

Anna Kalinowska

Anna Batorczak

University of Warsaw, University Centre for Environmental Studies and Sustainable Development

LET'S TALK ABOUT BIODIVERSITY–

ACHIEVEMENT OF THE AICHI TARGETS AT THE WARSAW UNIVERSITY CENTRE FOR ENVIRONMENTAL STUDIES AND SUSTAINABLE DEVELOPMENT

INTRODUCTION

The dramatic increase in human population beginning in the late 17th century and accelerated further by the Industrial Revolution set in train processes leading to changes in the environment that human beings had never encountered or experienced before. The natural process by which species head for extinction was accelerated and augmented dramatically, and indeed the danger of whole ecosystems being lost became a reality. It is possible to speak of a first awareness of these threats as early as in the 19th century, when the manifestation of such thinking was the birth of a conservation movement in more enlightened circles in Europe and the Americas. However, worldwide knowledge of the potentially irreversible nature of the phenomena that were gathering pace was not an accompanying feature. Rather, it was not until the mid-20th century that the need for international action came to be signalled by an accumulation of documentation and analysis regarding consequences, not only for nature, but for ourselves (this being achieved formally by – for example – Reports to the Club of Rome, as well as emotively in such works as *Silent Spring* by Rachel Carson).

In the administrative, political and diplomatic sphere, the approach eventually bore fruit in the 1969 Report of the UN Secretary-General on “Problems of the Human Environment” (or so-called *U Thant Report*), as well as in the consequent UN Conference on the Human Environment convened at Stockholm in 1972 under the slogan *Only One Earth*. In its final document, the Conference stressed the need for all of society to become involved in – and committed to – the protection of the environment, with environmental education being regarded as an important tool by which this would be achieved.

However, the United Nations Environment Programme (UNEP) which came into being under the auspices of UNESCO, after having been agreed to by the Stockholm Conference, tended to refer in its education-related content to a new approach to the defining of threats and to the protection of physical aspects and elements of the environment. Thus, in the sphere of nature conservation it was the already-long-established practice of the conservatorial-style approach that was stressed.

What brought about a re-evaluation of attitudes to the goals and means of achieving conservation was the evident and ever-more drastic curtailment of the resources of animate nature, and not merely the traditionally understood “rare species”, but also those previously looked upon as common. This sea change in fact went hand in hand with new insights from ecological science, and the result was an extension of the focus beyond the protection of nature from all kinds of exploitation in just a few key areas, to ways in which it might prove possible to go on utilising the resources of nature without those resources suffering overexploitation. This was then the concept of sustainable use, and it was both associated

with, and necessitated by, an emerging concept of biological diversity (later also biodiversity), which had both biological and political significance. The approach stressed – and still stresses – the importance of the entire range of forms of life on Earth, which are seen as the heritage of all humankind, but also as a *sine qua non* condition underpinning our species' success. For that reason, people ought to be taking every care to ensure the preservation of that natural heritage.

Side by side, biodiversity and sustainable development were the key philosophies 20 years on from Stockholm, as Rio de Janeiro, Brazil, played host to the “Earth Summit” or UN Conference on the Environment and Development. An integrated approach to those key twin issues was taken by the *Rio Declaration*, by the set of recommendations and guidelines that was the so-called *Agenda 21*, and by the *Rio Statement of Principles for the Sustainable Management of Forests*. It was in the same spirit of sustainability that the Summit opened for signature two hugely significant instruments of international law, i.e. the UN Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD).

Though dealing with different aspects and processes, the above two Conventions achieved a largely complementary approach, ultimately reflecting the mutuality (indeed the inseparability) of ecological relationships between the living world and the abiotic environment. Each of the documents also made it clear how necessary it was to raise the public's level of awareness of how to achieve sustainable development, which has been best encapsulated as the just meeting of the needs of today without future generations' capacities to meet their own needs being impaired.

The key mission of institutions involved in higher education is to ensure that students graduate with an awareness of the problems human civilisation faces, not least the loss of biological diversity and ways of resolving that problem, as well as means by which knowledge in this field can be disseminated through society more widely. It was with such aims in mind that Poland's largest higher education establishment – the University of Warsaw – decided as early as in 1989 to found a University Centre for Environmental Studies and Sustainable Development (*Uniwersyteckie Centrum Badań nad Środowiskiem Przyrodniczym i Zrównoważonym Rozwojem* or UCBS). Continuing in operation today, it is an inter-faculty unit which seeks to better acquaint people with the concept of sustainable development in the context of biodiversity by way of programmes targeted at both the academic community and the wider public.

Taking all of the above into account, this article will seek to present the varied content attributable to methods of sustainable development-related, and especially biodiversity-related education pursued by the UCBS, as well as the different addressees it has targeted. It is our hope that the “case study” on offer here, and the conclusions regarding the shaping of society's awareness of biodiversity to be drawn from it, will prove useful to academic circles beyond Poland. We also address ourselves to representatives of educational institutions and establishments at various different levels, and to local authorities and NGOs, as they draw up local educational strategies and campaigns devoted to biodiversity. This reflects the benefit all can draw from examples of good practice showing how different addressees require different methods, and ways of conveying information. We also seek to show how much education in the field of biodiversity depends on integration with other areas of education, such as health education, or that of helping people out of poverty.

