestrial, freshwater, and mountain key biodiversity areas has increased from about one quarter of each site on average covered by protected areas 20 years ago to nearly half of each site covered in 2021.

Vegetation coverage of the world's mountains remains roughly stable at approximately 73 per cent since 2015. Disaggregated data by mountain class

shows that green cover tends to decrease with mountain elevation, evidencing the strong role of climate in mountain green cover patterns.

By February 2022, 129 countries had committed to setting their voluntary targets for achieving land degradation neutrality, and in 71 countries, Governments had already officially endorsed those targets. Overall, commitments to land restoration are estimated at 1 billion ha, out of which over 450 million ha are committed through land degradation neutrality targets.

The Red List Index shows continuing deterioration in terms of species extinction risk around the world, based on repeated assessments of the extinction risk of all amphibians, birds, mammals, corals and cycads, representing about 25,000 species in total. The index went from 0.80 in 2000 to 0.72 in 2022. The prevalence and rate of extinction risk are particularly severe in Central and Southern Asia, Eastern and South-Eastern Asia and small island developing States. COVID-19 pandemic impacts on species extinction risk are likely negative mainly because of reduced conservation capacity and resources, along with increased threats.

At the end of 2021, 68 countries had at least one legislative, administrative or policy measure in place to ensure the fair and equitable sharing of benefits arising from the use of genetic resources and associated traditional knowledge in accordance with the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity. Furthermore, 79 countries reported measures in place to implement the International Treaty on Plant Genetic Resources for Food and Agriculture.

Nearly all countries (98 per cent) have adopted national legislation relevant to the prevention or control of invasive alien species, although there is wide variation in the coverage of this legislation across sectors.

There has been a steady upward trend in the number of countries incorporating biodiversity values into national accounting and reporting systems. Most countries have established national targets in relation to Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020. However only about one third of countries are reporting that they are on track to reach or exceed their national targets. Despite progress, Target 2 was not met by 2020.

As of March 2022, 89 countries and territories had implemented the System of Environmental-Economic Accounting (SEEA) to make nature count in policies and build back better through accounts for natural resources and/or ecosystems. This number is unchanged from 2021. Four countries started compiling the newly adopted SEEA Ecosystem Accounting in 2021.

In 2021, a total of 234 biodiversity-relevant taxes are in force, spanning 62 countries. While these policy instruments provide incentives for sustainable consumption and production and thus to conserve and sustainably use biodiversity, they also generated revenue in the order of \$8.9 billion per year (2017–2019 average).

In 2020, the official development assistance of members of the Development Assistance Committee of the Organisation for Economic Co-operation and Development in support of biodiversity was \$7.2 billion, an increase of 3 per cent in real terms over 2019.

The world is facing a triple planetary crisis of climate change, pollution and biodiversity loss. The trend in forest loss, land degradation and the extinction of species is becoming worse, posing a severe threat to the health of the planet and people. Goal 15 will not be met without a dramatic shift in our relationship with our natural environment.

## Challenge 5 Life on land

### *Conversation with prof. dr hab. Beata Grobelna*

Faculty of Chemistry, Department of Analytical  
Chemistry, Laboratory of Chemistry and  
Analytical Chemistry of Cosmetics

#### **What role does sustainable development play in chemistry?**

A very important one. Chemistry enables us to create goods and technologically advanced materials provided to many economic sectors, for example the pharmaceutical industry, the automotive industry, the electronics industry, the textile industry, and the construction industry. Without sustainable chemistry, there is no sustainable development. Generally, sustainable chemistry involves the design and manufacture of chemical products and their use in goods and processes to generate large economic benefits while protecting the environment. Over the past few years, a lot has changed, with producers accepting responsibility not only for the manufacturing process but also, to a greater extent, for the natural environment, which entails a proper management of production-related waste. It is also important to constantly improve product manufacturing technologies, to take advantage of new opportunities, to replace harmful materials with high-quality natural products, and to stop pollution as well as to use energy from renewable sources. This is exactly a space for chemists who search for new solutions that are both economically viable and environmentally friendly. To illustrate that, let's focus on the use of microplastics as abrasives and exfoliants in cosmetics, such as peelings or body cleaning products. However, they are not biodegradable in nature. The controversy over the use of microplastics has resulted in many cosmetic companies removing the ingredient from their products and replacing it with natural substances, such as: ground walnut shells, apricot kernels, or coffee grounds. The society

has increasingly become aware of the need to choose the right product, which is necessary for our longer-term enjoyment of a well-kept and non-toxic environment. There is no sustainable development without new investments in the chemical industry or innovative solutions in safe and sustainable chemicals or digital transformation.

**Chemists can notice things hardly noticeable to non-scientists. How can such information be communicated to consumers and average citizens?**

Both the University of Gdańsk and university teachers from the Faculty of Chemistry have an important role to play in sharing knowledge and engaging in local and international outreach. Our actions aim at raising awareness of, and communicating knowledge about, issues related to multidimensional impacts on the environment and society. Reliable, science-based, and comprehensible information is provided to children, young people, and adults with already established opinions. Researchers working at the Faculty of Chemistry have year-long experience in communicating science to the public and holding numerous events, such as open lectures for schools, the Sustainable Development Day, workshops for secondary school students, Saturday Encounters with Science (experiments run by Dr. T. Pluciński), lectures given at science cafés and at the University of the Third Age etc. Many public science events are organized together with other faculties. In cooperation with the Faculty of Economics we run the project 'Science Clubs at the University of Gdańsk – known and unknown faces of science'. One of its major goals is to promulgate the idea of sustainable development, particularly the Sustainable Development Goals, and social responsibility of science mainly through raising ecological awareness in society. During one event at the Faculty of Chemistry we had the pleasure to host Mr. Marek Kamiński, who talked about his round-the-world zero-carbon travel plans. Many young people found the meeting inspiring.

