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CENTER OF INTERNATIONAL RELATIONS

# EU ENVIRONMENTAL POLICY: INTERNAL AND EXTERNAL DIMENSIONS

DANIJEL CRNČEC, ANA BOJINOVIĆ FENKO, Edt.

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**Ljubljana 2019**

# Content

## LIST OF ABBREVIATIONS

| | |
|---|---|
| 2DS | 2 degrees' scenario |
| AEEP | Africa–EU Energy Partnership |
| ACAP | Arctic Contaminants Action Program |
| AEPS | Arctic Environmental Protection Strategy |
| AMAP | Arctic Monitoring and Assessment Programme |
| ARSO | slov. *Agencija Republike Slovenije za okolje*, Slovenian Environmental Agency |
| BECCS | Bio-energy Capture and Storage |
| CAFF | Conservation of Arctic Flora and Fauna |
| CBD | Convention on Biological Diversity |
| CCS | Carbon Capture and Storage |
| CfD | Contract for Difference |
| CLRTAP | Convention on Long-Range Transboundary Air Pollution |
| $CO_2$ | Carbon dioxide |
| EC | European Commission |
| EEA | European Environment Agency |
| EEAS | European External Action Service |
| EED | Energy Efficiency Directive |
| EED2 | Energy Efficiency Directive (recast) |
| EEP | European Environmental Policy |
| EFTA | European Free Trade Association |
| EMSA | European Maritime Safety Agency |
| EOR | Enhanced Oil Recovery |
| EPPR | Emergency Prevention, Preparedness and Response |
| EU | European Union |
| EU-AITF | European Union-Africa Infrastructure Trust Fund |
| FIT | Feed-in Tariffs |
| GHG | Greenhouse Gas |
| GWh | Gigawatt hours |
| IEA | International Energy Agency |
| IMO | International Maritime Organization |
| ILUC | Indirect Land Use Change |
| JAES | Joint Africa-EU Strategy |
| JAP | Joint Action Plan |

| | |
|---|---|
| JS | Joint Statement |
| LEC | Local Energy Concept |
| MOPPR | Agreement on Cooperation on Marine Oil Pollution Preparedness and Response |
| Mtoe | Million tons of oil equivalent |
| NECP | Integrated National Energy and Climate Plan |
| NGO | Non-governmental organization |
| OPRC | International Convention on Oil Pollution Preparedness, Response and Cooperation |
| PAME | Protection of the Arctic Marine Environment |
| RCEF | Rural Community Energy Fund |
| RECP | Africa-EU Renewable Energy Cooperation Programme |
| RED | Renewable Energy Directive |
| RED2 | Renewable Energy Directive (recast) |
| RES | Renewable Energy Sources |
| SDE | *Stimulering Duurzame Energieproductie* (Dutch) |
| SP | Strategic Partnership |
| SPAs | Special Protection Areas |
| SACs | Special Areas of Conservation |
| SCIs | Sites of Community Importance |
| SDGs | Sustainable Development Goals |
| SET | Sustainable energy transition |
| SLCPs | short-lived climate pollutants |
| SMEs | Small and Medium-sized Enterprises |
| TWh | Terawatt hours |
| UCEF | Urban Community Energy Fund |
| UK | United Kingdom |
| UNECE | The United Nations Economic Commission for Europe |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UNCLOS | United Nations Convention on the Law of the Sea |
| VAT | Value Added Tax |
| Wbm | *Wet belastingen op milieugrondslag* (Dutch) |
| WWF | World Wildlife Fund |

# FOREWORD

We have prepared this Centre of International Relations (CIR) Analysis as a collaboration of two CIR researchers working primarily as teachers at University of Ljubljana, Faculty of Social Sciences at the Chair of International Relations (IR) and students of the undergraduate IR and European Studies (ES) programmes at this institution. The book is a result of two motivations.

The first motivation is a rising demand for a competence-building educational element, namely student collaboration in research projects. The Chair of IR has since the start of implementation of bologna-reformed IR programme in 2005 put special attention to development of newly demanded knowledge, competences and skills of its students. Among the latter, development of analytical and professional research skills has been practiced via collaborative teacher-student scientific monographs. This book is the third in a row of results of such an innovative teaching approach (cf. CIR Analysis no.10 in 2011, CIR Analysis no.16 in 2014). It is devoted to EU environmental policy, in particular to selected issues of internal and external dimensions of this EU policy.

Academic excellence and up-to-date knowledge competitiveness in issues of European Integration within the Ljubljana IR and ES programmes has been consistently achieved via Jean Monnet Actions co-funded by the European Commission. This enterprise is no exception. The book was produced as one of deliverables of a Jean Monnet module which ran between academic years 2016 and 2019 (EU ENVI Module) as a 60-hour course. Students attending the module had quite diverse backgrounds – home students were IR and ES undergraduates, but foreign exchange students came from various fields, including political sciences, comparative politics, environmental governance, sociology and communication sciences. All of them however shared a strong interest in environmental affairs.

Each academic year, the course was organised in three parts. First, introductory lectures focused on the EU as a political system and as a global actor, with a focus on domestic and external policies and policy-making. This part of the module contextualised EU environmental policy from the perspective of intertwining decision-making, multi-level governance and cross-section with other policy areas.

Second, the central part of the course aimed at exploring legal, policy-related and practical dimensions of EU action in the field of environment, taking into account and highlighting close interactions between its internal and external dimensions. International, EU and national perspectives were employed to study environmental governance, mainly through the work of the main module lecturer and visiting

guest lecturers. These lectures offered knowledge on how global commitments influence the development of EU environmental policies, and how this trickles down further to the national member-state level. Attention was given to ways in which the EU (and its Member States) seek to influence global environmental regimes. While all guest lectures had been active professionals in the field of international and EU environmental affairs, a significant value added was their diversity. Not only in terms of their nationality but particularly in their professional background – some were academics, some legal practitioners or senior advisors from national governments and international governmental organisations, some guest lecturers were nongovernmental advocates, and a couple were businessmen and engineers.

In the third and final part of the course, students were invited to apply the acquired knowledge to an issue of their own choice and interest via their own research. They practiced research and analytical skills in pairs or groups of three under our mentorship. Here, students were encouraged to reflect on the role that political and corporate interests can play in socially and physically complex problems, as well as the response of the public, in particular advocates of a less anthropocentric approach towards environmental governance, and the role of the EU in a deeply interdependent international community. At the end of the course, students prepared a co-authored research paper as a short and empirically rich analytical work, based on a study of a particular environmental issue chosen according to their interests. The presentation had been carried out in the form of a student conference (mocking scientific/professional panels) which strengthened the innovative teaching environment and student competence-building. The best of these students' papers and their most research-development inclined authors have further collaborated with the Module teacher to produce this scientific monograph.

The second motivation driving this publication is the above illustrated growing student interest to understand the problems in management of international environmental affairs. As students themselves highlighted, there was (and still is) lack of environmental contents at non-specialised university programmes. As environmental concerns have already become an integral part of daily national, EU and world politics, proper inclusion of this issue area into IR and ES programmes, especially, is urgent. We are proud to acknowledge that the IR Chair has succeed from 2016 onwards – also with significant contribution of EU ENVI Module – to include teaching of international protection of environment as an elective course within its regular undergraduate IR programme. We therefore believe the instrument of JM Module has been made use of with multiple excellent outcomes. We are delighted to have had the opportunity of working with the students – hereby chapter authors. They have demonstrated that they can become a competent and

critical interlocutor capable of independent identification, analysis of and policy prescription to current international environmental problems. Since the latter represent one of the 21st century challenges of the highest suicidal potential for humanity and nature on the planet, we are partly reassured by the eagerness of an inspiring generation of junior experts dealing with international environmental protection.

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and

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EU ENVI Module Teacher

# 1 INTRODUCTION: EU ENVIRONMENTAL POLICY: INTERNAL AND EXTERNAL DIMENSIONS

**Ana Bojinović Fenko and Danijel Crnčec**

## 1.1 MOTIVATION NO. 1: INNOVATIVE UNIVERSITY TEACHING

The two innovative teaching methods used to produce this scientific monograph are research paper design and implementation and student conference. They had been conducted subsequently, research design and implementation first, following presentation of research papers in the form of a three-day student conference. Both methods were carried out as parts of a 60-hour course during two academic years, thus on two generations of students; one of 55 and the other 25 students. The authors, i.e. undergraduate students enrolled in a course on EU environmental policy, initially had little or no knowledge of any environmental affairs, some were even only starting with EU policy-making studies. Due to various programme backgrounds and pre-existing knowledge, in the initial stages of preparing the research papers students sat a lecture by one of the editors (the academic coordinator) on reviewing EU policy-making (Cini and Pérez-Solórzano Borragán, 2006; Hardcare and Akse, 2015; Wallace, Pollack and Young, 2015; Nugent, 2017). The second set of lectures applied EU policy-making onto EU environmental policy (Vogler, 2011; Wurzel and Connelly, 2011; Jordan and Adelle, 2013; Lee, 2014; Delbeke and Vis, 2015).

Additionally, students found a research paper as an entirely new teaching tool. Most of them have completed courses in basic academic writing and methodology but never have they produced a coherent independent research in a form of 5000-word paper. Needless to add that student conference was also not their casual individual work presentation form. The analysis of selected internal and external issues of EU environmental policy, which is the aim of the current volume, thus represented a significant teaching challenge from the perspective of research content and teaching tool. Course teachers/book editors have overcome this problem by leaving the students ultimate freedom in choosing an issue of international environmental concern relevant to EU policy. In this way, we have enabled their motivation and curiosity to prevail; whereas some of them have linked environmental affairs with their up-to-then EU-related interest, e.g. political and economic transition in new EU member states, political theory, EU development policy, or EU's soft power. This necessarily meant that research papers were initially prepared via an exploratory inductive strategy, focused primarily on description rather than through in advance theory-designed models to be

empirically tested on cases (Tulder, 2007, p. 133). Only after the first editorial review process have students been able to conduct an in-depth literature review and add a "theory dimension" to their studies in order to set a research question/hypothesis (cf. Grix, 2010, Ch. 3). The editors have also paid special attention to help the chapter authors apply proper basic research methods (ibid., Ch. 7).

In the third lecture series, academic coordinator put attention to the conceptual and methodological approaches to analysing the EU's domestic and external (environmental) policy and to basic research design. The students were thus acquainted with policy analysis, allowing them to perform research on the EU's internal policy-making using multi-level governance, policy-network and SWOT analysis. Here, the focus was on the EU's competences in environmental matters defined broadly and instruments that the EU uses to pursue its objectives. As for the bloc's external environmental policy, it was presented through the approaches of the EU as a global actor, applying Europeanisation, the external governance approach and SWOT analysis. Students were then encouraged to prepare a draft research paper, stemming from an initial philosophical premise of their research interest along the structure-agency debate in IR (Hollis and Smith, 1990), Foreign Policy Analysis (Carlsnaes, 2008) and European Integration Theory (Wiener and Diez, 2012) in the following fashion:

a. an actor in a problem related to EU environmental policy; e.g. an EU member state within the EU environmental policy-making process; a non-governmental organisation based in the EU in the process of evaluating the effects of an EU environmental policy, an EU-based transnational company in the implementation of EU environmental *acquis* in an EU candidate country; or
b. the structural conditions in a particular field related to EU environmental policy; e.g. environment-related values, goals and policy instruments in the fields of the EU's internal and external policy: internal market, industry policy, common agricultural policy, environmental policy, energy policy, development cooperation, enlargement policy.

Preparing their research papers, students had to follow a certain structure, according to the guidelines provided. In the introduction, the following elements had to be addressed:

1. Identification of the phenomenon analysed (situation, time-space, size, particularity) – students had to give a reader a very clear idea what they were focusing on in their paper, such as:
    a. analysis of an EU member/acceding state's implementation of an EU environmental policy,
    b. analysis of a case of an EU external action formulation or implementation, or

   c. analysis of a philosophical or normative basis for the approach to environmental protection in general by a polity (international community or EU in particular).
2. Description of the phenomenon and reference to the main approaches to understanding it (own summary of the literature, which was to be later presented in detail in the next part of the paper – literature review).
3. Identification of the research question, the aim of the paper, and the method of analysing the research question and answering it.
4. Short outline of the structure of the paper.

The introduction was to be followed by a literature review, where papers had to refer to the state of affairs in the study of the phenomenon (problem/research question) investigated. In order to do this, students received several questions that they had to keep in mind while writing the literature review in order to give a clear contribution to their empirical analysis written down at the end of this part – as if they wanted to persuade the readers why they should continue reading the paper, e.g.:
– What have other researchers found about this problem?
– Have they even identified it?
– Have they left out any important aspects?

The third part presented their own empirical/conceptual investigations, which should represent the main value added of their papers. Students were asked to refer to their own methods of investigation and put down the results. Those who dealt with empirical analyses (analysing of documents, statistical data, policy evaluation) were to make sure to put down their data sources correctly. Those performing conceptual analyses were to use secondary sources as their main references and method – analysis and interpretation, as well as critical evaluation of the content of these sources.

And finally, their papers' conclusions were to clearly and concisely summarise the main findings based on the authors' own empirical or conceptual investigations.

Given the students' lack of experience in performing extensive empirical research on their own, the preparation of the research papers was conceived as a learning-by-doing process in different phases. Initially, the students had to prepare a draft introduction and orally present it to their fellow students, who provided recommendations for improvements. These were then taken into account when preparing the first draft of the paper. The third phase was a student-to-student peer review. Students then addressed the comments, and prepared the final research papers, which were evaluated and commented by the module teachers. In the last phase, research papers were publicly presented and defended at the end of the course in the form of a student conference.