THE CONVENTION ON BIOLOGICAL DIVERSITY AS AN APPROACH TO NATURE FOR THE PURPOSES OF SUSTAINABLE DEVELOPMENT

The CBD in particular changed something where the approach to education in the name of nature protection was concerned, given that it sought to react to the dimensions in which – and rate at which – change in recent decades had been taking place. First and foremost, it was a modification of the approach to value and importance that was in progress, given the new realisation that every species and assemblage thereof present on Earth was of value, and needed to be focused on, rather than merely those component parts of the biosphere seen to be rare and endangered, and most especially the subset of those that are pretty, familiar, symbolic or particularly useful to our own species. In accordance with the Convention, biodiversity denotes differentiation of all living organisms present on Earth in its terrestrial and aquatic ecosystems, as well as functioning within the ecological communities that represent parts thereof. Furthermore, this applies within species, between species and at the level of the ecosystem. One of the “fathers” of the diversity concept, Prof. E.O. Wilson used his now-classic 1992 book *The Diversity of Life* to offer a more scientific definition which related to organisms at the level of the individual, genetic variants, diversity of genera and families and still higher taxonomic levels, and that involving ecosystems (Wilson 1992, 1999).

The Convention in fact extends the definition to include landscape diversity. There is also a clear premise that the safeguarding of diversity makes sense if the task is approached in an all-embracing manner. For the Convention offers a more precise (but paradoxically also broadened) concept of phenomena worth protecting, in that it commits parties to look at nature manifesting itself in ecological structures and processes that ensure proper functioning. This is also linked up with the necessity that cultural diversity and traditional means of using nature should also receive protection, given the way these link up irrevocably with valuable natural features and ways in which they may be used sustainably in the long term. In such a conceptualisation, a specific place in the Convention is assigned to humankind, and to traditional human activities pursued over centuries but by no means limiting diversity, and indeed allowing certain configurations rich in species to arise and be maintained.

Such a step beyond the traditional vision of nature protection, together with a contemporary approach to assuring the persistence of biodiversity, also influences the approach to be taken to the content and form of relevant ecological education. The Convention extends markedly the tasks leading to mobilised public participation and social acceptance for a wide variety of different tasks. This leaves whole societies with incomparably greater challenges to face, although it also stresses the separate roles of different groups. As has been suggested, it also extends the scope of interest in nature from the traditional field of conservatorial protection to practically the whole space in which the human population comes into contact with populations and communities of other species. This denotes an ever-clearer need to rewrite “the contract between human kind and nature”, with this being further tailored, albeit as more than just one ready-made, unified matrix is being utilised.

The above statement reflects the way in which the “contract” in question extends to both the protection of nature and the reasonable ongoing use of its resources in the circumstances of a growing human population and the decline in the area of land on Earth free from human interference. Good management by virtue of this kind of “contract” requires that all necessary activity should lead to the outlined aim, with the involvement of different users of biodiversity. Today, no one should be under any doubt that society’s acceptance and active co-participation are needed if there is to be effective and permanent safeguarding of nature’s bounty. This conviction brings into sharp focus the need to (in some way) mobilise society’s

involvement in achieving the Convention's goals, as well as the fact that achieving this entails awareness-raising. Indeed, this principle is enshrined in the key (Article 13) provisions of the Convention on Biological Diversity under the heading *Public Education and Awareness*.

The Article 13 provision stresses the obligation of each state party to the CBD to ensure appropriate education of and communication with the public at home, while also attending to the international dimension to education in the name of biodiversity. In accordance with the sustainable development principle as also applicable in education itself, maximum use needs to be made of resources, including intellectual ones. That means saving time and effort on "reinventing the wheel", by seeking to take advantage of output elsewhere, with experience also brought up from the local level to the global, and *vice versa*.

The most important key to effective implementation of the Convention is the engendering of conditions favourable to the task of shaping awareness that leads citizens to accept, and engage actively in, the protection of biodiversity.

THE IMPORTANCE OF SOCIAL AWARENESS TO THE IMPLEMENTATION OF CBD TASKS

Both observations of practices and the results of social research attest to a correlation between a society's environmental awareness, and the state of the environment and approach to the protection of biodiversity. There is a long list of studies documenting this relationship. In Poland, this was for example revealed by work carried out by Tadeusz Burger every several years from the 1990s onwards (Burger 1992; Bołtomiuk and Burger 2008), as well as in a 2012 report prepared for the Ministry of the Environment regarding Poles' environmental awareness (*Badanie świadomości [...] 2012*); alongside the results of research on awareness carried out among students from different faculties of the University of Warsaw [Kalinowska, Szkop and Wiśniewski 2016].

Europe-wide, the same thing is indicated by *Eurobarometer* reports of trends in Europe (*Attitudes [...] 2010, 2013*) as regards biological diversity. Research carried out for the European Commission in 2013 made it clear that, while about 60% of Europeans had heard of the term "biodiversity", only 1/3 could really claim to know what it denoted. In turn, while a large minority of EU inhabitants feel adequately informed about the rate and effects of biodiversity loss, only 5% feel well-informed. The results of similar studies commissioned by Poland's Institute for Ecodevelopment are even more disturbing. However, all the research results show that the higher the level of education, the greater the understanding of the need for biodiversity to be protected. This shows clearly that educating society is one of the most important conditions of the protection of biodiversity is to be effective.