**For years the University of Gdańsk has held public science events to disseminate information, and to promote scientific research findings regarding ecology and environmental protection. Of great value is the science café initiative, open to everyone interested in the research work done at the university. So is the Sustainable Development Day. Could you tell us a little bit more about the initiative?**

For many years the Tri-City used to host the Baltic Science Festival launched by the Council of Rectors of the Pomerania Voivodeship. Right from the start the Faculty of Chemistry made a significant contribution to the festival through holding numerous events aimed at increasing interest in chemistry. We were

engaged in local outreach activities by offering lectures, workshops and experiments for primary and secondary school students, and preschoolers (always on Fridays). However, families were welcomed on Saturdays. Since 2018, which marks the end of all activities related to the festival, the Faculty of Chemistry has been engaged in many public science events. Together with Professor Barbara Pawłowska, Dr Magdalena Markiewicz and Ms. Izabela Szlagowska, holding a master's degree, we have been running the project 'Science Clubs at the University of Gdańsk – known and unknown faces of science' (2020-2022). It has been co-financed by the Ministry of Education and Science under the Social Responsibility of Science program and includes scientific lectures, and the Sustainable Development Day.

However, the pandemic has got in the way of scheduling lectures within the framework of science cafés. We have had plans to hold every meeting at a different faculty, to demonstrate our university diversity, and to listen to public science lectures over a cup of coffee and a piece of cake. The pandemic has slightly changed our plans in that we have switched into online lectures to be given by researchers representing all faculties at the University of Gdańsk. What is important is that they are delivered in plain language comprehensible to both younger and older people, which is a powerful way of communicating scientific knowledge. The Sustainable Development Day, on the other hand, aims at promoting and supporting the idea and implementation of the Sustainable Development Goals through launching projects dedicated to the application of sustainable development principles in all areas of life and business operations. This is an all-European initiative aimed at making the University of Gdańsk part of a European network of action to promote sustainable development within the framework of the European Sustainable Development Week. Two events have been planned during the project. The second one will be held at the Faculty of Chemistry, on June 3, 2022.

### **And finally, I'd like to ask you about your research work and how it is related to sustainable development.**

My research interests include materials engineering and chemical nanotechnology. They mainly focus on synthesizing new hybrid non-organic and organic-inorganic solid-state materials as well as nanolayers doped with lanthanide ions and biologically active compounds. My research work also covers the synthesis of noble metal nanoparticles and core-shell structures, and their application in materials engineering and spectroscopy as well as cosmetic recipes.

My experience shows that particularly the topic of cosmetic chemistry resonates widely with older and younger people alike. This is a topic which can encourage children and young people to study chemistry by making various cosmetics in a laboratory while discussing the chemical compounds to be found in them. It is challenging to distinguish the truth from falsity. The content provided by celebrities is very often exaggerated and distorted, for example when it comes to preservatives and UV filters in cosmetic products. The information provided to society should be based on scientific facts. That's why it is so important to share knowledge and to use solutions generated in research laboratories and widely discussed by scientists.

## *Conversation with prof. dr hab. Ewa Maria Siedlecka*

Faculty of Chemistry, Department of General and Inorganic Chemistry

**Professor, considering your research interests and scientific achievements, please tell us how you understand sustainable development.**

To leave such resources so that future generations can use clean water and air, enjoy green places, and listen to birds singing. From the perspective of my discipline, which is chemistry, and I deal with sewage and water treatment, I can see how the imbalance in the use of the environment and the lack of understanding of the complexity of its functioning negatively affects its quality, and our attempts to repair the negative effects of our actions are not always successful. We – as a society – think we have enough water. When I talk to students and ask whether Poland is one of the countries where there may be a water shortage, they are sometimes surprised that such a problem can arise. In the 1990s, there was a discussion about the significant content of nutrients in water and students know about this problem, but when we move on to today's challenges, we discuss medicines that are consumed in very large quantities and then discharged with treated urban sewage into the water. This topic isn't always known to students. The latest research indicates that psychotropic substances also occur in water at the detection level of currently used analytical methods. They pose a danger because over time these substances can get into drinking water. Yet another problem is microplastics. I cooperate with the Pomeranian District of the Polish Ecological Club, where we run projects on monitoring microplastics in the Pomeranian Voivodeship. The research results were presented in the European Parliament, where we were invited along with other speakers to discuss the state of the environment. In our speech, we focused mainly on the Baltic Sea and its tributaries. The research shows that microplastics are present in surface waters that flow into the Baltic Sea, with the Mottawa River being the most polluted. In the waters, we found mainly microfibers coming from shipping

and the use of plastic textiles. German research shows that microfibers from fabrics constitute almost 30% or perhaps even more of the total amount of microplastics introduced into the environment. They are created when washing clothes made of such materials.

The research of my scientific group concerns the search for effective methods of removing micropollutants, especially pharmaceuticals, from water, which should be considered not only a scientific problem but also an application one. We have a European Union directive obliging us to remove micropollutants from wastewater, but the problem is to find an economically viable and effective method of removing them on an industrial scale. The level of micropollutants, including medicines, discharged together with treated sewage is significant. Our treatment plants haven't been designed to remove this type of difficult-to-biodegrade pollutants and, like other treatment plants in Europe, they are based mainly on mechanical and biological treatment processes.