During this teaching method, students practised communication of research findings via optional use of multimedia or ICT tools, they performed roles of paper presenters, Panel Chairs and paper Reviewers. At all stages, peer-to-peer reviews were prepared along one of the 8 aspects of research feedback presented by Murray and Moore (2006), whereby students mostly used the feedback style of "Invite me to elaborate on particular aspects of my writing" and "Tell me how much 'voice' you hear in my writing" and "Give me specific feedback on aspects of my writing" (ibid., pp. 50–51). Based on that feedback and formal teachers' evaluation, the best papers' authors were invited for collaboration on this publication. Editors developed a common conceptual framework and research question for the internal and external dimensions and structured the papers into respective chapters of this volume.

## 1.2 MOTIVATION NO. 2: ADDRESSING INTERNATIONAL PROTECTION OF ENVIRONMENT

The European Union (EU, also the Union) has become an important leader in international environmental affairs with the development of the Union policy on environment, that contributes to the pursuit of preserving, protecting and improving the quality of the environment, protecting human health, and prudent and rational utilisation of natural resources (Vogler, 2011; Wurzel and Connelly, 2011; Jordan and Adelle, 2013; Lee, 2014; Delbeke and Vis, 2015). These objectives are in the heart of the internal dimension of the EU environmental policy. They also lay the ground for the development of the external dimension of the Union policy on environment by promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change (Treaty on the Functioning of the European Union, Art. 191).

The diversity of environmental issues in the EU as well as in world politics offers a range of environmental problems that could be analysed (Bodansky, 2010; Kiss and Shelton, 2007; Kiss and Shelton, 2004). This CIR analysis thus only partially grasps this challenge by picking on selected internal and external issues of EU environmental policy.

First, the CIR analysis offers four chapters focusing on some of the most pressing internal environmental issues in the EU, where the main research question was on the nature of coherence of the EU environmental policy, i.e. congruity of the EU environmental objectives and the use of instruments of the EU environmental policy in:

– **Biodiversity:** Nuša Muršič analyses the implementation of EU policies on biodiversity by addressing the question whether the theory of ecosystem services

presents a viable theoretical approach for examination. Her chapter focuses on the implementation of the EU's biodiversity policies through the Natura 2000 network and the establishment of protected areas in Slovenia.

- **Waste**: Leah van Oorschot and Brooke Sutherland analyse waste management systems, in particular barriers to the implementation of the waste hierarchy in the EU, where some Member States face serious challenges in managing waste and the economic and environmental effects resulting from it. In their chapter they compare waste management systems in Romania and Sweden to determine the main obstacles Romania faces in the implementation of the waste hierarchy within its municipal waste management system.
- **Clean energy and the concept of energy communities**: Martina Furlan, Ina Pantner Volfand and Iris Šömen focus on the issue of closing the gap in energy self-sufficiency and supply security in Slovenia by introducing energy communities as a way of achieving the objectives of the clean energy transition set forth by the EU. Their chapter comparatively analyses relevant policies in the United Kingdom, the Netherlands, Germany and Slovenia with an aim to provide policy proposals on how to support renewable energy communities.
- **Climate Change**: Katja Miklavčič and Sofia Proni Iglič focus on Carbon Capture and Storage (CCS) and the question whether it represents a viable way of dealing with climate change, one of the biggest challenges of our times.

Second, the CIR analysis also offers three chapters focusing on some of the most important external environmental issues for the EU, especially with regards to the Union objective to promote measures at the international level to deal with regional or worldwide environmental problems. The main research question in this part of the book is to establish the level of consistency of the EU action, i.e. cooperation of the EU and the Member States with third countries and with the competent international organizations:

- **Arctic Council:** Magdalena Rakovec and Samo Smole analyse the role of the EU in the environmental policies of the Arctic Council. The Arctic and its environment have namely become increasingly important for the EU in the last decade, and this is reflected in the EU's Arctic policy.
- **Brazil**: Ajda Hedžet and Dora Matejak focus on the EU's environmental policy as an element of soft power and study the case of the EU-Brazil Strategic Partnership. Their chapter concentrates on the role of the strategic partnership between the EU and Brazil in allowing the EU to practice soft power as an environmental advocate.
- **Africa**: Ana Klemen and Patrik Bole focus on the EU's cooperation with Africa in the field of energy. In 2007, the EU and African countries namely established the Africa-EU Energy Partnership (AEEP), which strengthened their cooperation in the field of sustainable energy. Its main goals are meant to address

the challenges of energy security and improve access to renewable energy and efficient, affordable and clean energy services, especially in Africa.

Finally, in the conclusion this CIR analysis offers an answer to the above research questions and an evaluation of both motivations for preparing this book.

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# EU ENVIRONMENTAL POLICY: INTERNAL DIMENSION

# 2 IMPLEMENTATION OF EU POLICIES ON BIODIVERSITY IN SLOVENIA: IS THE THEORY OF ECOSYSTEM SERVICES A VIABLE THEORETICAL APPROACH FOR EXAMINATION?

**Nuša Muršič**[1]

## 2.1 INTRODUCTION

Planet Earth is experiencing a decline in its biodiversity,[2] more accurately it is facing its sixth mass extinction of species, the most colossal one since the annihilation of dinosaurs 65 million years ago (Center for Biological Diversity, n. d.). The situation is proving itself to be very damaging, since all species have specially designated roles in their ecosystems, without which their productivity plummets and they become less resilient and functional. The EU is also faced with the grave issue of biodiversity loss. It was estimated that in the last 10 years almost half of terrestrial animal and plant species have decreased in population size (CCMC, n. d.), furthermore, nearly 60% of assessed habitats have an unfavourable conservation status (European Environment Agency, n. d.). However, the EU has been acknowledging this as an area of concern for a long period of time, namely with the release of the two fundamental wildlife conservation documents, the Birds Directive, published as early as 1979, and the Habitats Directive in 1992 (European Commission, 2014, p. 13). Based on these two foundations is the Natura 2000 network.

The focus of this chapter, however, is not on the EU as a whole, but on one Member State in particular, Slovenia. This Central European country, despite being one of the smallest in the EU, is home to more than 1% of all species and more than 2% of all terrestrial species currently inhabiting planet Earth (ARSO, n. d. a). Such a rich display of biodiversity in such a small area places it among the countries with the richest natural heritage in the EU and in the world. Furthermore, Slovenia

1 **About the author**: Nuša Muršič is an undergraduate student of International Relations at the Faculty of Social Sciences. Her interests lie in a wide array of subjects, her primary focus being environmental topics and policies. She would also like to specialise in this field on a postgraduate programme. Contact: mursicnusa0@gmail.com

2 According to the Convention on Biological Diversity (Article 2), the term biodiversity encompasses the "variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."

holds the largest percentage of designated protected areas of Natura 2000 in the EU, which amounts to 37.9% of its land area (European Commission, 2017, p. 10). However, Slovenia is also faced with the issue of biodiversity decline, with more than half of all vertebrates living in the country listed as endangered, as is around 10% of its higher plants and ferns (Convention on Biological Diversity, n. d.).

The chapter is centred on the implementation of EU policies on biodiversity through the Natura 2000 network and the establishment of protected areas in Slovenia, aimed at halting the loss of biodiversity. Moreover, the area in question is approached through the lens of the theory of ecosystem services. Japelj (2016) describes this approach as ascribing (economic) value to the services, which ecosystems provide, and which contribute to the wellbeing of society. In this manner, investments and incentives should be ensured to halt the loss of biodiversity, the awareness-raising of which has been the aim of the ecosystem services discourse (Gómez-Baggethun et al., 2010). Hence, the research question goes as follows: How can we evaluate the implementation of EU policies on biodiversity through the Natura 2000 network and the establishment of protected areas in Slovenia, using the ecosystem services approach?

The aim of the chapter is to present the application of the EU biodiversity preservation policies in Slovenia through the lens of the theory of ecosystem services, and to assess whether this approach could be a viable theoretical approach for examination. First, the relevant EU and national legislation is described and the foundations of the theory of ecosystem services are laid. In the second part, an empirical analysis of the implementation of policies is conducted (analysis of documents, statistical data and policy evaluation) and a critical evaluation of this implementation is applied through the lens of the aforementioned theory.

## 2.2 LEGAL FRAMEWORK FOR THE IMPLEMENTATION OF EU POLICIES ON BIODIVERSITY

The main objective of Convention on Biological Diversity (CBD) (article 1) is the conservation of biological diversity and sustainable use of its components.[3] The two main legal instruments within the framework of the EU legislation on biodiversity are the EU Birds Directive and the EU Habitats Directive. The EU Birds Directive was adopted in 1979 and later amended in 2009 (European Commission,

3 Convention on Biological Diversity, signed on 5 June 1992 in Rio de Janeiro, entered into force on 29 December 1993.

n. d.).[4] It aims to contribute to the conservation of all species of naturally occurring birds in the wild in the territory of EU Member States. It covers the protection, management and control of these species (The EU Birds Directive, 2009, article 1). The document furthermore sets out requirements for Member States to create protected areas and provide for their upkeep and management (The EU Birds Directive, 2009, article 1, para 2). The EU Habitats Directive was adopted in 1992.[5] As the name suggests, this instrument focuses on the protection of biodiversity through the conservation of natural habitats (The EU Habitats Directive, 1992, article 2 para 1).

Under the Birds Directive, Member States are to designate Special Protection Areas (SPAs) for birds and under the Habitats Directive Special Areas of Conservation (SACs) for the protection of species, other than birds and conservation of habitat types (Zavod Republike Slovenije za varstvo narave, n. d.). Together, the SPAs and SACs form EU's Natura 2000 network of protected areas. The sites are selected based on a list proposed by a Member State, reviewed by the European Commission, which then issues a corrected list of areas, that are now titled as Sites of Community Importance (SCIs) (ibid.).

Which specific measures of protection are to be taken is left to be decided by the States themselves. In any case, these measures would be difficult to prescribe as the threats to and therefore the needs of particular species, and habitats can differ immensely from one another. Member States are required to report on their progress in implementing objectives of the Habitats Directive every six years (1992, article 17) and of the Birds Directive every three years (2009, article 12). Based on the information provided, the European Commission prepares implementation review reports.

Slovenia has been party to the CBD since 10 June 1996 (Convention on Biological Diversity, n. d.). Upon entering the EU in 2004, Slovenia committed itself to preserve biodiversity in conformity with the legislation of the EU, that being the EU Birds and Habitats Directives (ibid.). On the national level, the fundamental legal document for the protection of nature and biodiversity in Slovenia is the Nature Conservation Act, adopted in 1999 (Nature Conservation

4 Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.

5 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

Act, 1999, article 1 para 1).[6] It regulates the creation of the network of specially protected Natura 2000 sites and protected areas (Natura 2000, n. d. a). Concrete measures of protection are further elaborated in the Natura 2000 Management Programmes, adopted periodically by the government (Ministrstvo za okolje, prostor in energijo, 2004, p. 25).

Slovenia established sites within the Natura 2000 network with a Decree on special protection areas (ARSO, n. d. b), which entered into force on the day of its accession to the EU in 2004. The Decree was later on amended in 2013 and 2016 (ibid.). The choice of Natura 2000 areas is a professional task in which the scientific selection criteria, set out in the annexes of the Habitats Directive and Birds Directive, must be taken into account (Natura 2000, n. d. a). In the Nature Conservation Act (2004, article 53 para 1), it is stated that a protected area is established with a Decree, which determines, among other details, the type of protected area, the manner in which public services will manage the protected area, possible obligation to adopt a management plan, financial resources for the implementation of protective measures, and provide for direct control in nature. Meanwhile, the Natura 2000 sites are defined on a national level and later confirmed at the EU level, alongside the protection objectives in these areas and prescribed protective guidelines for the conservation or achievement of a favourable condition of species, their habitats and habitat types, and ensures their protection with measures for the protection of valuable natural features under the Nature Conservation Act (article 33, para 2).

## 2.3 THEORY OF ECOSYSTEM SERVICES

The theory of ecosystem services is an approach which aims at highlighting the impact of environmental changes on people's wellbeing, using a new conceptual framework that allows ecosystems to be addressed in terms of the services they offer to society: how these services benefit humanity and how society's behaviour changes ecosystems and services, which they offer (Japelj, 2016, p. 9). People have recognised the benefits of nature from the beginnings of civilization, when they primarily needed shelter from the forces of nature and looked for food sources (Japelj, 2016, p. 8). Despite the early development of thoughts about the dependence of society on natural ecosystems and the goods and services they offer, the inception of the modern development of science on the issue area of ecosystem

6 Nature Conservation Act. (1999). Adopted in the National Assembly of the Republic of Slovenia, entered into force on 28 July 1999.

services has occurred during the late seventies (Gómez-Baggethun et al., 2010, p. 1209). This era marked the emergence of the discourse about the ways in which functions of nature serve society to attract the attention of the public towards preserving biodiversity (ibid.). It was established as an approach, which would better the efficiency of policies of biological diversity conservation (European Parliament, 2015, p. 1).

Later, in the seventies and eighties, the inclusion of environmental issues into economic frameworks became increasingly frequent (Japelj, 2016, p. 8). With more and more authors dealing with the subject, the term "ecosystem services" was coined. It was first conceptualised and used by Ehrlich and Ehrlich in 1981 (ibid.). An important milestone for the ecosystem services approach was the Millennium Ecosystem Assessment in 2003, which highlighted the dependency of society on ecosystem services, and assisted the concept to make its way to the policy agenda and towards an increase in writings on the topic (Gómez-Baggethun et al., 2010, p. 1209). The EU has also started to raise awareness about the approach. However, the integration of the theory into policies remains rare.