In Poland, education in the name of nature protection has a very long tradition enriched by successive currents. In the 19th and early 20th centuries – in formerly Polish lands long partitioned out of existence by the Russian, Austrian and Prussian empires, patriotic feelings and the desire for independence also found their outlet in a wish to know more about the beauty of nature in the homeland, and to achieve its protection. This was a thrust to education emphasising how the development of an attitude entailing respect and care for Polish nature might serve as a manifestation of patriotism.

Shortly after an independent Poland had reformed in 1918, education as regards the protection of nature had come to achieve great significance as one thrust to efforts to preserve and protect Polish national heritage.

By the 1980s, the very bad state of the environment ever-more plain to ordinary people ensured that relevant education shifted from nature conservation to protection (or

rescue) of a physical environment that encompassed contamination of water, air and soil alike. The problem of environmental pollution certainly held sway within Polish education as the country embarked upon its systemic transformation away from communism and central planning. But then, very much the same could be said for the world as a whole. Nature was by then being perceived ever more often as a whole system in which the influence of human activity was also included – and no longer therefore in terms of the protection of valuable plants and animals or a beautiful landscape.

Education active in this context moved away from the term “nature education” to that of ecological or environmental education (Kalinowska 1995). Education concentrating on the protection of nature was thus rather overwhelmed by the so-called “brown issues” of contamination, wastes and climate change.

A clear about-turn over education concerning the protection of nature then came along after 1992, with the Earth Summit’s adoption of key documents including the Convention on Biological Diversity heralding an expansion of education to include the twin concepts of biodiversity and sustainable development. This was therefore a focus on the need to protect living resources in all their manifestations (and not only rare or beautiful species), given that this was a condition for the wellbeing of humankind, or even for our further existence.

Other concepts since making their appearance have been those of ecosystem services and the sustainable use of living natural resources, as well as reference to global phenomena; while the relevant type of education has tended to come to be regarded as education for sustainable development (as taken to include biodiversity). Nevertheless, the mere instilling of an awareness of the above concepts in society will not suffice, if practical possibilities for implementing recommendations arising from them are not indicated.

DOMESTIC POLISH DOCUMENTS ENSHRINING EDUCATION FOR SUSTAINABLE DEVELOPMENT

The need to raise the level of environmental awareness among citizens is stressed by all of Poland’s strategic documents in the area of the protection of the environment as broadly conceived. Adopted by the Council of Ministers in December 2008, the *State Environmental Policy in the Years 2009–2012 and with the Period to 2016 in Prospect*¹ required the development of school-age education on the protection of the environment, and facilitated access to relevant information and a shaping of conduct among citizens that accords with the sustainable development principle. Also required is cooperation with journalists over the relevant education of all groups in society.

Poland’s Environmental Protection Law Act² in turn refers to the need for education, in its Section VIII on “Environmental Education, Research into the Environment and Advertising”. In turn, in line with the Aarhus Convention and relevant EU Directives, Poland has its Act (in force since November 2008) on Access to Information on the Environment and its Protection, on Public Participation and on Environmental Impact Assessment³. Obviously,

¹ Polityka ekologiczna państwa w latach 2009–2012 z perspektywą do 2016. 2008. Ministry of the Environment of the Republic of Poland, Warszawa.

² Ustawa z dnia 27 kwietnia 2001 r. Prawo ochrony środowiska. The *Dziennik Ustaw* Official Journal of Laws of 2008, No. 25, item 150, with subsequent amendments.

³ Ustawa z dnia 3 października 2008 r. o udostępnianiu informacji o środowisku i jego ochronie, udziale społeczeństwa w ochronie środowiska oraz o ocenach oddziaływania na środowisko. The *Dziennik Ustaw* Official Journal of Laws of 2008, No. 199, item 1227, with subsequent amendments.

a special role in relevant domestic law is also played by the Nature Conservation Act⁴, in which education is referred to as early as in point 2 of Article 2, as one of the 7 aims relating to conservation, i.e. “the instilling of appropriate human attitudes to nature through education, information and promotion in respect of nature conservation”.

This provision is developed in the *National Strategy for the Protection and Sustainable Use of Biodiversity* and attendant *Action Programme for the Years 2007–2013*⁵, which mention – as a key condition for the Strategy’s implementation – “improved communication in society where understanding of the aims and consequences of the protection of biodiversity are concerned”.

Provisions of this kind arise from the binding agreement between the Polish ministers with responsibility for matters of education and the environment under the title of the *National Environmental Education Strategy – through education to sustainable development*⁶. This document was updated in 2001, with a strengthened executive programme (*Narodowa strategia [...] 2001*). The Action Plan drawn up within its framework encompasses different age-related and professional groups, as well as designated entities to lead education, and relevant tasks and means by which they might be financed.

The recent document which sets the goals and tasks of education for sustainable development in the region of the UN Economic Commission for Europe, and therefore also in Poland, is the UNECE Strategy on Education for Sustainable Development⁷. This document was adopted in 2005, in Vilnius during the High-Level Meeting of Environment and Education Ministers.

EDUCATION’S PLACE IN THE CONVENTION ON BIOLOGICAL DIVERSITY

All of the official documents from the Earth Summit convened in Rio de Janeiro in 1992 assume that education is the basis upon which people enjoy and can improve their opportunities, not least as regards solving the problems of environmental protection and the ushering in of sustainable development (Kalinowska 2013b). More specifically, the Convention on Biological Diversity emphasises parties’ key obligations to raise awareness in their societies. A relevant provision is included in Article 13 – Public Education and Awareness of the CBD, which provides for the development and implementation of educational and public awareness programmes, and in practice denotes universal access to information on biodiversity, the training of personnel as appropriate, and joint action and information exchange at the international level.