My research group deals with methods of drug neutralisation, i.e., removing both native compounds and products that are produced during their metabolism in our bodies. Metabolites are usually not analysed at the inlet of the treatment plant, but it's known that they can be dangerous due to their potential biological activity as well as native forms. We develop advanced oxidation methods for their effective removal. In the first stage, we design and synthesise materials that support the oxidation and mineralisation of these compounds in the presence of sunlight. Then, we optimise the conditions for conducting such processes and check whether the treated sewage or water isn't ecotoxic, i.e., whether it's safe for the environment. We also deal with processes of producing alternative fuels from renewable energy sources, but so far these methods have been mainly used in the laboratory. We also participate in fieldwork. We participated in a project in a pilot station in which pharmaceuticals were removed by means of the ozonation and adsorption processes on activated carbon. The research was conducted at a full-scale urban sewage treatment plant. In real conditions, we analysed and optimised the operating parameters of this facility. This is the first such station in Poland. There are similar facilities in Sweden, and Switzerland has also developed methods of removing micropollutants by means of the ozonation process. There is great interest in this issue. We are aware that without the introduction of the stage of removing micropollutants from wastewater, the concentration of medicines in the environment will increase. The presence of medicines in the environment results in medicine resistance in bacteria. If we don't reduce the introduction of medicines into water, we may

have to develop new types of antibiotics, because the ones that currently work will no longer be effective.

**Professor, how do sewage treatment plants operate on a large scale today in terms of purifying wastewater from pharmaceuticals and microfibers? You are talking about pilots, but what does it look like on a large scale? Are we coping with this? We know that there is basically no monitoring in the world.**

Monitoring is carried out selectively. Many research groups in France, England and Poland monitor pollutants that are of interest to them. Many scientific works have been written that deal with this problem in terms of medicines, microplastics and narcotics. Reports from sewage treatment plants in Kraków (Płaszów and Kujawy) indicate the presence of significant amounts of medicines such as diclofenac, carbamazepine, sulfamethoxazole, which can be found in every European sewage treatment plant. We can say that the medicine removal efficiency in European wastewater treatment plants is similar. Treated sewage discharged into the environment contains antibiotics, hormonal drugs, antidepressants, painkillers, and antihypertensive drugs. Their amounts in sewage depend on their availability and consumption in each country. Research has shown that in Sweden and Poland, the concentrations of medicines in sewage are similar, but treated urban sewage differs, for example, in terms of the content of organic matter. Therefore, the introduction of new technology requires its optimisation for the specific conditions of a given catchment.

If we don't reduce the introduction of medicines into water, we may have to develop new types of antibiotics, because the ones that currently work will no longer be effective.

Coming back to your question, sewage treatment plants remove medicines to varying degrees, which results from their chemical structure and susceptibility to degradation by microorganisms. Hormonal compounds, such as oestrogens, are almost completely removed from sewage. But when discharged into rivers and waters, the small amount that is released is enough to negatively affect living organisms. Therefore, it's important whether the concentration of medicines introduced into waters has a negative impact on living organisms, because if we have medicines that are present in a concentration lower than the concentration that causes a negative effect, we approach these types of compounds differently. In the case of non-steroidal anti-inflammatory drugs or antibiotics, the removal efficiency, depending on the type of medicine, ranges from 80 to 20%. In turn, some medicines, e.g., carbamazepine or diclofenac, may have

higher concentrations at the outlet from the sewage treatment plant than at the inlet.

### **What does it mean?**

Medicines are metabolised in our body and the products that emerge can be transformed into native compounds during biological wastewater treatment. This means that at the inlet we are dealing with a mixture of the medicine and its metabolites, which are decomposed during wastewater treatment and the initial medicine is recreated. When examining only the native form of the medicine, we don't see any metabolites at the inlet, but we do observe an increase in the concentration of the native form at the outlet. It should be added that even if the medicine is effectively removed during sewage treatment using a mechanical-biological method, it may accumulate to a significant extent in sediments. We treat sewage by means of the so-called activated sludge method, i.e., using microorganisms that live in a floc. The adsorption process may take place on this floc. Then, the sludge should be stabilised in such a way as to neutralise the medicines. This means that we are shifting the problem from water and sewage to stabilisation and utilisation of sludge.

We have a very similar problem with microplastics, of which we remove more than 90%. This means that we achieve a good result, but these substances are still present in the sediments in the unchanged form. As I mentioned earlier, we subject sediments to stabilisation processes. Some sewage treatment plants try to use stabilised sludge, e.g., for soil reclamation. This leads to the secondary introduction of microplastics into the environment. It's worth noting that monitoring microplastics in water is incomparably easier from an analytical point of view than monitoring microplastics in sediments. We have some data on water, but when it comes to sediments, there is much less of it, but the data that we have clearly show that microplastics from sewage accumulate in sediments.

### **Is this a progressive process, or can we see some improvement now, both in the case of medicines and microplastics?**

The consumption of medicines and plastics, especially disposable ones, is still high. However, it should be noted that we are at a stage of civilisation development where, thanks to medicine, we live longer. We are a society that uses over-the-counter drugs relatively willingly. This applies not only to Poles. Statistical data show that residents of many European countries consume significant amounts of medicines. Among many other reasons is the desire to live without pain or to feel young. Let's also remember that the number of people in

the world is increasing, so the global consumption of medicines will grow. I think that doctors play a very important role here, as they have a significant impact on what and in what quantities we consume. When it comes to monitoring, we can't monitor all medicines, we must select those that will be indicators for us to objectively assess the situation. The next step should be the introduction of legal acts that will set the direction for assessing the effectiveness of micropollutants removal and their control. The micropollutants we are concerned about include not only medicines but also phthalates and bisphenol A. We know that some phthalates have a very negative impact on reproduction, so they should be monitored. We still have a long way to go, but we can see some progress, we are introducing monitoring of selected substances, we are looking for effective methods of removing micropollutants such as advanced oxidation, and we are testing pilot stations using ozonation and adsorption on carbon. Moreover, in the case of disposable items made of plastics, we have tried to replace them with other more environmentally friendly materials since 2021.