The implementation of the concept of ecosystem services in international politics and the increasingly frequent research of the economic evaluation of ecosystem services led to the development of market mechanisms to secure an optimal level of availability of ecosystem services (Japelj, 2016, p. 9). These tools can be payments for ecosystem services and markets for ecosystem services (Gómez-Baggethun et al., 2010, p. 1209). Payments for ecosystem services are made from beneficiaries of ecosystem services (e.g. communities, the government) to landowners, managers and/or users of natural resources to reward activities, which contribute to the conservation of nature (Center for International Forestry Research, 2005, p. 1). Among the markets for ecosystem services, we distinguish public schemes where the state takes over the role of the payer on behalf of society, and private schemes, which are usually implemented locally and "the buyer" pays the provider for the ecosystem service directly (Japelj, 2016, p. 9). Tools can differ, the key is to ensure incentives for biodiversity preservation, and with it ecosystem services.

Experts identify four different types of ecosystem services that are all essential to human health and wellbeing (Žujo and Danev, 2010, p. 67–68), which are presented in the table 2. 1 below.

*Table 2. 1: Types of ecosystem services and their effects*

| SERVICES | EFFECTS |
|---|---|
| **Supply services** | Supply goods – food, water, wood and fibres |
| **Balancing services** | Regulate climate, precipitation, water (e.g. floods, cleaning), pollination and the spread of disease |
| **Cultural services** | The immaterial benefits of ecosystems that contribute to our spiritual wellbeing, such as beauty, inspiration and entertainment, education, spatial feeling, cultural heritage |
| **Support services** | Necessary for the production of all other goods and services of the ecosystem; including soil formation, photosynthesis, and circulation of nutrients that are the basis for growth and production |

Source: Žujo and Danev, 2010, p. 67–68

The aim of the approach is to remind that ecosystems and biodiversity are not something eternal, indestructible and unlimited. Through our activities, people often have negative impacts on the level of biodiversity and change the ability of healthy ecosystems to continue to provide the widest range of goods and services (Žujo and Danev, 2010, p. 66). Hazards threatening us in the future if decision makers and the general public are not sufficiently aware of the economic value of ecosystem services can be catastrophic and humanity will likely pay a very high price for such behaviour.

## 2.4 IMPLEMENTATION OF EU POLICIES ON BIODIVERSITY THROUGH THE LENS OF THE THEORY OF ECOSYSTEM SERVICES

The analysis is focused on the designation of Natura 2000 sites and protected areas in Slovenia, their management and supervision, the achievement of set targets for preservation, and the main threats to biodiversity, agriculture and tourism. At the end of each part, the implementation is evaluated through the lens of the theory of ecosystem services.

### 2.4.1 Designation of protected sites

To determine, whether the designation of Natura 2000 sites is adequate, the European Commission uses an indicator of adequacy of inclusion of species and habitat types into the Natura 2000 network, calculated individually by country (Računsko sodišče, 2017, p.34). In the period covered (2015–2016), Slovenia achieved a 95.4% adequacy of inclusion of species and habitat types into the

Natura 2000 network, which placed it on the 14th place among EU countries (ibid.). However, in the EU Environmental Implementation Review Country Report for Slovenia, the European Commission pointed out the need for additional SCI network designation (European Commission, 2017, p.10). A similar observation was made in the CBD Fifth National Report (Ministry of the Environment and Spatial Planning, 2015, p. 89). Slovenia has, however, added amendments to its list of protected sites through the years. Most recently, in 2016, the regulation for Natura 2000 was revised by the government, and 11 habitat types, alongside 17 species, were newly included in the network, one new SCI Natura 2000 area was distinguished, while 3 habitat types and 2 species were removed (Računsko sodišče, 2017, p. 34).

So far, Slovenia has designated 355 Natura 2000 sites, of which 324 are SACs under the Habitats Directive and 31 SPAs under the Birds Directive (Natura 2000, n. d. b.). In total, the surface of all Natura 2000 protected sites in Slovenia encompasses 7,681 km$^2$, well over a third of the entire territory. These sites encompass 60 habitat types and 114 species covered by the Habitats Directive, and 122 species protected by the Birds Directive (ibid.). In the new Environmental Implementation Review (European Commission, 2019, p. 11), the European Commission does not mention any need for additional designation of sites, and points out that all special areas of conservation were designated on time, which means that the designation of Natura 2000 sites is not an issue area for Slovenia, and that observations from the previous review were taken into account.

As far as protected areas are concerned, however, they currently cover 14% of the territory of Slovenia (Hladnik et al., 2018, p. 6), although, as was stated in the CBD Fifth National Report, the goal was to reach 22% by the year 2014 (Ministry of the Environment and Spatial Planning, 2015, p. 11). Slovenia is therefore behind the goal, which has been scheduled to be accomplished five years ago, and the designation of protected areas is somewhat at a stalemate, with the percentage not changing substantially.

Protecting sites, such as through the Natura 2000 network and protected areas, is one of the responses of the community in relation to information about biodiversity decline, and it is the central instrument of biodiversity policies (Figgis et al., 2015, p. 4), which aim to conserve natural diversity and with it, ecosystem services, which is why they represent a favourable tool of protection for the ecosystem services approach. The (economic) value of biodiversity, subsequent ecosystem services and protected sites has been identified and embedded in the law of the EU and Slovenia (see literature review). And while the advantages for society can derive from various ecosystems, protected sites possess benefits in the form of already being a potent, effective cost-wise and fruitful instrument for

managing ecosystems in a sustainable manner, "with associated laws and policies, management and governance institutions, knowledge, staff and capacity" (Stolton et al., 2015, p. 149).

The policy instrument of protecting sites can be viewed through the ecosystem services approach as recognition of the value of the natural environment, and an investment in the protection of biodiversity and ecosystem services. This is why a broader array of ecosystem services is sustained in comparison to areas, which are under no regulation and management, since they are more exposed to threats and deterioration (ibid.). Slovenia has apparently recognised the benefits of protected sites, and has made efforts to designate protected sites. Especially visible is the progress and accomplishment in the designation of the Natura 2000 network, a little less so in the domain of protected areas, however. But we can see that objectives are set, the intent has been shown, and the ecosystem services approach encourages the accomplishment of designation.

### 2.4.2 Management and supervision

The European Commission has also expressed concern with the implementation of direct control and other management measures in protected areas (European Commission, 2017, p. 10). Non-sustainable management has been pointed out as one of the causes for the increasing pressures on biodiversity in the CBD Fifth National Report (Ministry of the Environment and Spatial Planning, 2015, p. 7).

Nature conservation measures are specified for each Natura 2000 site individually. Over half of these measures, set out in the Natura 2000 Management Programme 2015–2020,[7] have been implemented or are in the phase of implementation, a quarter are not yet in this process, and a quarter have not yet been implemented in the 2015–2017 period (Ministrstvo za okolje in prostor, 2018, p. 9), which indicates that attention is being given to fulfil the concrete objectives set. Contractual protection and stewardship in the vast majority of cases has not yet begun to be implemented, which represents a reason for concern, however,

7 "Nature protection measures are carried out by the State to attain detailed conservation objectives at Natura sites. These measures are contractual protection and stewardship, temporary protection, protection by establishing protected areas, restoration, markings in nature, limited tours and visits and limited behaviour which endangers protected animal species" (Vlada Republike Slovenije, 2015, p. 11). Contractual protection and stewardship refers to the contract concluded with the landowners within Natura 2000 sites. The contract specifies in particular: the omissions or activities of the owner to achieve the purpose of protecting natural value, and the amount of funds for the abandonment or activities of the owner (Vlada Republike Slovenije, 2015, p. 11).

the implementation of these measures depends largely on the start of implementing projects, which were beginning to be operational in 2018 (ibid.). In areas that are protected, protection measures are implemented through the management of protected areas, and management plans for protected areas. The measures put in place were carried out in 70% of cases in the first three years of implementation of the Natura 2000 Management Programme (ibid.), which indicates a stronger level of commitment in the domain of protected areas.

Compliance with the rules, regimes and measures is ensured through supervision, namely through inspections and direct control, which were indicated as problematic areas in the 2017 report by the Commission (European Commission, 2017, 11). Only about a third of the specific measures for supervision, set out by the Natura 2000 Management Programme, were stated to be in the phase of implementation after three years, while for 30% of measures, the Ministry of the Environment and Spatial Planning failed to even obtain enough detailed data to assess the situation (Ministrstvo za okolje in prostor, 2018, p. 9), and came to a conclusion that not all supervision measures will be able to be implemented by 2020 at this pace. This therefore does not represent encouraging news for aspirations of improving the unflattering situation with supervision.

Natura 2000 sites are not recognised as protected areas in the Slovenian legal order, hence direct control is only provided for when they overlap with protected areas with an operator and supervisors. Nature protection supervisors, who are able to carry out direct control in nature, are constantly present only in a minor part of all the protected sites. In 2011, the surface of such areas amounted to a mere 7.7% of the territory of Slovenia (Kus Veenvliet, 2011, p. 15). Namely, for the remaining surface area of Natura 2000, which is not simultaneously a protected area with an operator and supervisors, they comprised a startling 27.8% of the territory of Slovenia, a special protective regime of control is not defined, but falls only under the auspices of inspection (KusVeenvliet, 2011, p. 15), which is often understaffed. However, even in areas where direct control with an operator and supervisors is provided for, a number of problems still arise in ensuring compliance with the protective regimes (Kus Veenvliet, 2012, p. 37). According to Kus Veenvliet, this could be because nature conservation services are weakly staffed and some of the supervisors do not have full powers to perform control, such as to impose sanctions (Kus Veenvliet, 2011, p. 46). Without proper control and the ability to impose sanctions in most areas, violations are most likely inevitable. In Slovenia, the prevalent violations causing unfavourable conditions for the environment are littering, pollution, illegal construction, driving in the natural environment, etc. (Kus Veenvliet, 2011, p. 40).

In 2018, Slovenia has slightly improved its situation, since there are now 55 conservation supervisors present at 14 sites, which have an operator, as opposed to the previous 4 sites in 2011 (ibid.). Most sites with conservation supervisors also have volunteer supervisors, there are 49 of them (ibid.). They have the same powers as nature conservation supervisors, with the exception of collecting fines and stopping drivers, demanding documents, and seizing vehicles and objects (ibid.). Nevertheless, violations of the protective regime are not uncommon. Just last year, nature conservation supervisors have issued 1,273 warnings and 387 fines mostly related to parking, littering or camping violations (Žlebir, n. d.).

Slovenia has been taking certain steps in order to ameliorate the situation, however, these were not decisive enough, since according to the new report by the European Commission, the management of Natura 2000 sites has been only partly effective, and that it could be improved, while concerns over implementing all conservation measures effectively and the area of supervision remain worrisome (European Commission, 2019, p. 11).

As was mentioned before, protected sites are important and efficient instruments for biodiversity preservation, among other things, because they are specially regulated by laws, have management in place, the staff to look after them, and are monitored, in theory, of course. Adequate management and supervision are therefore seen as important steps in preserving ecosystems and their services, if viewed through the lens of the theory of ecosystem services. With the correct handling of the natural environment, and supervision to ensure compliance to rules of protective regimes, ecosystems are looked after, and their services maintained. Since financial resources are needed to ensure both effective management and direct control (e.g. salaries and training programmes for nature conservation supervisors), the economic value of ecosystem services upkeep is evident and in line with the ecosystem services approach. Since both management and supervision are crucial for the maintenance of protected sites and their biodiversity and services, more should be done in Slovenia to ensure that protected sites are taken care of.

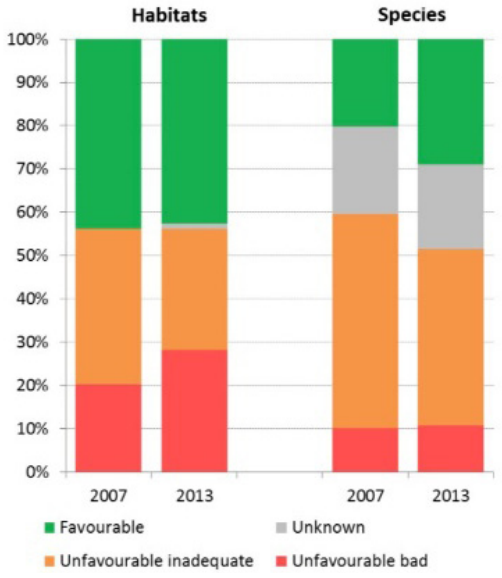
Nonetheless, progress has been made with the doubling of the number of nature conservation supervisors, present at more sites, and with the strong level of commitment to implement objectives, regarding the management of protected areas. However, the information about the high number of protective regime violations indicates that if such a high number of breaches of protective regimes has been reported by such a low number of conservation supervisors, this calls for a much-needed increase in the number of supervisors. They are due to be present at more sites to prevent the inevitable deterioration of biodiversity as a result of non-compliance to rules. And this is the direction the ecosystem services approach sees

fit to continue with, since the wellbeing of society and the preservation of nature should be maintained.

### 2.4.3 Achievement of objectives and targets

The most recent report of the European Commission on the condition of species and habitats, covered by the Habitats Directive (for the period 2007–2013), shows that only less than half of habitat types and less than a third of species were in favourable preservation condition in Slovenia (European Commission, 2017, p. 11). Among the habitat types, the worst estimated conservation status was given to freshwater and meadow habitat types (Ministrstvo za kmetijstvo in okolje, 2014a, p. 2). Between 2007 and 2013, the share of habitat types considered to be in unfavourable-bad condition, increased for nearly 10% (European Commission, 2017, p. 12). While the number of species in favourable condition increased by approximately 10% in the same time period, the number of species in unfavourable-bad condition remained almost the same (ibid.).

*Graph 3.1: Preservation condition of habitats and species in Slovenia*




Source: European Commission, n. d.

Slovenia is characterised by extremely diverse and relatively well-preserved nature. Despite the different protection regimes and considerable progress in certain areas (Natura 2000, protected areas), the conservation status of many habitat types and species has deteriorated in a relatively short time (Ministrstvo za okolje in

prostor, n. d.), as is evident from the report of the European Commission. The loss of biodiversity is detrimental to the continuous provision of ecosystem services, which the theory warns about. Policies aimed at halting the decline of biodiversity in Slovenia have, therefore, not been applied efficiently enough, and alongside that, the threats of agriculture and tourism have contributed to the degradation of levels of biological diversity.