In line with what has been adopted and agreed at consecutive Conferences of the parties to the CBD, society’s education and awareness-building activity should be seen as an integral part of all activity, above and beyond the sectoral and subject-related provided for in the Convention’s programme of work, as well as national strategies and action plans of

⁴ Ustawa z dnia 16 kwietnia 2004 r. o ochronie przyrody. The *Dziennik Ustaw* Official Journal of Laws of 2004, No. 199, item 1227 and No. 92, item 880; as amended. Also *Dz. U* of 2005 No. 113, item 954; and of 2005 No. 130, item 1087.

⁵ Krajowa strategia ochrony i zrównoważonego użytkowania różnorodności biologicznej oraz Program działań na lata 2007–2013. Annex to Resolution 370/2007 of the Council of Ministers dated 26.10.2007.

⁶ Narodowa strategia edukacji ekologicznej. Przez edukację do zrównoważonego rozwoju. 2001. Ministry of the Environment of the Republic of Poland, Warsaw.

⁷ UN Economic Commission for Europe, 2008. *Strategia Edukacji dla Zrównoważonego Rozwoju*. Ministry of the Environment of the Republic of Poland, Warsaw.

various different kinds. At COP6 in The Hague in 2002, a global initiative on Communication, Education and Public Participation (CEPA) was called into being, with the aim of mobilising activity and information exchange to facilitate universal understanding of the nature of biodiversity, and acceptance of the measures needed to achieve its protection (Kalinowska 2008).

COP10 of the CBD (held at Nagoya, Japan, in 2010) in turn adopted an amended Strategic Plan for the years 2011–2020, whose aims have become known as the Aichi Biodiversity Targets (after the prefecture in which Nagoya is the capital). Target 1 here reads that “By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably”.

This aim is above all a bold manifestation of faith in the ability of education in the name of biodiversity to have an impact on the whole of society in every country of the world and within 10 years. In order to progress towards this target all countries need to develop and implement coherent, strategic and sustained communications, education and public awareness efforts. Different types of education and public awareness activities or campaigns will be needed to reach the different audiences in a country as activities which are effective for one group, may not be for others.

In May 2011, the European Commission brought out its *EU Biodiversity Strategy to 2020* (dated 2011). The main aim assumed there is, not merely a curtailment of biodiversity loss in EU member states by 2020, but also – if possible – an EU-wide contribution to a reversal of world trends in this respect. One of the main tasks leading to the achievement of this aim should be the involvement of the public at all stages of implementation of the Strategy. A newly-proposed form of social participation is the so-called “citizen science”, entailing people making their own observations as a contribution to the universal monitoring of the state nature finds itself in, and the threats posed to that state. Also emphasised by the Strategy is the need to build partnerships and promote dialogue between different users of biodiversity.

TOWARDS THE ACHIEVEMENT OF THE AICHI TARGETS – ACTIVITY AT THE UCBS

Notwithstanding the above limitations, education working to achieve the Aichi Targets does represent a key area of activity for the University Centre for Environmental Studies and Sustainable Development (UCBS). The Centre’s mission is to instil an interest in these kinds of issues, not only in students, but also in the whole community that is the University of Warsaw, up to and including diverse recipients of the University’s activities beyond the academic environment. Serving this goal have been more than 20 years of spring-semester lectures under the heading “Selected issues from ecology and environmental protection: sustainable development in theory and practice”, numerous publications, international and national projects in the field of education, conferences and exhibitions. In organising these kinds of activity, the UCBS cooperates with many institutions administering the protection of the environment, scientific institutions and organisations dealing with sustainable development operating in society at large. Education is a process which tends to take an institutionalised form in Poland – as formalised education at different levels, regulated by means of relevant programme documents. However, it is also – and can also be – pursued in many less-formalised ways, thanks to different scientific or academic institutions, local authority bodies, NGOs and churches. A major role in raising levels of competence is also played by the media, as well as means of education reaching recipients via, for example, advertising, or situations put in place to encourage exchanges of experience. It is impossible

to overstate how important the role of education in the family can also be. Each of these types of impact should in its particular way encourage a situation in which all citizens participate in a lifelong learning process, with this goal being actively encouraged by an appropriate educational policy, as well as the attendant infrastructure and funding.

However, in practice, while there are many praiseworthy examples of citizens' participation in the effective implementation of biodiversity protection-related principles, this is not actually too universal or widespread a phenomenon. What is more, actual social conflict and tensions accompany a number of initiatives by definition working in the service of nature conservation. This reflects shortfalls in both knowledge of the significance of biodiversity and possibilities for it to be protected, and public education as regards rights, possibilities and indeed duties to act on the part of each and every interested person. The inadequacy of education where effectiveness is concerned may lie in improper identification of addressees, a lack of familiarity with the rules and culture of communication, and – of course – the lack of funding. Equally, these are not purely Polish problems, hence the great importance of collecting examples of good practice together, as well as the analysis of case studies (even those relating to failed initiatives, given that other people's mistakes can obviously be learnt from).