**Thank you very much for such a comprehensive answer. What actions connected with the sustainable development goals should be taken at the University of Gdańsk?**

The sustainable development goals are very broad, they concern both society, economic development, and the economy. I will refer to social issues. When I observe young people, it seems to me that many of them are eager to get involved in broadly understood planetary issues. I'm fascinated with the idea of sharing. I know that there are special refrigerators where you can share food if you buy or cook too much. Places where things made from waste are sold are also good, as they give them a second life. I think this is a space for our students' creativity and ingenuity. It doesn't have to be a shop as such, but a place where you can share different ideas and help repair broken things. You can also exchange or borrow various devices or things that you've bought or received and used several times. We often throw away such new items which are in good condition or keep them in the basement for many years. Such a place would allow others to use these unwanted items and at the same time reduce the amount of generated waste. Artistically gifted people could exhibit their works made of waste in such a place. This place would have an educational dimension and make people aware that the life of so many items we throw away can be extended. The place I am talking about would promote good waste management practices and teach economics. I know that our students are very creative. They are willing to engage in work that requires them to be creative. Then they are more motivated to work and can surprise us, teachers. I think they might

like this idea. Moreover, as academic teachers, we should set a good example when it comes to pro-ecological behaviour. Just talking about it isn't enough. We segregate waste on campus. In laboratories, we teach students how to deal with hazardous waste. I think it's worth encouraging people to come by bike, to save electricity and water, that is, to make certain ecological behaviours fashionable and promote them. People are more willing to take on certain tasks if they are trendy. Then it's easier to put effort into completing such a task. Above all, we should clearly show students through our behaviour that unecological attitudes are passé, and at the University of Gdańsk, we promote all ways of being that are consistent with the principles of sustainable development.

**The next question concerns students and raising their awareness in attaining the sustainable development goals. You've talked about good practices. What else could be important?**

I think we have a lot of activities, including lectures and seminars, that are related to sustainable development. I tell students about green technologies and what proper waste and sewage management looks like. However, I notice that students show little interest if ecology is only talked about. It's important to engage students in activities in which they look for solutions. I was recently very pleased with a class in which students attempted to evaluate car journeys using petrol, gas, and electricity. We compared costs, time, and the possibility of refuelling during such a trip. The students were very well prepared. We discussed many economic and ecological issues regarding sustainable development. They came to certain conclusions themselves by looking at the numbers. The conclusion of our discussion was that an electric car is ecological, but only on the condition that in Poland greater emphasis is placed on energy from renewable sources. I think it's worth taking an innovative approach to transferring knowledge. I see an opportunity here for student projects, discussions and exhibitions that would raise awareness of threats and challenges. We live in a beautiful place on the Baltic Sea coast, and our knowledge as a society about the quality of its waters and threats isn't very extensive. At the Faculty of Chemistry where I work, we try to combine chemical knowledge of e.g., acid-base equilibria or colloidal solutions with ecological knowledge, so that our students can translate this basic knowledge into practice. Students need to realise that these aren't just processes discussed during chemistry classes. Since chemical knowledge, we try to understand nature, how it works, and how it defends itself against the pollutants we introduce into it. Nature is a very complex system and interference in one of its elements results in a whole series of subsequent events. We see this at every step, as well as during every ecological disaster that affects us,

e.g., the fish kills in the Odra River. I think that making the entire society aware of these relationships on various occasions, e.g., events organised for schools or residents of Gdańsk, is very important, and our students should also play the role of educators.

**I must ask about our campus and nature. How do you see this issue, what should we do to make the campus more open and show that at the University of Gdańsk we want to achieve the sustainable development goals and work towards them? What could we do as a university, in your opinion?**

We have a beautiful park, which is located between the Faculties of Biology, Chemistry, Mathematics and Computer Science, but there is no life in there. Of course, the pandemic significantly cooled down the life of the academic community, but it should now return to the faculties and the park. I think it's a great place for student life and events related not only to the academic community. I'm pleased with all the events that we held last academic year. We can see a revival on campus, the organisation of picnics, which means we are slowly returning to normal functioning as a community. Such meetings are very important because they give us a sense of community.

**Professor, what main barriers and challenges do you notice in connection with the implementation of the 2030 Agenda?**

We often say that we want to act ecologically, but our habits don't allow us to move from talking to action. We need to work on our mentality to go beyond declarations and follow the principles of sustainable development. I think that these habits are better ingrained in young people because they've heard about the threats and ways to reduce them since childhood. For many years, we have become accustomed to disposable items. We heard use it and throw it away, no one worried about the amount of waste generated this way. Currently, we are aware of how much plastic waste remains in the environment. We are looking for technologies for their disposal or management. However, it's difficult for us to part with plastic water bottles or shopping bags. We have become accustomed to the convenience of plastic packaging. I hope that the current generations of children and young people will abandon these disastrous habits and based on knowledge and their own experiences, will conclude that consumption shouldn't be excessive, but rather should be well-thought-out. Young people pay attention to what they buy. In many situations, students show that they are conscious consumers and know producers' tricks, e.g., regarding the excessive size of a product packaging, to visually convince us that there is more of it in the package. Young people check the chemical composition of cosmetics, avoid

products containing microplastics, check food additives and avoid products that contain too much of them or are known to be harmful. I hope that there will be more and more people who will support natural food and products that don't negatively impact the environment at any stage of their life cycle.

### **This also shows how important interdisciplinary research is.**

It can be said that interdisciplinarity is a feature of the modern way of doing science. Interdisciplinary research enables solving complex problems, such as those occurring in environmental protection, to understand them better. The research conducted by my group can be considered interdisciplinary. First, we design and synthesise new semiconductor materials. We assess their properties through a series of physicochemical tests. We use these materials to develop methods for removing medicines or producing alternative fuels, e.g., hydrogen. We analyse whether the method we've developed and the sewage or water it treats are safe for the environment. We compare the results of our experiments with theoretical calculations, which at certain stages of research allow us to make decisions in which direction we'll go next. If the research results are promising, we can move on to research on a larger scale than in the laboratory. To carry out this planned scope of research, we use the help of physicists, biologists, and process engineers.