### 2.4.4 Main threats to biodiversity in Slovenia

**Agriculture.** A major threat to biodiversity in Slovenia comes from agriculture (European Commission, 2017, p. 11). In the area of integrating biodiversity conservation measures in agriculture, progress has been made over the past decade, especially with the establishment of a system of agri-environmental payments. The operational programme for management of Natura 2000 in Slovenia 2014–2020 sets out agri-environment payment measures (Žvikart, 2010, p. 21).[8]

In the Analysis of attained goals of the Natura 2000 Management Programme 2015–2020, it has been indicated that in the first three years of the programme the specific measures related to the implementation of the agri-environment-climate payments have been executed in approximately half of the cases (Ministrstvo za okolje in prostor, 2018, p. 21). However, reaching target hectare values to even enter into these operations is only at 24% of set value (ibid.), which is a rather discouraging percentage and it raises red flags about the system. Still, given the fact that entry into agri-environment-climate payment operations is voluntary, an analysis of inclusion of farmers in these operations showed a constant increase (ibid.).

Another issue, which has been raised, is that areas with appropriate agri-environmental measures are in fact too small to actually ensure effective protection of habitats or to maintain biodiversity conservation and counter the negative trends

8 Agri-environment payments are subsidies for channelling agricultural activity into sustainable forms of farming, represent 77% of all measures within adjusted agricultural practices (Ministrstvo za okolje in prostor, 2018, p. 13). They maintain agricultural activity and the treatment of agricultural land in areas that are less suitable for farming, preventing overgrowth and promoting more environmentally friendly farming with constraints that mitigate the negative impacts of intensive farming (Ministrstvo za kmetijstvo in okolje, 2014b, p. 22). Financial incentives in the context of agri-environment-climate payments from the Rural Development Programme of the Republic of Slovenia for the period 2014–2020 are granted in accordance with the voluntary decision of a farmer to accept the obligations of specific operations – fulfilment of mandatory or additional requirements (Vlada Republike Slovenije, 2015, p. 16).

caused by the intensification of agriculture (Professional basis for the strategy and action plan for preserving biodiversity in the period 2015–2025) (Ministrstvo za kmetijstvo in okolje, 2014b, p. 22). It is clear that the system of these payments is not completely functional as of yet and inadequacies remain with the adjustment of agricultural practices at several sites (European Commission, 2019, p. 11), but progress is slowly being made to limit the threat of agriculture.

The effects of intensification of agriculture contribute to the loss of biodiversity, and, consequently, to a decline of ecosystem services. Among the most important consequences are soil erosion, an overload of water resources, pollution, and a reduction of biodiversity (Rejec Brancelj, 2003, p. 53). Meaning, all four categories of ecosystem services are, to different extents, affected by intensification, and this represents a hindrance in the provision of services to society and its consequent wellbeing.

Agri-environment payments can, based on the theory of ecosystem services, be viewed as an efficient tool when aiming towards preserving biodiversity. We can place them in the category of payments for ecosystem services, since the government, as an external beneficiary in the name of society, offers subsidies to farmers, who wish to implement more sustainable practices, more in line with biodiversity conservation, and ecosystem services protection. Meaning that an economic value was set as a reward for protecting the environment, which is very much in line with the theory of ecosystem services. Payments for ecosystem services are set on a voluntary basis, and so are agri-environment payments. It is evident, however, that this practice still has a long way to go before its benefits can truly shine through, but it is slowly gaining momentum, and it shows that decision-makers have started to include approaches into policies, which are somewhat connected to the ecosystem services theory.

**Tourism.** Tourism burdens the environment the most due to travel, accommodation and infrastructure (ARSO, n. d. a). Furthermore, the mountains are heavily burdened by tourist skiing activities with accompanying infrastructure (ibid.). With establishing and managing ski resorts come construction works that negatively influence the volume of forests and aquatic regimes (ibid.). Tourism, and even more so, certain forms of recreation are particularly burdening sensitive habitat types (e.g. caves and species, which reside there, and are heavily sensitive to light and noise) and areas where other species, which are sensitive to noise and disturbances breed (e.g. lynxes, owls, black storks, nesting bird colonies) (ibid.). Furthermore, mass tourism produces large amounts of waste, noise, disturbances of the natural environment, etc., which can contribute to the loss of biodiversity.

To try and prevent the negative consequences of tourism, sustainable planning and tourism management have become the main goals and standards of tourist

activities. Sustainable approaches are shaped through environmental protection, conservation of nature and recognisability of the landscape, waste management, sustainable orders, sustainable construction, green programmes/certificates and the use of renewable energy sources (Ministry of Economic Development and Forestry, 2017, p. 11). One of the measures is the continued development of the Green Scheme of Slovenian Tourism, which is a national programme and a certification scheme under the brand Slovenia Green (Ministry of Economic Development and Forestry, 2017, p. 36). The said brand unites all efforts for the sustainable development of tourism in Slovenia, offers destinations and providers with concrete tools and resources for assessing and improving sustainable activities, which are promoted through the Slovenia Green brand (I feel Slovenia, 2019).

The above-stated consequences of mass tourism throw off the natural balance and contribute in various forms to the dysfunctional provision of ecosystem services. The lens of the theory would view the spread of mass tourism, with its devastating consequences for the environment, as a phenomenon not cognisant of the value of ecosystems, and therefore an occurrence which needs to be limited with more sustainable practices. In this regard, the continuous financial support of the Green scheme by the government is an important part of creating a green offer ( I feel Slovenia, 2019). Meaning that it is in line with the theoretical approach of ecosystem services, since the certification scheme falls under the category of incentives, which encourage tourism services providers to take up more sustainable practices and in return obtain access to tools and resources. The external beneficiary in this case, as in the case of agri-environment payments, is the government in the name of society, who invests in the promotion of sustainable practices, which aid the maintenance or restoration of ecosystem services. The Green Scheme is gaining prominence and represents an important tool through which the value of ecosystems is recognised, and financially supported, which is why it is crucial, based on the theory, to achieve wide-spread application of the scheme.

## 2.5 CONCLUSION

Looking at the implementation of EU policies on biodiversity through the Natura 2000 network and protected areas in Slovenia shows that although progress is being made, biodiversity loss has not been halted rigorously enough. This would, looking through the lens of the theory of ecosystem services, mean that the value of the natural environment is not being accounted for thoroughly enough and more investments need to be underway. The ecosystem services approach welcomes the designation of Natura 2000 sites in Slovenia and encourages more engagement in the field of protected areas, since the protection of sites is an efficient

tool through which the economic value of ecosystems and biodiversity is seen and being accounted for via laws, policies, staff, supervision and management. The latter two remain problematic areas for being applied in practice in Slovenia, but are in the view of the theory of ecosystem services crucial for the upkeep of services of the natural environment and the subsequent wellbeing of society. Without constant and continuous effort to maintain biodiversity through efficiently managed and supervised protected sites, the services that stem from ecosystems are in danger of decreasing, and with them, the fundamental benefits to society.

The implementation of biodiversity policies is, therefore, not completely adequate, and reports of the European Commission show that levels of biodiversity are still in decline, largely also due to the daunting threats of agriculture and tourism. Both intensification of agriculture and mass tourism decrease biological diversity, and with it ecosystem services, which is why investments countering those threats need to be introduced. In agriculture, such investments in more sustainable practices are agri-environment payments, which are incentives on the part of the state to ecosystem services providers, farmers. The tool is slowly gaining prominence, and on the basis of the theory, a wide-spread application of this measure would be deemed wise and cognisant of the value of the natural environment. Similarly, the Green Scheme provides incentives for providers of tourism services.

In conclusion, the theory of ecosystem services is a viable theoretical approach for examination, since it offers a unique point of view on the role of biodiversity and the consequent ecosystem services that ensue. It compels us to think about the (economic) value of such services and their beneficial effects on society. But at the same time, it warns us that these services are not eternal, if not being looked after. Due to the loss of ecosystem services, very costly alternative solutions will be needed. Therefore, investments in natural capital are necessary and incentives for natural environment preservation are one way to do it. By preserving ecosystems, we will save money in the long run and, at the same time, have an important impact on our prosperity and long-term survival.

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# 3 WASTE MANAGEMENT IN THE EU: ROMANIA'S CHALLENGES & PROSPECTS FOR IMPROVEMENT BASED ON AN ANALYSIS OF SWEDEN

**Leah van Oorschot and Brooke Sutherland**[9]

## 3.1 INTRODUCTION

The generation of waste can conceivably produce massive negative impacts in form of pollution and resource depletion (Andreoni et al., 2015, p. 104). Countries, most significantly those with high growth rates of consumption, face serious challenges in managing waste and the resulting economic and environmental effects (Andreoni et al., 2015). Gentil, Gallo and Christensen (2011, p. 2377) found that the adoption of high, achievable waste prevention targets diminishes the environmental impact of waste management systems, most significantly in terms of a decline in the quantity of production of goods. Within the EU, efforts have been made in recent decades to address the issue of waste management within its Member States; however, there are several challenges countries face in achieving targets set for achieving more sustainable waste practices. In 2016, close to a billion tonnes of municipal waste was produced in the EU, of which 37.5% was recycled and 45.5% landfilled (Eurostat, 2018).

In 2005, the EU issued a thematic strategy to address the issue of waste management within the Community, and a legal framework based upon this was instituted in 2006. This document outlines the fundamental principles of waste management, such as the obligation to minimise the impact of waste management on human and environmental wellbeing (European Parliament and the Council of the European Union, 2006, p. 9–14). EU waste policy was revised in 2008 with the enactment of Directive 2008/98/EC, the Waste Framework Directive, which is the first EU document that set legal obligations regarding waste prevention.

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Included in Article 4(1) of the Waste Framework Directive is the waste hierarchy, which seeks to address the issue of losing resources that could have been reused (Gharfalkar, Court, Campbell, Ali & Hillier, 2015). Specifically, "the hierarchy recommends a priority order from the most preferred option of 'prevention' at the top to the least preferred option of 'disposal' at the bottom" (Gharfalkar et al., 2015, p. 305). The directive also includes the requirement for all Member States to adopt waste prevention programmes in order to meet the 2020 target of 50% recycled municipal waste by weight per household (European Environmental Agency, 2018b; EUROPEN, 2009). In 2018, the directive was further revised to include new and more ambitious recycling targets of 55% by 2025, 60% by 2030 and 65% by 2035 (European Commission, 2018b, p. 2). One of the most recent developments in waste policy came with the European Commission's adoption of a Circular Economy Package in 2018, which includes a higher EU target for recycling of municipal and packaging waste of 70% for packaging waste by 2030, as well as revised proposals on waste legislation (European Commission, 2019a).

Several studies have been conducted to identify factors which restrain some Member States from achieving waste management practices and targets as laid out in EU policy. For example, existing infrastructure as well as national markets may slow down the relative rate at which a member state may switch to waste management policies that are in line with EU recycling targets (Andreoni et al., 2015, p. 108). Specific analyses of Member States who are in danger of not reaching targets have also been carried out by the EU to uncover issue areas in their national waste management policy as well as highlight strategies for improvement (European Commission, 2018b, p. 1).

In 2018, the EU published an updated review of how well Member States are applying the waste rules set by the Waste Framework Directive, and sent out a warning to 14 Member States at risk of missing the 2020 target of 50% recycling of municipals waste and thus need additional policy action in order to meet these targets. Romania is one Member State that has received several warnings from the EU regarding its predicted failure to meet the EU's 2020 recycling targets of 50% waste recycled without additional policy action (European Commission, 2018b). If the targets are not attained by Romania, it faces the risk of sanctions in addition to a suspension of funding for environmental programmes (Ungureanu, 2019). Furthermore, Romania is one of the Member States for which waste management remains a key challenge, with double the waste generation than the EU-28 average (European Commission, 2018d), the second lowest recycling rate of municipal waste in Europe of just over 13% in 2017 (EUROSTAT, 2018), very poor waste collection rates (Mihai, 2015, p. 6) and a high degree of landfilling relative to other waste management tactics (Lungu, 2016, p. 2). As it is evident that Romania is underperforming relative to the EU average in several aspects of waste management

and is unlikely to meet 2020 targets, the country is one Member State that needs immediate attention to raise its standard of waste management practices. The chapter thus provides a focus on Romania, with recognition that other Member States with weak waste management practices could also benefit from a similar analysis and recommendation. This chapter could potentially operate as a starting point of reference for future research on other Member States' waste practices, which would also require a case-specific analysis.

Within the EU's official evaluation of waste management in Romania, several areas of weakness are highlighted, including a "lack of economic incentives", a need for greater "public engagement in separate collection", and limited investment in "projects higher up the waste hierarchy" (European Commission, 2018c, p. 1). However, the report is limited in several ways. First, it merely states what the issue areas are within Romania's waste management, and does not provide an analysis of what may be the source of these problems. Moreover, it fails to identify the barriers that constrain Romania from implementing the waste hierarchy within its waste management policy, which is a key action for achieving sustainable waste management practices in line with EU targets. Our research seeks to address this second area of weakness in the analysis of Romania's waste management system, in order to support its attainment of EU environmental goals and targets.

Therefore, the aim of this chapter is to determine what barriers Romania faces in the implementation of the waste hierarchy, and to explore potential adaptations to their waste management approach that may help them overcome these barriers. The chapter provides a critical evaluation with reference to both primary and secondary sources in order to answer this question. The chapter begins with a literature review of relevant research in this area, with respect to the causes of poor waste management policy as well as evaluations of Romania's practices in waste management. As the chapter moves into its critical analysis, it presents an overview of the waste hierarchy and its prospects for achieving a more sustainable management of waste, and more specifically, the EU recycling targets. Next, it examines the waste management policy and practices in Romania in terms of its application of the waste hierarchy, identifying three key barriers to its implementation in Romania's waste management system: the implementation of its national waste management plan in early 2019, easy access and incentives to landfilling, and a lack of necessary economic means. Furthermore, the chapter conducts a systematic analysis of these three issue areas for a Member State that has achieved the waste hierarchy within its waste practices, in order to ascertain key issue areas that restrain Romania from achieving the waste hierarchy and identify prospective strategies Romania could utilize to overcome these challenges. Sweden is selected for a case study based on current success in attaining EU waste management

targets, the achievement of higher levels of the waste hierarchy within its practices, and its strengths in landfilling prevention- a key issue are for Romania.