Representatives of the UCBS participating in many international workshops and professional conferences have had the chance to co-participate in the preparation of principles for biodiversity education, setting out a specific scope for it, within the interdisciplinary structure of education for sustainable development. The UCBS can therefore be said to have made a contribution of its own to the creation of world resources of good practice concerning education and communication in the name of biodiversity.

As a co-creator of the "Polish educational landscape", the UCBS team feel obliged to share those reflections and experiences that seem important to the broadening of perspectives and improvement of educational practice in other countries.

As in sociology, "participant observation" denotes the gathering of material for analysis, personal engagement in many practical implementation-related activities, and research relating to forms of education and communication – and in fact these are only some of the approaches applied to work appearing in this study. Many important documentation materials, especially as regards bilateral cooperation over environmental education and the assessments of programmes of public communication also supply results that have been brought together in more than 40 master's theses written at the UCBS, within the framework of the "Environmental education and education for sustainable development" specialisation of the Inter-Faculty Studies in Environmental Protection. Reviewing the wealth of workshop and conference materials plus subject-related publications also allows for a tracing of the way in which interactions at the interface between different ways of seeing things have helped shape education in the name of biodiversity, and the various strands thereto.

Contact in practice with the diversity and effectiveness of forms raising social awareness as regards such a complex matter as biodiversity inclines us to present the experiences of UCBS (and the reflections that arise from them) in this publication. We address them to circles we consider of key importance in mobilising public participation over implementation of the Convention on Biological Diversity. Since there are many spheres linking up with biodiversity, this article is in turn addressed at those involved in education targeted at a particular group of recipients, with a view to their being able to view sectoral activity against this more holistic background. To conceive of participation in one representative field within a mosaic of activity, it is sometimes necessary to take a bird's-eye view of the entire landscape of education seeking to boost public involvement.

It is our hope that the many included examples of diverse educational activity on the part of the UCBS can inspire others to action, on the basis of a conviction that the issue of public awareness-building as regards biodiversity is worth more attention and a greater commitment. We should all intensify our efforts linked to education, bearing in mind the often short-term effects of these strivings, which may not match up to the resources expended. In that regard, patience is a virtue for those anticipating results. Changing people's awareness has been, is and always will be a slow process.

CELEBRATION OF 2010 AS THE INTERNATIONAL YEAR OF BIODIVERSITY (IYBD)

In accordance with a Resolution adopted by the UN General Assembly, 2010 was declared the International Year of Biodiversity. This represented a challenge to reinforce activity shaping public awareness of the threats posed to our planet's living natural resources ... as well as the means by which they may be protected. The road leading to that goal can be seen to entail wise, targeted education that takes in a very wide range of different issues, and it is academic circles that are particularly obliged to pass on reliable, up-to-date and digestible knowledge on biodiversity in all of its complexity.

The University Centre for Environmental Studies and Sustainable Development took up the challenge by running a project for 2010 IYBD – **promoting celebrations and raising public awareness through educational programmes and an information and education campaign**. This came under the patronage of the Minister of the Environment, as well as the Secretary General of the Polish UNESCO Committee. Pursuing the declared aim as regards awareness-raising, the Centre organised a cycle of open lectures on **Biodiversity in its many manifestations**. This title helps convey the complex and multi-stranded nature of biodiversity-related issues, which intertwine to a greater or lesser extent with every single sphere of our lives, not excluding the cultural and religious. Invited to share their knowledge in this context were leading specialists from different fields of pure and applied science, dealing with a wide range of matters indispensable if the importance of biodiversity is to be appreciated, and presenting their latest research findings and ways in which these are being applied, as well as detailing relevant activity more widely in society.

The **Biodiversity in its many manifestations** lectures were given within the wider framework of a permanent first-semester cycle organised in the whole period since 1999 under the umbrella title of **Selected issues from ecology and environmental protection**. This has been addressed, not only to students of nature-related University faculties, but also to the whole broader community of academics, teachers and media presenters.

Open and interdisciplinary activity in education is the speciality of the University Centre. However, the pursuit of modern education and ensuring of the flow of information – as required by the CBD – entails constant augmentation and updating of knowledge, given the dynamic development of fields of pure and applied study associated with biodiversity. By their very nature, teaching handbooks do not keep up with such changes, so it is essential that direct contacts with sources of “living knowledge” be maintained – as has been the case thanks to lecturers invited by the University Centre for Environmental Studies, who have considerable experience, by-no-means-insignificant research contributions and practical knowledge, yet are at the same time excellent popularisers of knowledge even able to reach the less well-informed audience member.

Lecturers representing many different areas of knowledge and institutions came to biodiversity-related issues as both naturalists and representatives of the humanities. Thanks to

the depth of knowledge and experience they brought to bear, the lectures were able to present such issues of fundamental importance to an understanding of the nature of biodiversity as:

The significance of biodiversity in meeting the physical and spiritual needs of **the human population**. Within this huge subject area, successive lectures revealed both the history of the human-biodiversity relationship and the consequences, should people try to play down the inalienable nature of these links (issues raised included the existential and spiritual needs that contact with nature has to offer, the responsibilities towards nature that faithful people have, the need for account to be taken of the economic dimension to biodiversity, and the need for nature education to be practically- (e.g. field observation-) orientated, as opposed to purely theoretical.

The active and passive protection of biological and cultural diversity. In the group of lectures that helped illustrate the research essential for the needs of protected species to be understood, as well as issues related to the management of protected areas, the role of botanical gardens and gene banks, and forms by which the natural and cultural heritage of humankind might be protected.