We have become accustomed to the convenience of plastic packaging. I hope that the current generations of children and young people will abandon these disastrous habits and based on knowledge and their own experiences, will conclude that consumption shouldn't be excessive, but rather should be well-thought-out.

This is still research within the natural and exact sciences, and it would probably be good to combine it all with the social sciences and even the humanities, I think that it would also be good to move in this direction and implement this type of projects and, hopefully, that it will be possible at our university and we'll work and network in this way and apply these solutions somewhere.

In my opinion, combining aspects of social sciences and humanities with exact science is extremely important. Indeed, previously we confined ourselves to our discipline when carrying out our activities. Nowadays, our reality is different, and many projects focus on combining different disciplines. Social sciences can be helpful in assessing the usefulness of our research or in finding areas in which the solutions we develop can be used. Thanks to them, we can also learn about

social needs, which will indicate what problems we should address. Economics can help us in getting businesses interested in our research.

Discussions with economists, process engineers, the economic environment, or representatives of the humanities allow us to see the directions and possibilities of using our research in a broader sense. Interdisciplinarity is important because each of us has a different perspective on the same problem, and by working together we become more creative. You could say that we encourage each other to develop. I was lucky to cooperate with people from the Faculty of Social Sciences in the field of waste and energy management. I know that their approach to the topic is different, which makes us complement each other. Thanks to this, our power to act and present externally what we can do and what we can offer to the socio-economic environment is greater, and together our chances for success will increase.

## *Conversation with prof. Thomas Aiello*

Valdosta State University in Georgia, United States

**Firstly, I would like to ask You how would You describe yourself as a researcher? What do you do throughout Your studies and what are the most important interests?**

I Focus on a lot of different things – at first, I am a historian, that was my first PhD. I focused mostly on the history of the Black America – in a systemic injustice of racism. I grew up in American South, where racism was ever present. Most of my books were about that. But in my private life, apart from my academic work, I was always interested in animal rights and vegan activism, things like that. I got very frustrated eventually that I wasn't really fulfilled doing my work and that I've never been good in anything else (chuckles) – the only things I am good at are writing books and teaching (chuckles). So, I figured – if there is any way to meld animal work in my professional work? If so, I should do that. That's why for the last years I've been doing a lot of Animal Studies and Anthrozoology. My second PhD was in 2020, delayed to 2021, and it, as relatively new, focused on Anthrozoology. I didn't even know until 2017 or so that this field of studies even existed. It just isn't that present in my academic field in Georgia. I didn't really know that this is an option for me, so just after I discovered it I decided to jump to it and try to melt my both interests.

**I find it as a great example of how the academia should work. Considering your various points of research and developing both Your main directions of Studies – Anthrozoology and History of Black America – what in Your opinion the “sustainable development” (SD) means and how do You personally understand it?**

I see SD on a couple of different tracks. As an historian, I think the SD historically has in it the problems that we had to develop, which are both social and political

– there have very clear historical roots. But as an anthrozoologist, I very much see SD as an acknowledged participation of humans in a broader, animal world and seeing us and animals in a way where we, the people, are not an exception from them, animals. I think it works both ways – we can clearly track historically how we got in the place we are now and at the same time, when we track it, we often forget the environmental problems and all the matters we are trying to fix or even hold off. SDGs are not something that just affects individual humans or even other species – in also affects individual animals, just like us. Sustainable development, in that way, means to remember all the victims of the things we created and to fix them for everybody, not just humans. We are the bad guys in this story – and there are plenty of good guys in it who have nothing to do with that and with our destructive behaviour. Forgetting them is for me something that we simply cannot do.

**When we look through Your latest research, papers and speeches, it is clear that You try to put equality between human-based perspective of general development and on non-human beings. Can You develop on it? How did You come to that point?**

Coming from the US – we are sustained, but not in the same way we think. We are sustained by inequalities – by racial inequalities, but also very much class or gender ones. It kind of props up how we do everything that we do. It all casts a shadow over everything that we've done – when you spend a long time understanding those human inequalities that we completely, artificially constructed and created for us and between us as species, it is not a very big jump to realise that we are doing the same on another, non-human species.

Ever since Linnean classification we assumed that humans are somehow better than any other animals – which seems crazy and wrong for me same as thinking that white people are better than black people in the US. All of these is built on artificial ideas about how our brain works as compared to somebody's else's brain. It makes very little sense, but it became so ubiquitous that is hard for most humans to see the difference – to take non-human animals seriously as beings. If we are going to think about sustainable development in any broader sense, we need not think about ourselves as people at the university or people in Poland, but as people on one, single planet – the planet, which is simply a giant, floating ball in a sky with a bunch of different living beings trying to survive on it.

If we only think about ourselves in a human context, we miss the giant point. We are just a small portion of all the people living on this planet – if we actively

consider animals as persons as well than we have all the responsibility since we are the ones who destroyed or are still destroying the planet and systematically kill the other species. This systemic act of killing is one of the main drivers of all our climate problems. We must think about ourselves less as humans and more as animals if we ever want to have more holistic understanding of the problems facing the world.

**I think that this holistic way of thinking is the clue for implementation of the SDGs. Clearly there is no coincidence that we more and more refer to biosphere rather than to “world of humans”.**

Or only Anthropocene...

**Exactly. This is the next thing I would like to ask You about. In Your papers and speeches, You present a strong disagreement with the idea of Anthropocene – meant as a presenting people as the middle of the general concept. Do You think that this semantic and philosophical change of putting animals or biosphere first is a better approach to our modern challenges?**

I agree with that, but it is going to take some grassroots-work to get people outside the universities to understand, right?