### 3.1.1 Causes of poor waste management policy

Past research has sought to identify the causes of the poor performance in waste management of some Member States. Large deviations among Member States' waste management practices is to a high extent a result of the disparity between their GDP, as well as the amount of waste they produce and dispose (Namlis & Komilis, 2019, p. 190). Additionally, national markets, infrastructure, ability to invest, and human resources within Member States may impact their ability to achieve EU recycling targets at similar rates (Andreoni et al., 2015, p. 108). The European Commission itself has conducted an analysis of Member States' application of the Waste Framework Directive in order to determine which challenges they face in achieving the Waste Framework Directive's targets and address how these challenges may be handled (European Commission, 2018a). The report concludes that there are serious gaps between waste management practices among Member States, and that local actors have a crucial role in waste management in order to meet the targets set by the EU (European Commission, 2018a). The EU has also revised its legislation to address issue areas in national waste management. For example, the 2018 revision of the Waste Framework Directive included new provisions intended to prevent waste production and significantly increase the recycling of municipal and packaging waste (Cerame Unie, 2018). The new legislation strengthens the waste hierarchy by requiring Member States to take specific measures to apply the hierarchy to waste management and thereby support the achievement of a circular economy (European Environmental Agency, 2018a).

### 3.1.2 The waste hierarchy: prospects for sustainable waste management

The waste hierarchy was first introduced in European Parliament and Council Directive 2008/98/EC (2008), which states in Article 4(1) that "the following waste hierarchy shall apply as a priority order in waste prevention and management legislation and policy", specifically, prevention, preparing for re-use, recycling, other recovery (e.g. energy recovery), and disposal, respectively. The document notes that waste management may not directly follow the waste hierarchy in instances where alternative approaches "deliver the best overall environmental outcome" and may be "justified by life-cycle thinking on the overall impacts of the generation and management of such waste" (European Parliament and Council Directive 2008/98/EC, 2008, Article 4(2)).

The European Commission released a document in 2010 titled "Being wise with waste: the EU's approach to waste management", which further discusses each level of the waste hierarchy. Landfilling, or disposal, is cited as the least preferable waste practice due to negative environmental impacts that result from the decomposition of waste, such as high emissions of methane and the run-off of heavy metals into groundwater and soil (European Commission, 2010).

Energy recovery is second to last on the hierarchy, viewed as "not the most efficient way of managing used materials" (European Commission, 2010, p.8). This practice involves using waste incineration to generate electricity, steam, and heating for buildings, or using waste as a source of fuel in industrial activities (European Commission, 2010, p. 8). The production of hazardous chemicals may occur if waste is burned poorly or incompletely; however, the EU sets environmental standards to maximise the benefits of energy recovery while minimising environmental and health costs (European Commission, 2010, p. 8).

The third preferable approach on the hierarchy is recycling, as it reduces the quantity of waste landfilled, decreases the use of natural resources, and can conserve energy (European Commission, 2010, p. 11). Best practice in recycling within Member States thus involves the institution of systems that place the responsibility for the entire life cycle of products and packaging on producers, and that encourage consumers to separate waste into material types in order to facilitate a higher quality of recycling.

Preparation for re-use lies above recycling in best waste practices, and it involves Member States ensuring that waste products are able to be revitalised to be used again for their original purpose (European Commission, 2010, p. 15).

Finally, prevention is identified as the most preferable waste practice in the hierarchy. The European Commission acknowledges that it is difficult to measure, but lays out some tools that Member States may use to encourage prevention, such as: supporting the design of eco-friendly products made from recycled, non-hazardous materials, which consume minimal energy in use, have limited packaging, and may be recycled after use; the advancement of manufacturing methods; and motivating consumers to ask for more eco-friendly products (European Commission, 2010, p. 15).

Research has stated that employing the waste hierarchy throughout a country's waste practices is a complicated and difficult process due to challenges such as the creation of an adequate strategy and related legislation, obtaining sufficient funding for waste facilities, building the necessary infrastructure, redesigning products, and shifting established behaviours and values (Williams, 2015, p. 1). Only a

fairly small number of EU countries have developed waste policies that allow the achievement of the European waste strategy and hierarchy by enabling the private sector and municipal entities to create these changes (Williams, 2015). In the face of these challenges, it is important to identify what specific restraints each country faces in the implementation of the waste hierarchy.

The waste hierarchy emphasises prevention of waste production, preparation for re-use, and then recycling as the top priorities respectively, and therefore its application should contribute to achieving not only recycling targets set by the EU, but is likely to also support the goal of having a circular economy and thus minimise the impact of waste on the environment.

### 3.1.3 Issues of waste management in Romania

Even though the country has improved its overall environmental performance since entering the EU in 2007, waste management remains a key challenge for Romania (European Commission, 2019b). The largest problem within Romania is not an absence of citizens' willingness to recycle, but rather the lack of a well-established waste management system (Ungureanu, 2019). In 2018, the European Commission published the latest review of how well Member States are applying the waste rules set by the Waste Framework Directive. The document sends out a warning to 14 Member States which are at risk of missing the 2020 target of 50% recycling of municipal waste, and calls for additional policy action in order to meet the targets (European Commission, 2018b). As mentioned before, Romania was included in this group, at a severe risk of missing the 2020 target of 50% with the second lowest recycling rate of municipal waste in Europe of just over 13% in 2017 (EUROSTAT, 2018). Each of these 14 Member States were provided with an individual early warning report, which includes key findings concerning the Member States' waste management systems and possible actions to improve performance in order to meet the 2020 targets (European Commission, 2018c; European Commission, 2018a). In the European Commission's early warning report for Romania, the following was determined (European Commission, 2018c):

- Romania's separate collection service, including for bio-waste, is not being sufficiently implemented;
- there are not enough economic incentives to move away from disposal;
- extended producer responsibility schemes for packaging are not efficient and do not fully cover the costs of separate collection;
- the necessary infrastructure is still lacking;
- more investment is needed in projects higher up the waste hierarchy (e.g. recycling) that go beyond treatment of residual waste; and
- public engagement in separate collection is very low. (p. 1)

Over the past few years, Romania has received several warnings from the European Commission that it will be sanctioned if it does not reach the recycling targets set for 2020, specifically, a daily sanction of €200k from their own national budget (Lungu, 2017, p. 1). Furthermore, the EU will suspend payments for environmental programmes in Romania if it does not take concrete measures to meet these targets (Ungureanu, 2019). However, little has changed over the past decade concerning its waste management.

### 3.1.4 Romania's waste management policy and practices

Romania first came out with a National Waste Management Strategy in 2003, which covered the time period 2003–2013. The strategy is based on the principle of protection of primary sources, the prevention principle, the polluter pays principle, and the principle of proximity correlated with the principle of autonomy (European Commission, 2019c, p. 6). To help implement this National Waste Management Strategy, the government issued regional waste management plans for the eight Romanian regions (European Environmental Agency, 2013b). This waste management system holds the municipalities responsible for the collection and management of municipal waste (European Environmental Agency, 2013b). This newly introduced system has proven not to be very effective over the years, as only 82.3% of the total of Romanian municipal waste was collected in 2018, which is the third lowest of all EU Member States (Ionescu, 2018). Not only collection poses a problem, but recycling as well. Of the municipal waste that is collected, only 13% is recycled, according to the most recent data (European Environmental Agency, 2018).

Although efforts were made to increase the total recycling of municipal waste in Romania through the development of pilot projects and requirements for a solid waste management system for each municipality by 2007, the total level of recycling of municipal waste in Romania remained very low throughout the period 2001–2013 (European Environmental Agency, 2013b). These efforts included the establishment of a national waste management system for all 32 counties in Romania. These systems were established to promote separation of waste at home, separate collection, and waste processing by one sanitation operation. These efforts were funded by the EU but none of them were in effect in 2016, as originally planned (Simina, 2016). In 2017, Romania adopted a long awaited new national waste management plan, which set to increase recycling rates and comply with landfill targets. At the beginning of 2019, waste management in Romania was finally nationalised, three years later than planned. Neither of these policy developments have created substantial improvement in the overall waste management in Romania, or support its achievement of EU recycling and landfill targets.

## 3.2 APPLICATION OF THE WASTE HIERARCHY IN ROMANIA

Romania's waste generation is relatively high compared to other Member States of the same size and is more than double the EU-28 average, with a Romanian average of 9012 kg per inhabitant per year compared to a European average of 4962 kg per inhabitant per year (European Commission, 2018d). Not only is the waste generation high, but the amount of waste generated in Romania per household is also ever growing (European Environmental Agency, 2015). These facts provide strong evidence that Romania reflects the waste hierarchy poorly in their waste management system, as the waste hierarchy calls for prevention to be the top priority, but Romania has made little to no effort to include this priority into their waste management system. Although there are projects to integrate waste management systems that support activity at the top of the waste hierarchy, such as waste prevention and recycling, all of these are either incomplete or non-functional (European Commission, 2019c).

Efforts have been made to improve the overall recycling rate of municipal waste in Romania; however, these efforts have not proven to be very fruitful. Romania has tried to integrate preparation for re-use and recycling into their waste management system but has unfortunately failed to do this successfully. Disposal is the least preferable approach to waste management according to the waste hierarchy, but it has historically been very prevalent in Romanian waste management. For example, in 2017 the European Commission took Romania to the European Court of Justice for failing to close and rehabilitate 68 illegal landfills in the country (Marica, 2017, p. 1). Even more importantly, landfilling is the preferred method of municipal waste disposal in Romania (European Commission, 2018d). The latest numbers show that 54% of municipal waste was landfilled in Romania in 2016 compared to an EU average of 24% (Eurostat, 2019). In summary, Romania's waste management system poorly implements the waste hierarchy as it demonstrates a limited promotion of incentives to prevent waste within their policies, low rates of re-use and recycling due to poor policy implementation, and high rates of landfilling.

Our following analysis serves to uncover the restricting factors that contribute to Romania's waste management system and its failure to reflect the waste hierarchy. Through our research, we have identified three barriers: the lack of a properly established and clear national waste management plan, in which different parties know what their role is; easy access to and absence of consequences for landfilling; and the lack of economic incentives and financial means to support a better waste management system that is in line with EU standards and reflects the waste hierarchy. We will provide a further analysis of each barrier in the following sections.

### 3.2.1 Nationalisation of waste management

In January 2019, Romania nationalised the collection of municipal waste. The responsibility for the collection, separation and recovery of waste is now in the hands of one single company, the so-called serviciul de salubritate, or the Sanitation Service (Ungureanu, 2019). Before this law entered into force, the waste collection system that was in place was ineffective. Prior to the change to national collection, waste collection in Romania was divided among its 41 counties (Mihai, 2015, p. 5–6). The collection of municipal waste was the responsibility of these separate counties and was divided between the Sanitation Service and several private operators (Ungureanu, 2019). Already before the nationalisation of waste management, the national collection rate was increasing, from 51% in 2007 to 76% in 2011, but the discrepancies between collection rates in different counties were very high, varying between 0 and 100% (Mihai, 2015, p. 6). The waste that was not collected was disposed illegally in open dumps, rivers, and through backyard burning (Mihai, 2015, p. 6). This low collection rate was specifically evident in rural areas, where there was a lack of proper waste management facilities (Mihai, 2015, p. 6). Illegal dumping is the main problem caused by low waste collection rates as it causes serious environmental threats, such as the generation of methane gas, which contributes to the greenhouse effect (Mihai, 2015, p. 5). Therefore, in an attempt to improve the waste collection rate, significantly in response to pressure by the European Commission, which threatened to suspend payments for environmental programmes, Romania introduced the nationalisation of waste collection.

This recent legislative change was intended to alleviate the problem of poor waste management in Romania, but instead, from what has been reported so far by June of 2019, it has contributed to making the recycling industry increasingly chaotic. There is limited data concerning collection and recycling rates after the nationalisation of municipal waste management, as the change happened very recently. The conclusions we make are limited by the short time frame that covers the period since the nationalisation was implemented (roughly 5 months) and a lack of sources reporting on the issue. Laurentiu Ungureanu is one of the rare scholars who have written on the recent issue of the nationalisation of waste management in Romania. He argues that the main issue with the nationalisation of waste management in Romania is that in the past only private waste collection services complied with the EU standards set for the recycling circuit. Private services made significant efforts to recycle municipal waste and reflect the waste hierarchy to a significantly greater degree than the Sanitation Service, who now controls all waste collection and distribution, and who does not have sufficient means to do this nor has demonstrated any efforts to do so (Ungureanu, 2019).

Prior to the nationalisation of municipal waste, Romania had an arguably more effective system regarding the recycling of packaging based on private collection; however, this change hinders private collection services from continuing to operate effectively. Before this change, private waste collectors would work together with manufacturers to recycle, so that manufacturers could meet their recycling targets and the collecting company had a profitable business (Ungureanu, 2019). However, there are several elements in the new law that pose legal obstacles to efficient operation of these private collection companies.