The state of biodiversity and the threats it faces. From among the many causes of threats to biodiversity at each of its many levels, a choice was made to address the rather little-known and under-appreciated threat posed by invasive alien species of animal and plant – as well as the reasons for these to appear, and the influence exerted on native species and ecosystem functioning once they do.

The range of issues encompassed by the term “biological diversity” is so wide that, while there is no way to cover all the issues, a monograph has been published to present many different facets to contemporary knowledge relating to biodiversity (ed. Kalinowka & Lenart 2007). Boosting awareness among would-be artists was also served by a contest the UCBS announced and promoted among art-school students – for a poster that would promote the 2010 IYBD. A non-competitive exhibition was also staged.

The public’s vanishingly limited awareness of many biodiversity-related aspects, and indeed the limited interest shown in them (away from certain circles involving specialists or small bands of enthusiasts) has a large number of explanations, but one of these would certainly be the disappearance or discontinuance of the tradition of effective popularisation and transfer of knowledge from scientific language (now becoming increasingly “hermetically sealed”) into everyday terms allowing access to all. Popularisation does indeed have a long and noble tradition in Poland, but it is by no means highly regarded in the country’s academic circles. In its Article 13, the CBD recommends the involvement of the media in the promotion and facilitated understanding of biodiversity issues, as well as appealing to the world of science to ensure that the results of its research are presented in an accessible manner. The Convention’s Communication, Education and Public Awareness (CEPA) Programme mobilises states in the support of activity that propagates knowledge and raises the level of media popularisation of relevant matters. In direct response to that initiative, and within the framework of a campaign being run to promote the 2010 IYBD, the UCBS organised a conference entitled *Let’s talk about biodiversity – not just in 2010*. Its main aim was a joint session to consider, consult and advise on ways to enliven the good tradition of popularising science in general and environmental issues in particular, with conditions thus being put in place for enhanced interest on the part of scientists on the one hand, and the media on the other. The invitation to attend was taken up by scientists and academics, students of different University faculties, employees of Poland’s environmental administration, leaders of NGOs, teaching methodology specialists and TV programme-makers from across Poland. The papers given and discussion

focused on both successes achieved and failures experienced with the popularisation of what are often rarely-raised issues, like invasive species or threats to diversity at the genetic level. An unfortunate finding was that efforts at popularising certain knowledge are very often regarded as of limited significance – and as less effective than other kinds of activity. This sad state of affairs is only reinforced by the systems under which science is funded and scientific staff promoted. Concerned with achieving improved communication with the public and a better flow of accessible information, conference participants therefore issued an *Appeal to the world of science and public media to increase the role of the popularisation and promotion of biodiversity issues*.

CELEBRATION OF THE UN DECADE ON BIOLOGICAL DIVERSITY (2011-2020)

The UCBS promotes the principles of environmental protection and biodiversity conservation, along with models for sustainable production, consumption and living. Bearing these aims in mind, it also plays an active part in such international initiatives as *Earth Day*, the UNESCO Decade on Education on Sustainable Development (DESD 2004-2013) and now the ongoing UN Decade on Biological Diversity (2011-2020).

Proving to be of assistance in the UCBS's pursuit of a long-term programme within the Decade on Biological Diversity framework is experience gained during the DESD, and most especially the International Year of Biodiversity 2010. In the context of the latter, (and specifically as regards the popularisation of knowledge on biodiversity), conclusions drawn from a multimedia campaign and a conference for educators and the media have allowed the reasons for failures to communicate to be identified. The needs in this regard are very well-conveyed by the conference's title: "**Let's talk about Biodiversity**".

The premise of *Let's talk...*, pointing to the need for dialogue, but also an individual approach to different groups of recipients, has become popular, and been adopted as the title of a programme of UCBS celebrations associated with the entire decade in question.

The long-term action programme for the Decade on Biological Diversity (DoBD) in turn entails the gathering and propagation of specialist information, the preparation of exhibitions and popular-science publications, campaigns associated with the electronic media, open lectures and talks, conferences and vocational training courses.

It is planned for each year of the decade to have its constant leading events at the UCBS, i.e.:

- a series of 15 open lectures on "Sustainability in theory and practice" each year devoted to different aspects of biological diversity in the sustainable development context;
- an exhibition put on at the UW Gallery and later on in various different places across Poland;
- a national conference on a relevant subject with a special publication on to follow.

2011 – an exhibition associated with the UCBS-organised contest for a poster promoting the IBY, held in the gallery at the Rector's Building on the University of Warsaw campus.

2012 – The international EU project BEAGLE aiming to make it possible for teachers to run lessons outside the classroom.

The BEAGLE project was open to all of the schools in Europe, and was a universally-accessible online project concerned with different aspects of biodiversity. The name

BEAGLE arose from the first letters of **B**iodiversity **E**ducation and **A**wareness to **G**row a **L**iving **E**nvironment; though BEAGLE was also the name of the Royal Navy vessel on which Charles Darwin made the famous voyage further alerting him to the diversity of nature, and affording opportunities for the gathering ideas and specimens that led to his theories of evolution. Under the BEAGLE project, teachers and pupils were encouraged to make regular observations of phenological changes in six species of tree widespread across Europe, i.e. **Oak** (*Quercus sp.*), **Beech** (*Fagus sylvatica*), **Horse chestnut** (*Aesculus hippocastanum*), **Birch** (*Betula sp.*), **Rowan** (*Sorbus aucuparia*) and **Lime** (*Tilia sp.*) [Batorczak, Kalinowska 2010].