**Because this dissent is now purely academic.**

Yes, absolutely. I mean – we can trace such problems historically and really, most, like not all the problems we have now, were caused no longer than 150 years ago. This is relatively very new phenomenon which started with the process of industrialization, but then was really ratcheted up when we started factory farming in 1930s, 40s and 50s. That has put an exclamation mark in the sentence of degradation in the world. We really know, from historical point of view, what we have done and how it happened, how we were able to destroy almost everything. Especially when we look at our past decisions specifically on how and how many animals we kill. That became the ultimate driver of a lot of these problems. We have to face the reality – the giant chunk of all of our environmental problems is created by the systematic way we kill animals to eat them later. Stopping that will stop so many other environmental problems without even completing many of the SDGs!

I have to say – there is a regrettable, but real division between animal rights people and environmental rights people. We don't always get along with each other. We should, of course – we have ultimately the same goals – but the SDGs

f. ex. mostly consider things like species loss and things like this but they don't always take the perspective of the individual lives of animals.

**But do You see this factor as the main disadvantage of the concept of SDGs? What I understand from what You're saying is that we can call the SDGs as "okay, but.."**

No, no. We have enough challenges where we can translate our academic work that we do on those animal and environmental issues to the public who is really a main driver on how we are going to solve all our problems without disagreeing with each other. We need to have some kind of consensus. We will never get a total consensus in the university setting – and we shouldn't, we should always be debating – but there should be some level of generally assumed precepts that we can bring to the public who does not have those same assumptions. We need to put them into language that everybody can understand.

But unfortunately, I really fear for us. I mean – I come from a country where more than 30 % of the population does not agree on putting the masks on during COVID...

**Same or even worse in Poland**

... so, what shall we do when people do not accept that thing, what about their broader consideration of saving their own lives? What I really wish them to do is to completely give up animal-based food products. But fortunately, it turns out that people in the general public happen to be more and more interested in those topics and listen to those argument – less because of their interest on the lives of the individual animals but more because of their understanding of their role in all our environmental problems we have today.

**What You say mean that in general we gain more and more consciousness about our current situation. We surely know that such awareness is much more debatable outside our academic box. Now I would like to talk about one of Your latest books. In 2017 You published "Tyranny of architecture", in which you focus on "philosophical defense of veganism". Do You think that we should start to think about the problem of animal consumption from moral, ethical, philosophical point of view? I see Your book as a great start for the broader discussion by showing to readers that philosophically we, people, and animals, are not that different.**

To follow on that, first we need to see that all our societies are historically built on systemic inequalities, as I mentioned before. We've seen in the climate crisis

that the people, who are economically or racially most vulnerable are the ones who feel the effects the most. We can prove very conclusively that those systemic injustices have played out in the climate crisis in a real way. The people who are least affected or people in places like Europe or in the US suffer from these changes, but not in the same way as people losing their islands for example. We can see that those inequalities have played out in it, but the greatest of all the systemic injustices is the species one, because for all the problems that we created for the poor, the marginalised, the racially different and all the others in the human world – we see how they affect them. In the same time what we still do and we don't see is that we kill billions of animals with the “B” every year in all these meat or dairy-products factories. We just go through it and treat them horribly; we subject them to the worse scenario we can possibly imagine. The only reason we do that is the idea of human supremacy. We assume that they are less than us. It has no basis in any kind of science – it is just a tradition that we always assumed.

### **Is it a fully human-invented concept that we followed for years?**

Exactly. It's weird because our evolution gave us the ability to reason, to think morally about various concerns – we achieved that in the same way lions got claws and teeth, hawks got talons and so on. We got the ability to reason things out. Lions very much use their claws, hawks use their talons – we, however, tend to suspend our reason or moral thinking on those things. We don't use the evolutionary gifts we were given. If we did that, sustainable development wouldn't really be a problem. I mean – we would just be doing things we evolved to do. We are the only species who is not using its evolutionary gifts. If anything – we should be paradoxically much lower on this scale of animal beings. We are just not doing things correctly as animals. The reason for that is... the architecture. We seat here in a building, that is just one piece of earth moved to another place. But just because we moved it here, we decided that's all of this means “ivilization”, “fancy” ... we are just still here on Earth like all the other animal beings. What we do is to trick ourselves. We essentially cover it up, we put a veil on the actual world and that is why it's so hard to see it for the public. We can't see us as the part of the whole thing rather than the rulers of it. If we don't realise this, we won't be able to get out of it soon.

**So how would You describe the manifestation of SDGs in regard to all You said? The situation you described gives us rather a gloomy perspective on how we perform in the light of philosophical understanding of the environmental**

**problems. Most of the concepts you mentioned are still a part of academic discussion, not a general knowledge popular among non-academics...**

First, I think all the goals of the SDGs are great – even if they don't deal with directly with animals the way I would like them to. The reality is that animals are no. 1 victims of all problems mentioned in the SDGs. That's the problem – they die in much greater masses than even the poorest human populations when it comes to climate changes. Basically, anything we can do to stop or minimize it is good. But my criticism of the SDGs is based on their human-centralized perspective – they are performed in a way which presents people as a group beyond all others. If you are not making part of your goals the elimination of unnecessary animals' death – which would drastically solve most of the problems – you can't succeed. For an animal person like me it just rings a little hollow (chuckles). If we just dealt with factory farming....

**You seem to be someone who already know the answers for our problems, but what I see as the main issue is to ask these general questions publicly, widely among non-academics.**

Yes, because this is the result of a very particular reason. The two places that are the most hidden for the society are prisons and slaughterhouses – and there is a reason for that, because we just don't want to see all that cruelty.