First of all, the new law requires private collecting companies to obtain authorisation from the local authorities before they are allowed to collect waste. The local authorities often do not grant this authorisation because for them it means an additional financial and logistic hassle to include private collection of recyclables into their "straightforward" waste management system implemented by the Sanitation Service (Ungureanu, 2019). Signing such contracts with private organisations would mean that local authorities would have to pay fees for each family, which they are not inclined to do because asking for more money from citizens can lead to a loss of votes, and therefore power (Lungu, 2017, p. 5). Furthermore, it is politically unclear how the new legislative provisions work for the participants in the system. So, municipalities are unsure what their role in waste management is and how to interpret and sign contracts with private waste collection companies (Ungureanu, 2019). Lastly, the new law requires that manufacturing companies can recover their packaging exclusively from the sanitation yards instead of collecting recyclable waste from the curbs, which they were allowed to do in the past (Ungureanu, 2019). This further blocks them from entering the packaging and recycling market.

The Sanitation Service argues in favour of an approach based on unity and consistency, and thus a nationalised waste management system. They claim that the only operator who can collect waste from everyone is the Sanitation Service (Ungureanu, 2019). The problem is that the Sanitation Service does not have the means to collect and separate all municipal waste. They do not have the infrastructure and financial capacity to do so, and the waste they collect is most likely to end up in landfills as has been proven in the first month of this new waste management system (Ungureanu, 2019). The amount of municipal waste that was landfilled in Romania was over 70%, according to the EU's latest data (Cewep, 2016).

What causes the situation to worsen compared to before is that the nationalisation of waste management required municipalities to meet certain standards of separate collection and recycling in order to meet the EU standards. The governments, however, are unable to meet these standards strategically and financially,

but it is also impossible to go back to the old system where there were higher rates of recycling, as the private recycling and collection services that were responsible for this recycling are no longer part of the waste management system (Ungureanu, 2019).

The way that the nationalisation of municipal waste management poses a barrier to implementing the waste hierarchy properly in Romania's waste management system becomes evident in multiple aspects of the nationalisation. The nationalisation was meant to improve Romania's waste management system but has worsened the overall collection and recycling rates since its adoption at the beginning of 2019. Arguably, the main problem that the nationalisation of waste management poses in following the waste hierarchy is the lack of coordination and willingness to cooperate between the private sector and the public Sanitation Service, and the effects that this lack of cooperation has. In order to comply with the waste hierarchy, the Sanitation Service has to work together with these private companies, as it alone does not have the means to collect and separate municipal waste, whereas these private companies do, as becomes evident when we look at the situation before the nationalisation of the municipal waste management system. This also reflects a second problem, which is the chaos that the nationalisation of waste management has caused.

Municipalities are unsure of their role in the waste management system and in coordinating between the public sanitation company and the private collection/recycling companies, which further acts as a barrier to effective recycling and reuse, and therefore as a barrier to the implementation of the waste hierarchy. Seemingly, the main area of improvement that Romania should focus on in order to integrate an effective waste management system in line with the waste hierarchy is the improvement of infrastructure for the recycling of municipal waste, allowing it to begin to prioritise recycling over landfilling.

There is limited research into the changes that the nationalisation of the waste management system in Romania has caused since its implementation in January of 2019. One study completed by Laurentine Ungureanu reported on the situation approximately one month after the nationalisation was implemented, and thus with data from a very short time frame to base conclusions on. The system might have improved or worsened over the six months after its implementation in January of 2019. This chapter uses Ungureanu's findings and data, in addition to data retrieved from the EU. However, a more precise assessment would need to include more recent sources and additional information, which are unavailable at this point in time.

### 3.2.2 Weak legislation on landfilling

This brings us to the second topic, the large quantity of municipal waste that is landfilled in Romania. Landfilling is at the very bottom of the waste hierarchy but is prevalent in Romania's waste management, which contributes greatly to the country's poor implementation of the waste hierarchy. Landfilling is very popular in Romania because it is very cheap, the cheapest in Europe, as Romania does not have any kind of landfill tax (Lungu, 2016, p. 2). This leads to very high landfilling rates in Romania. In 2010, more than 95% of the total collected municipal waste in Romania was landfilled (NEPA, 2010). This rate has dropped to 72% in 2015 (EUROSTAT 2015), but the high proportion of waste being landfilled still poses a serious landfill capacity problem and infringes the European Union's waste legislation (European Commission, 2019c, p. 7).

What further increases the high amounts of municipal waste landfilled in Romania is the lack of a legal framework regarding landfilling. There is no landfill tax as in most other EU Member States. This tax would not only allow for more funds to go for environmental protection, but could also help reduce the number of illegal landfills in Romania, as there is no comprehensive enforcement action against illegal landfilling (European Commission, 2019c, p. 8). This not only means that it is easy to landfill in Romania, as you do not have to pay tax in order to do so and there is little risk of being fined, but it also means that almost all landfills in Romania fall short of the legal requirements set by the EU Landfill Directive (European Commission, 2019c, p. 8).

The Landfill Directive's legal and technical requirements are meant to prevent or reduce as far as possible the negative effects of landfilling on the environment, in particular regarding surface water, groundwater, soil, and the effects on human health (European Commission, 2016a, p. 1). This Directive states that all Member States must ensure that existing landfill sites may not continue to operate unless they comply with the provisions of the Directive (European Commission, 2016a, p. 1). According to the Directive, it is up to the Member States' respective governments to devise their own laws on how to reach these goals (European Union, 2019). As the Romanian government has not taken any action to follow the guidelines set by the Landfill Directive, the environmental risks that landfills pose in Romania are even higher than with other landfills in the EU that do meet these requirements. In 2017, the European Commission decided to take Romania to the EU Court of Justice after Romania had been warned several times about this over 68 landfills that did not comply with the Landfill Directive (Marica, 2017). The Court of Justice ruled that Romania failed to comply with the Directive (Marica, 2018), but the decision did not bring any financial obligations for Romania, except for paying the costs of proceedings. However, if Romania does not take any

measures to comply with the court's decision, the European Commission can re-submit the case, which could lead to financial sanctions (Alexe, 2018).

Furthermore, the nationalisation of Romania's waste management has so far exacerbated the country's issue of landfilling, when moving away from its previous system primarily based on collection by private companies. The shift to nationwide management sought to improve waste collection and recycling through methods such as increasing access to rural areas and centralising waste management within a single company. So far it appears that the national Sanitation Service lacks sufficient infrastructure and resources, and therefore has done an inadequate job at collecting municipal waste and sorting it for recycling (Ungureanu, 2019). As a result, the issue of landfilling persists, as collection and recycling rates remain low.

The third problem regarding landfilling in Romania is a lack of reward for recycling. There is no additional financial incentive for municipalities to implement a recycling system (Lungu, 2016, p. 5). This means that implementing such a system will only cost municipalities money, as they would have to invest in separate containers and pay several private companies to pick up individual types of waste. The lack of landfill taxation and a legal framework regarding landfilling, in addition to the lack of incentive to counter landfilling, lead to high landfill rates in Romania, which contributes greatly to its poor application of the waste hierarchy, which considers landfilling the least preferable method of managing waste.

### 3.2.3 Lack of a financial plan

Romania's national waste management plan and waste prevention programme, which were both adopted in 2018 and are both valid until 2025, promise strategies to increase recycling rates and to comply with the landfill diversion targets for biodegradable waste (European Commission, 2019c, p. 6). The waste management plan focuses on separate collection, plans for better waste management infrastructure, the introduction of a landfill tax, and there is even a plan to build the first dedicated municipal waste incinerator with energy recovery in the country. The plans are clear and the list of measures needed to be taken are laid out. The major problem, however, is that these plans lack any kind of relevant investment efforts (European Commission, 2019c, p. 24–28). This is highly problematic as none of these plans can be pursued without the financial means to support them.

Partly responsible for this lack of financial support is the fact that Romania has only started phasing EU funds in this area since 2018, as a national waste management

plan is a prerequisite for receiving these funds (European Commission, 2017, p. 11). Had they adopted a national waste management plan earlier, they could have been receiving this funding since 2009 when the directive that requires a financial plan came out (European Commission, 2016).

Romania has an Environmental Fund that is part of the Romanian Ministry of Environment and is in charge of raising funds for environmental protection (Green Public Procurement, 2018). In 2017, Romania abolished the environmental tax on used cars. This measure cut the Environmental Fund's resources in half (European Commission, 2017, p. 11). As no compensating mechanism has been introduced, this budget cut interferes with the ability of the agency that administers the Environmental Fund to introduce the proposed measures, as they do not have their own financial resources (European Commission, 2017, p. 11).

Further policy changes have contributed to the lack of financial resources. For example, in 2017 the Romanian government decided to postpone the implementation of the "pay as you throw" tax until 2019 (European Commission, 2017, p. 11). This tax system charges citizens for the disposal of their municipal waste through either a flat-rate tax or a tax based on how much waste they present for collection (Battlevell, 2008). If properly implemented, this tax could greatly contribute to the Environmental Fund. The Romanian government's main argument was that a lack of proper infrastructure for the implementation of a waste management system would prevent the enforcement of this law (European Commission, 2017, p. 11).

Lastly, a lack of a landfill tax further decreases the amount of money the Environmental Fund receives, and this acts as a stimulation for the practice of landfilling as mentioned before.

Even though Romania might appear to have promising plans improving its recycling system and reducing the amount of waste that is landfilled in the country, the lack of a financial plan and sufficient funding resulting from the absence of proper taxes poses a barrier that cannot be avoided. As a result, Romania's waste management system will likely continue to operate at low levels of the waste hierarchy, failing to substantially prevent waste production, prepare waste for re-use, or recycle, and is set to miss the recycling targets set by the EU for 2020 and perhaps future years. It would be worthwhile to rethink and update the country's tax system concerning environmental practices, as these taxes could provide a substantial income for the Environmental Fund, which is responsible for the implementation of the national waste management plan.

## 3.3 SWEDEN'S WASTE MANAGEMENT: POTENTIAL LESSONS FOR ROMANIA

In order to identify potential avenues Romania may take to navigate the barriers to the implementation of the waste hierarchy, Sweden's waste management practices may be systematically analysed in terms of these three pressing issues from Romania. Our focus is on Sweden, as it is an example of a Member State that leads in municipal waste recycling rates in the EU with a recycling rate of 46.8% in 2017, and is therefore on a trajectory to achieve the EU target of 50% of municipal waste recycled by 2020 (Eurostat, 2017). Moreover, Sweden's success in implementing the waste hierarchy, most significantly its strengths in avoiding the use of waste disposal, may provide valuable insight with regard to approaches Romania may take to adjust its practices to follow the waste hierarchy.

Sweden's approach closely follows the waste hierarchy, operating mainly at its higher levels. The country has a strong focus on waste prevention, releasing campaigns to get people to produce less waste and be more mindful in their consumption habits (Avfall Sverige, 2018, p. 10). For the waste that is created, recycling is the key management practice used (Hinde, 2019, p. 1). Furthermore, almost all of Sweden's waste that cannot be recycled is burned for energy recovery, providing heat and electricity to Swedish households (Kiger, 2018, p. 1). Sweden only landfills waste that cannot be treated in any other way, which is a very minimal amount, since the country's prevention, recycling and recovery system is extensive and highly successful (Avfall Sverige, 2018, p. 4).

Under the Swedish Environmental Code, each municipality is responsible for ensuring that municipal waste is collected and transported, and creating its own system of waste management (Afvall Sverige, 2018, p. 4). Within each municipality, individual households are in charge of separating and depositing waste according to their municipality's rules and regulations so it may be collected effectively (Afval Sverige, 2018, p. 4). The main approach to waste collection is solely through private contractors, which is the case in 64% of Sweden's municipalities. In 33% of municipalities, waste collection is done in-house, and the remaining 3% utilise a mix of the two methods (Afval Sverige, 2018, p. 5).

Sweden has consistently high proportions of waste collected; for example, 100% of Swedish municipal waste collected in 2016 (Eurostat, 2017). High rates of collection allow for greater national control over how waste is managed, and coincide with a decline in landfilling and burning of waste by citizens. These collection rates can be attributed to Sweden's legislation, which supports the recycling of municipal waste by individuals. For example, individuals may receive money back for recycling certain forms of municipal waste, which provides an incentive to

recycle (Avfall Sverige, 2018). Furthermore, recycling services are easily accessible due to legislation requiring a recycling station to be within 1000 feet of each residential area (Avfall Sverige, 2018, p. 14). There are over 5000 unmanned recycling stations spread across Sweden, for packaging and newspaper, as well as manned municipal recycling stations where bulky waste that is too heavy or inappropriate for bin collection may be disposed of (Avfall Sverige, 2018, p. 36). Each of these manned stations has sufficient space, logistics, and service quality to support the needs of the waste received (Avfall Sverige, 2018, p. 14). Sweden has also gone so far as to introduce automated waste handling systems, which limit the amount of manual labour required for lifting and transporting waste (Avfall Sverige, 2018, p. 22).

Landfilling has also been discouraged through several policy initiatives in Sweden. A landfill tax was introduced in 2000 and increased by 74% in 2006 to €41 per tonne (European Environmental Agency, 2013a, p. 10). The increasing landfill tax, in combination with a landfill ban on organic waste introduced in 2005, contributed to landfilling rates decreasing by 50% from the 2004 rates (European Environmental Agency, 2013a, p. 10). By 2017, only 0.5% of Sweden's municipal waste was sent to landfill (Avfall Sverige, 2018, p. 3). These policies have supported Sweden's attainment of strong collection and recycling practices, and contribute to restraining waste that is landfilled to only that which cannot be treated in any other way.

Lastly, Sweden's financial strategy in waste management may present promising solutions for Romania, which currently lacks investment efforts into its proposed waste management plan due to limited financial means. In Sweden, households themselves pay for waste collection, which costs them €0.55 a day (Afvall Sverige, 2018, p. 36). In order to increase recycling rates and reduce waste production, many municipalities have introduced a weight-based charge, where households pay additional fees per kilo of waste they produce on top of the standard collection rate (Afvall Sverige, 2018, p. 36). These fees roughly cover all of the waste management costs, including collection, recycling and disposal, which relieves the government from having to pay. As a rule, municipalities can fund deficits in their waste management system through taxation, which further relieves them from having to invest too much (Afvall Sverige, 2018, p. 36).