Each project participant could choose one of more tree species for observation over a period of a year or more. Participants then posted online (at www.beagleproject.org) the results of their observations regarding times of flowering, fruiting and other phenological phenomena, along with photographic and even film documentation of their efforts. On the project website, it is possible to view and compare results for the observation of trees made by other participants across Europe. Teaching materials appeared within the framework of the project, augmenting the participatory effort of entering and recording observations and comparing them with those from other countries. The materials in question were:

- a manual for teachers entitled *Let's meet biodiversity* with lesson plans and practical guidelines on how schoolchildren might make observations in the field regarding communities of organisms living in trees, or else determine the role trees play in nature and human existence;
- a key allowing the 6 species of tree to be identified, as well as formulae allowing specimens' approximate ages and heights to be calculated;
- teacher-training and a manual entitled *Let's meet biodiversity*, making it possible for teachers to run lessons outside the classroom.

2013 – the *Forests Mitigate Climate* exhibition organised jointly with the Information Centre of the State Forests, in the context of the Global Landscapes Forum under UNFCCC COP19 convened in Warsaw;

2014 – the *Ideal City – Sustainable City* conference on spatial planning and urban green space as remedies for climate change manifested in cities;

2015 – the *Biodiversity on a High Level* exhibition of artistic photography by well-known photographer-scientists to mark the occasion of International Biodiversity Day;

2016 – the *Greening the University Campus* exhibition of posters offering examples of environment-friendly innovation at the higher-education establishments in Poland and other countries.

In the context of the decade, the UCBS has proposed programmes adapted to the needs of students and the professionally-active (business circles, urban planners and teachers).

However, a new innovation is a comprehensive programme on biodiversity and sustainable development addressed to senior citizens. In partnership with the *Ziemia i Ludzie* NGO, the Centre devised a handbook and programme for *Zielona Wiedza dla Uniwersytetów Trzeciego Wieku* (“Green Knowledge for the Universities of the Third Age”) tailored to the needs of the 60+ group.

The Universities of the Third Age form a network of more than 80 educational institutions across Poland engaging in educational and cultural activity for senior citizens. Several hundred thousand of the latter each year participate on UTW courses as mature students. Run for a whole year now, the aforesaid “Green Knowledge” programme takes in lectures at the universities, as well as field trips, with all based around the handbooks entitled *Różnorodność Biologiczna to także my* (“Biological Diversity – that’s us as well”) and *Przyszłość jakiej chcemy dla naszych wnuków* (“The Future that We Want for Our Grandchildren”). These handbooks are divided into two parts, with the first addressed to senior citizens dealing with biodiversity and the benefits arising from it, and the second aimed indirectly at children advising grandparents on how they may best develop a feeling of responsibility for the environment among their grandchildren, for example by means of joint observations of nature made with them, within a “citizen science” framework [Kalinowska, Batorczak 2014].

Thus far, the programme for senior citizens has seen several tens of lectures given at Universities of the Third Age around the country, along with workshops for leaders able to “cascade” the programme further, plus numerous workshops promoting a healthy lifestyle and practical aspects of nature conservation. The skills and competences senior citizens acquire through the programme can be used by them as they run many different self-contained classes in kindergartens, and as they lead local actions and campaigns in the name of conservation.

Why does the UCBS attach such importance to educating senior citizens?

Because – for demographic reasons – this is the most rapidly-growing age group and is significant in terms of its lifestyle and means of utilising biological diversity.

Because these are active people wishing to broaden their interests and who simultaneously have time at their disposal to spend with grandchildren and to be active in the interests of their local community.

Because these are people with experience who can act as guardians of traditional knowledge where the utilisation of biodiversity is concerned.

Because solidarity between generations is essential if biodiversity is to be preserved.

The principle being upheld and nurtured under the DoBD Programme framework is that we train the youngest, so that they might be able to decide about nature in the future; while we also train the oldest in society because they can decide in the here and now, while at the same time possessing experience and traditional knowledge as regards the utilisation of biological diversity.

During the decade, it will be worth developing inter-generational education, in order for full advantage to be taken of the potential for traditional and modern knowledge to be brought together, as well as the benefits of joint discovery of the value of biological diversity (and possibilities for it to be protected), in line with the *realia* holding sway in different periods of a person’s life.

The funding of these many different activities in the course of the decade has been made possible via the UCBS’s own means, but also with support from the State Forests, as well as the participation of various funds operating nationally and arising out of EU programmes.

EDUCATION FOR SUSTAINABLE DEVELOPMENT AT THE UNIVERSITY OF WARSAW

The theme of sustainable development denotes not only new strands of research but also new education changing the level of awareness of the subject the public harbours. Under the *Global Action Programme on Education for Sustainable Development* that UNESCO adopted in 2013, emphasis is placed on the idea that political agreements, financial incentives and modern technologies are not sufficient for sustainable development to be achieved. Rather, there is a need for radical change in the way we all think – and all act – in shaping our relationship with other people and the entire ecological system of the Earth. It is further worth recalling from a Polish perspective that the Constitution of the Republic of Poland includes a provision to the effect that the principles of sustainable development are to be upheld.