**It bothers us.**

Exactly. We don't seem to bother seeing exhaustion fumes coming out of the cars or factories. We can clearly see the ugliness of such behaviour, causing the degradation of our environment, our world... We can still see our politicians or representatives making ridiculous decisions that end up harming a lot of people and biosphere. That kind of things come to our minds quite easily when the real problems are happening behind the curtains, at these factory farms, slaughterhouses and so on. There are hidden intentionally from us. I think one of the main goals of academia is to shed a light on things that are not often talked about or seen by the public. The university is simply a knowledge factory that is essentially developing knowledge, pushing it down to students and then pushing it up to the world through books, papers etc. One of the things we need to do is to show what's behind those curtains – in this case, what's behind the animal agriculture. That's the most important factor of the climate change for animal people.

### **And it's statistically most significant.**

Of course, there are the main driving factors of the climate change. Even more importantly – it kills people after all! It finally always hurts people, like the ones who must take all these jobs in the farming industry are in the same moment the most marginalised people who are going to be affected by the climate change and our decisions.

**You managed to answer my next question, which was meant to deal with the idea of how the academia and higher education can help us in implementing those changes. However, I would intentionally ask You whether all the actions done by the academics and the universities – lectures, papers, books – are enough? Do we put enough effort? This is the moment of the one of the most crucial turning points in the history of humankind and human development.**

This is a great question, and the answer is... probably not enough, but I think it is just what we can really do. I think that's probably our role in much larger, global way. In the US, back in the 1950s, there were no courses on Black American history. There were no programs dedicated to the history of development of Black America, on how Black people built the US, literally – both physically, but also culturally, socially etc. Nothing like that. There was a sustained push over many years by the black students that said, "If you're not teaching Black Studies, you are not really understanding Your own country". It took a long time, but it finally worked and at the end of 1960s we started to introduce in the US the programs of teaching the Black America history. There was also a moment that we were taught only about rich, powerful, white men – then social historians came and said "Well, you know, that's not how it actually worked, we need to talk about all the people – women, minorities etc.". It also took a long time but now in the XXI century we have it established as regular fields of historical studies.

### **All those became essentials of historians' research and methodology.**

Yes – you can't ignore it when you want to research anything nowadays. Starting in the 1990s., we started to ask all those questions regarding animals in the academia. We call the research as "humanities" to emphasize that we study Humans, because there are all that matters. The challenge to that started in the 90s and we are still in the process of this, of getting to this point when histories of other species, dispossessed groups, are the norm of studies. Now we have Animal Studies as an academic programme on dozens of universities and it is still growing rapidly. I think that one of the goals for academia is to make sure that these things are in our curriculum.

We all must make sure that all what is behind the curtains bothers us the same or even more than all these things we see on regular basis. When we pass fast-food bars we need to realise that they do much worst things overall then cars passing by. It would be great to include that in our systemic changes. It's great that we put such effort on electric vehicles, that some universities try to focus on only-electric vehicles, solar and wind power, stuff like that – those are all amazingly good things, and it should be still done. However, if there is a fastfood bar like on the corner of the campus, it still won't be enough. It becomes a part of generally assumed landscape which does not bother us anymore -that's wrong.

As an animal person, my goal would be to focus, when we think as a community and as a university, on how we can change ourselves as a community in favor of being carbon neutral and getting animal products out of the universities. You will never be a carbon-neutral community if you still serve animal-based foods and drinks.

## *Conversation with prof. dr hab. inż. Julita Dunalska*

Faculty of Oceanography and Geography, Center  
for Water Monitoring and Protection

### **I'll start with the idea of sustainable development. How do you understand it?**

I think that nowadays the most important thing is to leave something to future generations. This is an issue I think about a lot because I deal with water protection. When I see reservoirs degrading, I realise that improving water quality is almost impossible. I wonder if our children's children will ever be able to see a clean lake again. The expansive lifestyle of our generation may mean that in the future some people won't know the issues that are the subject of our concern. This is probably the most important goal of sustainable development. As a person working in the sphere of nature and natural resources, I think that we should live in harmony with nature, i.e., maintaining biological balance, because we're only part of it. Perhaps the most difficult goal of sustainable development is to reduce cultural, economic, and financial differences. We should take action to ensure that access to goods, education, science, and technology is as balanced as possible.

### **Have you noticed any positive changes in this regard? Has anything changed yet?**

I think public awareness has increased. I always consider this problem in terms of human awareness because I've noticed that even in perfectly prepared projects in which I deal with water protection, something ultimately goes wrong if there is a lack of knowledge about the processes and differences during the performance of the tasks. I think we've already started doing a lot in this area. Recently, I signed a cooperation agreement with Ethiopia, where living conditions are extremely difficult, but they don't give up and strive for individual development. This type of cooperation in the sphere of UNESCO activities shows that they are very willing and open very much. I also work in Norway, our

students go to Ethiopia on exchanges, researchers run projects with employees from Ethiopia. It's not so bad.

### **That's wonderful.**

You can hold workshops and courses there.

This is good information. Last year, a group of people came to me as part of the Erasmus Mundus programme for training in the methodology of field and laboratory research in the sphere of water protection. It was an extraordinary experience when young students from Africa and Central America showed us their passion for learning and desire to develop.

### **Do you conduct research related to the areas of sustainable development? If so, could you say something about it?**

It seems to me that my entire professional career, but also my great passion, is the protection of water resources. This is probably the basis of all existence and functioning. I've been researching aquatic ecosystems throughout my professional life, but especially for the last fifteen years, I've been carrying out various types of projects aimed at improving the quality of lake waters. What hurts the most is human expansion into water-related goods. The amount of water that circulates in nature is constant. However, water quality and available resources are significantly decreasing. We must be aware of this – and we don't understand it. Everyone wants to use water. We have access to running water – this is not the case everywhere in the world, we know that water resources are distributed unevenly, but this doesn't mean that where there is a lot of water, we can waste it. It's encouraging to know that my contribution to research can help improve water quality. We should talk about water quality at all levels, not just in science communication. Cooperation with the local community and local government officials who are responsible for activities related to the protection of surface water quality is important.