### 3.3.1 Legislation on landfilling

A key area in which Romania could take the example from Sweden is legislation on collection and landfilling. As previously discussed, high rates of landfilling in Romania are a key issue in their waste management practices, facilitated by a lack of landfilling taxation, weak enforcement mechanisms against illegal landfilling,

and very low collection and recycling rates. Conversely, Sweden has proven highly capable in these areas.

Through the case study of Sweden, it appears that the key changes Romania could make in order to move away from landfilling is to increase the cost of this activity through means such as a tax, and to support waste collection and recycling through policies that provide incentives for individuals and make it easier for them to do so. This supports our findings that a lack of landfill taxation and a legal framework regarding landfilling, in addition to a lack of incentive to counter landfilling, lead to high landfill rates in Romania. A reversal of these problem areas is key to moving away from landfilling and towards higher levels of the waste hierarchy.

### 3.3.2 Waste management: public or private?

In this issue area, it appears as though implementing Sweden's approach of delegating responsibility to municipalities in the management of waste would not be effective in Romania, as this was the approach in place prior to nationalisation and it proved unsuccessful. However, the Swedish case demonstrates that high accessibility to waste collection and recycling services can stimulate participation of citizens in an established waste management system. In Romania, accessibility to collection services was a key issue faced by many citizens living in rural areas. The nationalisation of waste management sought to address this issue, increasing accessibility to waste collection through a far-reaching, centralised system, and thereby increasing the amount of waste collected and recycled. Since this change was instituted in early 2019, however, the Sanitation Service does not appear to have alleviated this issue due to inadequate infrastructure and financial capacity for supporting high levels of waste collection and recycling.

One way to overcome the shortcomings in the Sanitation Service's capabilities is to integrate private companies into the system. Private collection services possess the infrastructure and resources which the Sanitation Service currently lacks, but currently financial costs and unclear legislative provisions for their inclusion in waste collection deter Romania's municipalities from investing in their involvement. If the nationalisation approach continues to perform poorly and the Sanitation Service is unable to obtain the financial resources needed, an alternative option could be for the Romanian government to set out clear legislative processes for all municipalities to include private collection and recycling companies into their waste management systems. A cooperative approach between the national company and private services may provide the necessary centralised organisational capacity in addition to resources and infrastructure to improve waste collection.

Conversely, Romania could maintain its focus on improving the Sanitation Service's capabilities by securing greater financial resources for the company to invest in the necessary infrastructure for waste collection and treatment. This is another key barrier which Romania faces where Sweden may provide valuable insight.

### 3.3.3 Financial plan

In order to shift to a more environment-friendly waste management system, Romania's Sanitation Service requires more financial resources for collection and recycling infrastructure. Romania could take Sweden's approach in which households pay for the waste collection, which may support the Sanitation Service's ability to invest in sufficient infrastructure for recycling and collection. However, two potential problems may arise. First, this might trigger protest among citizens, who may refuse to pay for these services. Also, households may avoid these payments by illegally disposing of waste themselves. Therefore, if Romania established a requirement for households to pay for these services, this should be paired with more extensive policies and stricter fight against illegal waste disposal.

In any case, improving Romania's waste management system will require investment, whether it is funded by the government or Romania's citizens. Sweden's example provides one way of financing waste management, but further research into the economic and political climate of Romania would be needed to establish whether this is the right approach for this country.

## 3.4 CONCLUSION

As global population and consumption grow, appropriate prevention and management of waste appears vital to minimising human impact on the environment. In order to address this issue, the EU has set legally binding targets for Member States in areas of recycling and landfilling, a long term plan for sustainable waste management, and an in-depth strategy for achieving a circular economy. However, many EU Member States, such as Romania, remain far from achieving these goals. A key component of waste management principles in EU policy is the waste hierarchy, a priority-ordering of waste practices that has demonstrated promise for achieving more sustainable waste management in line with EU targets. Therefore, the chapter sought to identify what barriers Romania faces in the implementation of the waste hierarchy in its waste management system, and uncovered three key issue areas in regards to this question. Furthermore, the chapter explored Sweden's own practices within these issue areas to further understand Romania's challenges and identify potential methods to overcome these issues.

The organisation of Romania's waste management system has recently changed in an effort to address issues in waste collection and landfilling, placing Romania's waste management under the responsibility of a single company called the Sanitation Service. However, very short-term observations of the impact of this shift have shown nationalisation has so far acted as a barrier to adopting the waste hierarchy, as the company currently lacks sufficient infrastructure for high collection, sorting, and recycling rates of municipal waste. Private companies that have the physical capacity to support collection and recycling also face obstacles to participation in the waste management system as a result of the nationalisation.

Another key issue preventing the successful implementation of the waste hierarchy is the high accessibility and affordability of landfilling, an activity which operates at the lowest level of the hierarchy. Romania continues to lack legal restrictions and enforcements against landfilling as well as incentives for recycling, and the low level of collection contributes to this problem.

Lastly, there is a significant lack of economic means to support the shifts necessary to implement the waste hierarchy. Although Romania proposed a promising waste management plan, which focuses more on projects higher up the waste hierarchy, the plan lacks an adequate financial basis necessary to support the transition. Therefore, thorough financial planning and investment for the realisation of the waste management plan is critical to be in accordance with the waste hierarchy.

By examining Sweden's waste management practices, several potential avenues were identified for Romania to move to higher levels of the waste hierarchy and reach EU targets. First, Sweden's case has highlighted methods for increasing access to collection and recycling services, specifically through instituting the requirement of municipalities to maintain a substantial number of waste sorting facilities. Additionally, the use of incentives could be critical in supporting a shift away from landfilling, through policies that provide cost-incentives for recycling by individuals, as well as those which discourage disposal, such as the implementation of a landfill tax and strict binding policies against illegal landfilling by households.

If in the long-term the Sanitation Service continues to lack competency in collecting and recycling waste, then Romania may be able to learn from Sweden's approach of organising waste management at the municipal level. For example, Romania may gain from having the national company coordinate with private companies to utilise their physical capacity for collection, while maintaining the benefit of a centralised general management to ensure that all municipalities and rural areas are included.

Alternatively, further financial investment in the Sanitation Service could build its own capacity and potentially solve issues of limited collection and sorting capabilities. Whether the performance of Romania's nationalisation approach to waste management improves in the long term or not, the national company may experience an increase in disposable resources if Romania shifts to requiring households to fund waste collection. However, this method requires compliance by citizens who may seek to avoid costs by illegally landfilling waste. Therefore, pairing this with strong legislation and enforcement against illegal disposal would become vital for successfully implementing the waste hierarchy.

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# 4 A CROSS-COUNTRY ANALYSIS OF POLICIES, CHALLENGES AND RECOMMENDATIONS ON ENERGY COMMUNITIES IN THE EU

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## 4.1 INTRODUCTION

Transitioning to clean energy has continuously constituted a part of long-term strategies and objectives of the EU for achieving a prosperous, modern, competitive and climate-neutral economy by 2050. Aiming to provide the necessary legal framework suitable for the 21st century, and to facilitate this clean energy transition, the EU has decided to update its energy policy framework and adopt a package of new rules with its "Clean energy for all Europeans" package (European Commission, 2019a). The package consists of eight legislative acts, among which the Renewable Energy Directive (recast) (RED2) and the Energy Efficiency Directive (EED) are the most relevant for this chapter. This package not only ensures regulatory certainty by requiring Member States to submit their Integrated National Energy and Climate Plans (NECP), but also promotes the empowerment of European consumers by enabling them to take on the role of fully active players in the energy transition (European Commission, 2019b). Consumers will thus be able to generate electricity for their own consumption, store it, share it, consume it or sell it on the market (European Commission, 2019c).

Our research on the topic was stimulated by the lack of concrete goals, strategies and measures in the draft NECP for Slovenia with respect to renewable energy communities. This planning gap seems unjustified since they are able to advance energy efficiency at household level and help fight energy poverty through reduced consumption and lower supply tariffs, and are therefore promoted as a key

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measure to achieve energy transition (RED2 Preamble, 2018, par. 67).[11] Moreover, the possibility of installing solar panels on community roofs in Slovenia was only enabled after several years of negotiations, despite the fact that Article 19 of the 2012 EED requires Member States to take appropriate measures to remove regulatory and non-regulatory barriers to achieving energy efficiency in multi-owned properties (Bright and Weatherall, 2017 in McCarthy et al., 2018, p. 84).[12]

Therefore, the research questions this chapter will try to answer are: What are the measures that have to be included in Slovenia's NECP? In addition to that and in accordance with the current state of energy communities in Slovenia, as well as deriving from existing good practices, what other measures could Slovenia include in its NECP in order to take advantage of the benefits of renewable energy communities?

This chapter will therefore analyse the existing EU and Slovenian legislation on renewable energy communities alongside with good practices found in Slovenia and other Member States. The aim is to prepare a proposal on what goals and strategies on renewable energy communities should be included in the Slovenian NECP and what additional policy measures could be implemented in Slovenia.

The method used in this chapter is a cross-country analysis of Slovenia, the United Kingdom (UK), the Netherlands and Germany drawn from primary and secondary sources. The draft NECP provides an overview of the objectives and contributions, policies and measures to be undertaken by 2020 and 2030, and of the current state of affairs in various dimensions of the energy union. The chapter examines RED2 and its derivative in Slovenia, the Decree on the self-supply of electricity from renewable energy sources (hereinafter: Decree). The comparison is made between the countries that have, alongside with Slovenia, recognised the importance of global responsibility towards the environment and society through the adoption of sustainable development goals of the United Nations (Draft NECP for Slovenia, 2018, p. 8). It was decided to include Germany, the UK and the Netherlands based on the fact that they were the pioneers in establishing and regulating renewable energy communities, and have thus developed a very comprehensive legislation in this area. The literature on renewable energy communities in Europe often takes these three countries as examples of good policy (IEA-RTD, 2018; European Commission, 2017).

11 Directive 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources.

12 Bright, S. and Weatherall, D. (2017). Framing and Mapping the Governance Barriers to Energy Upgrades in Flats. *Journal of Environmental Law, 29* (2), 203–229.

The chapter is divided into three main parts. The first part features a literature review, where the chapter analyses the relevant European and Slovenian legal framework and the relevant policy guidelines. In the second part, the chapter analyses good practices in the three chosen countries – Germany, the Netherlands and the UK – and a pilot project in Slovenia. In the last part, the chapter assesses the positive and negative aspects of RED2, and suggests how Slovenia could incorporate renewable energy communities in its NECP strategy. This is then followed by concluding remarks.

## 4.2 EU AND SLOVENIAN LEGISLATION ON RENEWABLE ENERGY COMMUNITIES

The EU has set ambitious targets in the field of renewable energy. The energy mix for producing electricity is comprised in considerable extent of fossil fuels, which are among the major causes of greenhouse gas (GHG) emissions. Thus, switching to renewable energy contributes to the overall goal of reducing GHG emissions by 40% and increasing the share of renewable energy sources (RES) to at least 32%. These are among EU's binding targets until 2030, and Member States' contributions to this target, together with their baseline shares in relation to their overall national targets for 2020, are among the elements that are of overarching importance for the EU's energy and environmental policy (RED2, 2018, Art. 26).[13]

Since energy is now responsible for over 75% of the EU's GHG emissions, transforming the energy system plays a fundamental role (European Commission, 2018, p. 6). In this context, new roles for local communities are emerging, as they transition from passive consumers to active prosumers through local generation of energy (Koirala et al., 2016, p. 725). This is done through the concept of renewable energy communities.

The first Renewable Energy Directive (RED) or Directive 2009/28/EC from 2009 does not make any direct reference to renewable energy communities. However, it does pave the way towards renewable energy communities by expressing support for decentralised renewable energy technologies (RED Preamble, 2009, para. 6),[14]

13 The Effort Sharing Regulation translates the 2014 commitment of the European Council to an at least 40% reduction in economy-wide GHG by 2030 compared to 1990 into binding annual GHG targets for each Member State for the period 2021–2030 (European Commission, 2019e).

14 Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

recognising the importance of individual citizens' contributions (RED Preamble, 2009, para. 43), allowing third parties to use roofs of public or mixed private-public buildings for installations that produce energy from RES (RED, 2009, Art. 13(5)), and by committing to raise awareness about developing and using energy from RES (RED, 2009, Art. 14(6)).

However, renewable energy communities are now directly regulated through the Directive 2018/2001 on the promotion of the use of energy from renewable sources, also referred to as the second Renewable Energy Directive (RED2). RED2 was adopted within the "Clean energy for all Europeans" package, and it differentiates between "renewables self-consumer", "jointly acting renewables self-consumers", and a "renewable energy community", which is defined as a legal entity which is "(a) /…/ based on open and voluntary participation, autonomous and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity; (b) the shareholders or members of which are natural persons, SMEs or local authorities, including municipalities; (c) the primary purpose of which is to provide environmental, economic or social community benefits for its shareholders or members or for the local areas where it operates, rather than financial profits" (RED2, 2018, Art. 2).

Moreover, Article 22 of the RED2 is specifically dedicated to renewable energy communities. It enables final customers, especially household customers, to participate in a renewable energy community. Their participation should not be subject to unjustified or discriminatory conditions or procedures (RED2, 2018, Art. 22(1)). The provisions require Member States to ensure renewable energy communities to be able to produce, consume, store and sell renewable energy, as well as share this energy within the renewable energy community (RED2, 2018, Art. 22(2)). Furthermore, Member States should promote and facilitate the development of renewable energy communities by providing an enabling framework (RED2, 2018, Art. 22(4)). These frameworks should cover different aspects, *inter alia*, the removal of unjustified regulatory and administrative barriers, non-discrimination of governments and other market actors towards activities of renewable energy communities, citizens' access to finance and information on renewable energy communities, as well as providing local authorities with regulatory support to collaborate with renewable energy communities (Friends of the Earth Europe, 2018, p. 18; RED2, 2018, Art. 22(4)).