To ensure development of a permanent nature that meets the needs of both present and future generations, it is necessary for all people – and all societies – to be furnished with the necessary knowledge and encouraged into an appropriate system of values⁸.

The higher-education sector is a particularly important place in which education in the name of sustainable development is to be engaged in. But are the employees of establishments and institutions in tertiary education ready for this kind of work? Responding to that question is the EU project involving *University Educators for Sustainable Development* (UE4SD), which has included a review of opportunities to develop the competences of university lecturers as regards the pursuit of effective “Education for Sustainable Development” (ESD). Within the framework of this, the University Centre joins 55 representatives of institutions at all levels of education from 33 countries of Europe in a project of 3 years’ duration (2013-2016) that elected to focus on good practice by which to raise the level of competence of university lecturers where the pursuit of effective education for sustainable development is concerned, with platforms being put in place for broad exchanges of experience to continue (even after the project ends). UE4SD is closely linked to the European networks of universities working in the name of sustainable development. i.e. the *COPERNICUS Alliance* and the *European Network of Higher Education for Sustainable Development*.

Education for sustainable development has been pursued at the University of Warsaw for a long time now. The University Centre for Environmental Studies and Sustainable Development is not the only unit at the University of Warsaw working to popularise the idea of sustainable development. For example, the Faculty of Management organises conferences devoted to different aspects of sustainable development, as under the titles of *Corporate Social Responsibility – A Real Commitment on the part of Entrepreneurs?* and the *SD Polish Roadshow*. Conferences are also convened to help promote sustainable development, as well as the institutions acting to implement and support the concept.

However, the activities referred to should be supported by many further initiatives to ensure attainment of education for sustainable development at the University of Warsaw at the due level recommended in strategic documents of international reach. To this end, exchanges of experiences and mutual support on the road to sustainable development are engaged in by universities from around the world, via an international network that also involves shared commitments. Here, the process is only currently at the

⁸ *Roadmap for Implementing the Global Action Programme on Education for Sustainable Development*, the United Nations Educational, Scientific and Cultural Organization, 2014 – a document accessible at <http://unesdoc.unesco.org/images/0023/002305/230514e.pdf>

initiation phase following the University of Warsaw's recent accession to the two aforementioned networks of higher-education establishments committed to sustainable development, i.e. the *COPERNICUS Alliance* and the *Global Universities Partnership on Environment for Sustainability* – GUPES. Only since 2015 has the University of Warsaw been a member of both – the first institution from Poland to be so.

The *COPERNICUS Alliance* is a European network of educational institutions serving sustainability whose origins stretch back to 1993. It emerged as a response from universities and training institutions to the sustainable development challenge posed by *Agenda 21* (as adopted at the Rio UN Conference on the Environment and Development).

The *Global Universities Partnership on Environment for Sustainability* – GUPES – is a far newer initiative, but one of global reach. It is one of the flagship programmes for environmental education within the UNEP framework. Set up in 2014, it now brings together more than 520 universities around the world.

The aims and scope of the two networks are rather similar, entailing as they do the incorporation of issues relating to the protection of the environment and sustainable development into teaching programmes at all higher-education establishments, through support for an innovative approach to education, the initiation of relevant scientific research and backing for management of the institutions themselves, in such a way that the principles of sustainable development are upheld. Participation in the networks affiliating all of these universities in the name of sustainable development allows cooperative linkages to be forged, while experiences can be exchanged, along with examples of good practice and so on. One of the material outputs has been a practical guide called the *Greening Universities Toolkit: Transforming universities into green and sustainable campuses*, in which the aim of the said greening is to ensure that requirements as regards the protection of the environment and sustainable development are met in full.¹

SUMMARY

In summing this paper up, we need to stress that, in our work here at the UCBS, we are acting under a conviction that, notwithstanding the results of our activities that do not always meet expectations, the key way in which the rate of degradation of biodiversity can be slowed down lies with increased public awareness, and above all the education that can make that a reality [Kalinowska 2014 b]. At the same time, we are promoting the view that greater emphasis needs to be put on the capacity to act locally in promoting a sustainable lifestyle and the idea that biodiversity and human wellbeing are linked, as opposed to on the further accumulation of knowledge. We also see a need for better use in awareness-raising to be made of the 2016-2020 period, i.e. the last few years of the second half of the UN Decade on Biodiversity. This entails and will continue to entail:

- promotion of the theme for International Day for Biodiversity (22nd May each year) determined by the CBD Secretariat as the slogan for the given whole year within the Decade on Biodiversity context;
- the involvement in the course of the decade of different partners, including from business (as was the case for the UNESCO Education for Sustainable Development Decade);
- appropriate (including culturally appropriate) preparation of educational materials addressed to different professional and age groups;

- greater use in promoting issues of biodiversity of a wide range of social media, albeit with no overlooking of other forms of communication with different groups in society.

Also working towards a change of the whole institution in line with sustainable development is the initiative to devise a Social Responsibility Strategy for the University of Warsaw, which was adopted in April. The idea of social responsibility also encompasses responsibility for the state of the environment, as manifested, not only in the saving and nurturing of natural resources, but also the training of graduates aware of how the principles of sustainable development can be applied in their professional and daily lives.

Approaching the third century of its existence, the University of Warsaw is more and more open to development that protects biological diversity and responds to the difficult challenges our civilisation poses.

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