### **Why did you focus on water?**

A bit by accident. When I was wondering what studies to choose, I came across a university where water protection was the first and only major in Poland, and probably the second major in Europe. I was in an environment where the lake reclamation method was employed for the first time in the world. We can have alternative energy sources, and we can create various things, but water has no substitute. This is the only substance whose lack will make us unable to live and function. We must take care of the quality of water and educate in this area

because its quality depends on it. The future of the planet depends only on us personally, each of us, on various levels, starting from the household and ending with industry.

### **And what solutions contributing to the attainment of these sustainable development goals could be introduced at our university?**

I think that the University of Gdańsk does a lot in this respect. One such example is the Limnological Station where I work. This station is not only a scientific centre, but also concept for promoting knowledge, a centre for the exchange of ideas in the international and Polish environment, and at the same time a place of close cooperation with the local environment, i.e., residents and local authorities. I think this station is the cradle of integration and knowledge about the water-related environment. I also plan to develop ideas related to citizen science so that everyone can participate in these activities. Because there is nothing more beautiful than a situation in which a scientist can share his or her knowledge and, in my case, applies this knowledge by using various methods of protection and reclamation of water reservoirs. We also have great support from the University. I'm delighted that we can count on such a great understanding of our needs and such great cooperation.

That's true. Even when we apply for European funds, in the application form we must specify how we intend to cooperate with knowledge users.

I'm glad that you've confirmed it. Water protection and reclamation projects teach me so many things and touch so many different areas. Here money isn't enough, because it can be wasted if you don't find the right person, a team that will carry it out, smart teams that will want to do something for the environment. I always try to understand the aquatic ecosystem, to be like a representative of the lake, after all, it can't speak. It seems to me that integration in doing ambitious tasks is very important.

That's right, the lake can't talk, but it's alive.

I always tell my students that if they eat a lot, they'll eventually destroy their bodies. It's the same with a lake – it can absorb pollution, but up to a certain point. Later, unfortunately, it dies.

### **What role can education play in achieving the agenda's goals?**

Education at a higher, academic level should be some kind of privilege. We strive to educate as many people as possible. This is not entirely the point, because

I believe – and here is also a huge task facing academic teachers – that students should be taught to connect certain facts, to approach learning and life holistically. I really think we are responsible for this. The form of lectures – theoretical classes – isn't that interesting. I believe that certain issues should be shown to students in practice. Let them feel it. Later, they will become conscious citizens and will bring their knowledge, skills, and competences to their environment, to their homes, to their children. It seems to me that reproductive knowledge is not enough; it can be taught to anyone. But sensitisation to the goals of the agenda in a global aspect is important in education.

### **Do you undertake such topics in your teaching activities?**

Yes. I try to introduce many things from experience, intuitively. Of course, there are methods and mechanisms that we use. I talk to students a lot and discuss things. Thanks to this, there is a flow of knowledge, they are very interested. This is wonderful. That's why I regret that we don't have stationary lectures now, only online, although discussion is still possible. During my classes, I organise a lot of field activities so that students can get to know every process from the beginning. For example, when I need to collect a sample, I show students how to do it, how to label it, and then interpret and process it. I also have a lot of understanding for the student. I treat him or her as my partner to whom I want to pass on my knowledge. I prefer discussions, I always try to learn the arguments for and against, so that students can exchange arguments with each other so that it can be a creative conversation. In my opinion, a student should experience substantive discussion at university.

### **Yes, I agree with that too. I run workshops on public debate.**

Exactly, I couldn't find the word.

### **It's the same.**

You can talk about any topic, but my job is to teach you how to use arguments. Because that's what knowledge is all about, we can't quarrel, we just must have arguments for and against to discuss specific issues.

### **I'll come back to the agenda. What challenges and barriers do you notice in connection with the goals of the 2030 Agenda?**

I think what scares me the most is the global aspect of the agenda because there are such huge economic, social, and cultural disproportions in the world. There is a lot going on in the context of water management. In countries where we have free access to water, we don't understand the limitations associated

with it. Another problem is climate change, which affects even what happens in lakes. Until recently, we thought that lakes lose oxygen at the bottom because it's used to mineralise pollutants. However, it turns out that climate change – warming and rising water temperature in the lake – is an additional cause of lakes losing oxygen at the bottom. This is something unbelievable, oxygen is depleting at such a huge, rapid rate that it may have an impact – it will certainly have an impact – on the entire lake ecosystem. Just imagine, we can still adapt to climate change or emigrate, but the lake won't pack up and go somewhere, it must exist and function. Therefore, the entire food chain may change. And I hadn't realised earlier that the scale of this phenomenon was so large. If the problem concerns an ordinary lake, what about the entire society? I am terrified of migration related to climate change...

**Professor, what is the role of the European Union in supporting the achievement of the sustainable development goals?**

This is a very difficult question, see how difficult it is to come to common conclusions, to take joint actions in a smaller group, let alone implement the set goals in countries with different cultures and economies. I think that the integration and unity of the Union is the basis that sends a signal outside that we can discuss with each other – we should, but we also need to be consistent and have one front to support each other and promote good practices.

**Thank you very much. I have one more question. Which of the sustainable development goals is the most important for you and why?**

Above all, the continuation of opportunities for equal development for our generation and future generations. From the perspective of water resources, my dream is that our children's children will have a similar opportunity to use the natural environment as I do. I often encounter something like this: a person comes to me and says: "My father swam in this lake, my grandfather swam in this lake, and now I can't swim here." Unfortunately, this lake has a limited capacity. It can take a certain number of contaminants, but not an infinite amount. If this happens, it will continue to degrade rapidly. And that's what I'm most afraid of. That's why I would like us to do everything to make sure that the next generations have at least the same standard of living and the same goods as us.

**So, it can work? Do we have a chance to preserve it?**

I hope so. We certainly need to do everything to ensure that future generations have the same or even better conditions.