Member states are also encouraged to set an enabling framework on the basis of the requirement to develop integrated NECPs that cover the five dimensions of the energy union for the timeframe of 2021 to 2030 (and every subsequent ten year period): security, solidarity and trust; energy efficiency; a fully-integrated

internal energy market, climate action – de-carbonising the economy; and research, innovation and competitiveness (European Commission, 2019d).

NECPs are to be based on a common template, which was specified in Annex 1 of EU Regulation 2018/1999. Member States should report on their national objectives, targets and trajectories on renewable energy communities under the category "dimension decarbonisation" (2.1.), more specifically under sub-category "renewable energy" (2.1.2.). The reports on the specific measures taken by Member States to promote the development of renewable energy communities should be included in the part on "dimension decarbonisation" (3.1.), more specifically the part on "renewable energy" (3.1.2.) (Regulation 2018/1999, 2018, Annex 1, part 1).[15]

In accordance with the abovementioned guidelines and their corollary of phasing out fossil fuels, a sizeable percentage of electricity generation in Slovenia will need to be replaced, as the target for Slovenia's GHG reduction by 2030 was set at –15% compared to its 2005 levels (Regulation 2018/842, 2018, Annex 1).[16] Since Slovenia has a small electrical power system in which every large production unit constitutes an important element of the system's reliability, the concept of local energy communities represents a viable solution (NECP, 2018, p. 24).

Slovenia submitted its draft NECP in December 2018. The draft version mentioned the important role solar energy will play in the transition period as a result of phasing out fossil fuels (Draft NECP for Slovenia, 2018, p. 4). Solar energy will likely be the most crucial source, particularly in self-supply of buildings, neighbourhoods and wider communities with electricity, together with energy storage and heat from heat pumps (Draft NECP for Slovenia, 2018, p. 45). However, there is no direct and specific mention of renewable energy communities in Slovenia's draft NECP despite the clear instructions in Regulation 2018/1999 on including data on renewable energy communities in NECPs. Nevertheless, the possibility of their creation is indirectly recognised as part of the measures in the area of RES (Draft NECP for Slovenia, 2018, p. 45).

15 Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council.

16 Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual GHG reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013.

Slovenia's objectives contributing towards the realisation of renewable energy communities include the objective of increasing the share of RES in the final consumption to 27% by 2030. To that end, Slovenia indicated in its draft NECP (2018, p. 3) the indicative target of reducing GHG in the energy sector by 16%. This works in synergy with the measures of efficient energy use and energy supply security, for which Slovenia will have to ensure a sufficient supply of energy resources in a sustainable and economically viable manner (Draft NECP for Slovenia, 2018, pp. 5–6). Additionally, since energy facilities should not affect the distinctive features of areas important for nature protection and their biodiversity, placing energy facilities on community roofs helps better exploit the natural conditions and untapped potential of Slovenia (Draft NECP for Slovenia, 2018, p. 17).

The failure to address renewable energy communities in Slovenia's draft NECP was recognised by the European Commission (2019f, p. 4), which indicated in its comments on the Slovenian draft NECP that the country should "provide concrete measures on the simplification of administrative procedures and enabling frameworks for renewable self-consumption and renewable energy communities".

After submitting the draft NECP, the Slovenian Government adopted a new version of the Decree on 21 March 2019, which sets out rules governing the self-supply of electricity generated by renewables, the method of calculation, connection and reporting on the implementation of measures for calculating the generated electricity. The principle of self-supply is still based on so-called net metering. This means, that the power generated and fed into the network and the power used from the network are compensated. More specifically, at the end of the billing period the customer participating in a renewable energy community only pays the difference if the amount of power used from the network exceeds the amount of power contributed to the network. If the customer uses less power than contributed, the customer pays nothing (Ministrstvo za infrastrukturo, 2018).[17]

Furthermore, the possibility of installing rooftop solar arrays has been expanded from single households to communities in multi-family residential buildings. Previously, inclusion in self-supply schemes, where consumers only pay for the difference between the power used and the power generated, was limited to owners of single-family buildings or business buildings. The most prominent change

17 Beside net metering, Feed-in Tariff schemes (FITs) are used in some countries. In such a system, producers of renewable energy are paid for each unit of energy produced and fed into the electricity grid. FITs are paid based on power purchase agreements by electricity grid (market) operators, and since they cut down the upfront investment, they represent a strong incentive for renewables (Energypedia, 2019).

that the new Decree brings is that residents of multi-family residential buildings and residents of buildings located in close proximity will be able to participate in these self-supply schemes. For instance, a solar array could be installed on the rooftop of a public building, such as kindergarten, and the power produced there would be considered as produced by the community which had set it up. Other novelties include ownership of the power station no longer being required, allowing the possibility of renting equipment, as well as the possibility of selling potential surpluses (The Slovenia Times, 2019).

The Decree differentiates between individual self-supply and community self-supply. Individual self-supply with electrical energy from renewables is defined as generation of electrical power from renewable energy sources for total or partial coverage of one's own electricity consumption, while community self-supply is defined as generation of electrical power from renewables for the electricity needs of interconnected end customers (Decree on self-supply of electricity from renewable energy resources, 2019, Art. 3).[18]

Recent changes to the Energy Act[19] expand the scope of the term "joint/community self-supply" (Art. 31). This term applies to all end consumers who use electricity from the same meter in multi-family residential, or residential and commercial buildings and commercial buildings with business premises, which have their own meters, or other buildings with several meters that are connected to a common low-voltage network of that building or to the low-voltage network of the same transformer station which is used as a device for self-supply. End consumers conclude a contract determining how the energy produced is shared among them.

As mentioned, the Slovenian legislation only envisions a system of net metering, but the state does provide grants to natural persons for self-supply devices. Such devices can be placed on residential, business or mixed-use buildings. The amount of these financial incentives is also no longer limited to 11 kW (Moja elektrarna, 2019).

As of June 2019, a public call for applications is open for crediting environmental investments of citizens, specifically installing devices or setting up solar, water or wind power generating facilities with a nominal capacity of up to 50 kW. It offers loans under favourable conditions for environmental investments that will be carried out in Slovenia (Ekosklad, 2019a).

18 Decree on self-supply of electricity from renewable energy resources of 22 March 2019. Published in the Official Gazette of the Republic of Slovenia no. 17/2019.

19 Act Amending the Energy Act (EZ-1B) of 28 June 2019. Published in the Official Gazette of the Republic of Slovenia no. 43/2019.

Legal persons (businesses, individuals, co-operatives) can enjoy the benefits of financial incentives for investments in energy efficiency and renewable energy. Incentives come in form of grants and/or loans with subsidised interest rates for new investments in efficient use and renewable energy sources in Slovenia (Ekosklad, 2019b).

Incentives can be used for, *inter alia*, installation of solar collectors, self-supply power generating devices, introduction of an energy management system or a cogeneration unit for electricity and heat, which shows that the awareness and possibility of introducing energy communities exists and is supported by the state, which is also the largest contributor to the budget of the national Eco Fund (Ekosklad, 2019b; 2019c).

However, the funding and technicalities are not the insurmountable part of transitioning to new ways of power generation. A greater problem lies in the rigidity of the legal framework, attitudes in the society and the accompanying lack of political will to change these frameworks (Tkalec, 2016, p. 9; Tkalec, 2019).

Nevertheless, despite their salience for establishing energy communities, this chapter focuses on the solutions that can be provided in the NECP, leaving this topic for further research.

As of June 2019, the first Slovenian energy community is being established in Luče in the Upper Savinja Valley by Petrol, Elektro Celje and the Faculty of Electrical Engineering of the University of Ljubljana. The goal of the project is for the community to be able to meet its electricity needs from renewable sources (Hočevar, 2019), and several findings can be derived from the experience. According to operators, the biggest challenges in this specific project are a weak network and the fact that power supply is often interrupted due to weather events. Hence, technical limitations of the local low-voltage network continue to limit the production from operating renewable energy sources. The project will enable the integration of new RES and increase the reliability of supply with additional investments in the network (Hočevar, 2019).

In Slovenia, such projects must be implemented in accordance with the Local Energy Concept (LEC) as an energy management programme in the local community, subject to the prior approval by the minister responsible for energy (Ministrstvo za infrastrukturo, 2019a).

Several financing options can be used, including, *inter alia*, contract financing, energy contracting, support from national and EU funding schemes for renewable energy, revenues from targeted EU projects implemented by the local community

or other institutions (private institutions, companies, etc.), and the Eco Fund, which provides subsidies for up to 10% of the initial investment (ibid.). In any case, the preparation stage requires an analysis of the current energy use and preparing a systematic plan of implementation. Despite introducing energy communities in the local environment, the demanding bureaucratic procedures and lack of support in the field pose a great challenge (Ministrstvo za infrastrukturo, 2019b).

Focusing on photovoltaic energy communities, the subsidies provided by the Eco Fund and the tax cut in the self-sufficiency scheme, form a favourable framework for their realisation (Tkalec, 2019). This is because the only payment is made as a contribution for RES, which amounts to only €300–€1000 (Balkan Green Energy News, 2019; Tkalec, 2019).

Along with the self-sufficiency scheme, which is appropriate for limited local communities of 50 to 400 neighbours at most, there are also other models that are not tied to location, where a person can participate and reap the benefits. Moja elektrarna is one such private company, built on a FIT scheme, providing fixed-rate payments and operating like a sort of community (Tkalec, 2019).

Secondly, a "new public invitation to tender to co-finance the purchase and installation costs of the photovoltaic power plants for the period 2019–22 was published in March 2019. The indicative amount of available funds is €10.0 million and may cover up to 20% of investment costs" (Balkan Green Energy News, 2019). A cooperative can register its project, and if it offers a price that is low enough, it can get a contract for selling the energy for 10–15 years. The problem is that a low-enough price is often only offered by large projects, making it harder for others to compete (Tkalec, 2019).

Thirdly, a decline in profitable subsidies for solar power plants aimed at increasing the share of renewables in the energy mix, energy self-sufficiency and energy efficiency has made setting up 12.3 kWp solar power plants an interesting option. Such power plants have their own internal connection based on the PX3 type scheme, generating savings in network charges and duties owing to own electricity production (Papler, 2016). For example, a cooperative that wishes to set up a solar power plant on a municipal building can sign a contract for the use of the building with the local authority, agreeing to sell excess energy directly to the municipality. However, the owner first needs to approve the expansion of the use of the building (Tkalec, 2019; Zakon o zavodih, Art. 20). The energy is then used by the cooperative and sold to the municipality at a more favourable rate than those of external suppliers. However, it remains unclear whether rent for such use of the municipal building would be charged or not (Tkalec, 2019).

## 4.3 ANALYSIS OF EXISTING POLICIES ON RENEWABLE ENERGY COMMUNITIES IN GERMANY, THE NETHERLANDS AND THE UK, AND ITS IMPLICATIONS FOR SLOVENIA

There are many policies that can encourage the establishment of energy communities. Considering that comprehensive policies are based on different parts of legislation, and it is difficult to provide a complete comparison of each aspect, the chapter will outline the measures that are deemed the most important based on interviews with experts on the subject matter (Tkalec, 2019) and the analysis of practices already in place in the abovementioned countries. Such measures have fostered the establishment of energy communities in the analysed countries, and could serve as an example for Slovenia. As first among regulatory policies, renewable energy targets, Feed-in Tariffs (FIT) schemes or premium payment and net metering can be highlighted. Fiscal incentives include subsidies for establishing appropriate facilities, energy tax cuts, Value Added Tax (VAT) and rental tax deductions. Public financing also plays an important role – either in form of public investment, grants and loans, or in form of competitive tendering. A crucial aspect is also what forms of legal entities can be considered "energy communities", as well as what legislation applies if they are profit-oriented or not.

Below the existing policies and practices in Germany, the UK and the Netherlands will be analysed. Let us start with Germany, which outlined in its draft NECP the regulatory policies, fiscal incentives and financing policies that are in place. There is a great emphasis on latest fiscal policies that are aimed at providing incentives for self-suppliers and households to form energy communities, and fiscal policies for larger projects. Yet the success of energy communities derives from a combination of policies targeted at promoting self-generated renewable energy that have been in place for a long time (the results of the analysis are presented in Table 4.1 below).

In Germany, self-suppliers can form larger groups and feed electricity into the grid. Larger groups of citizens have established several forms of energy communities, and some of them have become competitive with commercial providers. Energy communities may also be formed by local municipalities and cooperatives (IEA-RETD, 2018, pp. 2–5). By doing so, they have gained access to financing at preferential rates, made available through long-term inexpensive financing offered by the German state-owned development bank KfW (European Committee of the Regions, 2018, p. 18).

*Table 4.1: Analysis of existing policies and practices: Germany*

| REGULATORY POLICIES | FISCAL POLICIES | PUBLIC FINANCING |
|---|---|---|
| | **self-suppliers (< 10 kW):**<br>– fully exempt from grid payment and electricity tax (provided that electricity is not transported through the grid) | |
| | **self-suppliers (> 10 kW):**<br>– 60% exemption from fees, exemption from grid payment and electricity tax | |
| **all kinds of self-suppliers:**<br>– priority connection to the grid for renewable energy projects | **all kinds of self-suppliers:**<br>– upgrade cost covered by taxpayers instead of producers | |
| **rooftop projects (jointly acting self-suppliers):**<br>– electricity provided to consumers in the same or other buildings is directly connected, not through the grid | **rooftop projects (jointly acting self-suppliers):**<br>– surcharge in electricity bill paid by the state<br>– Corporate Tax Act: rental tax exemption | |
| **energy cooperatives, (citizens + municipalities + companies):**<br>– if up to 500 kW in size, FITs until 2014, then auctions | | **energy cooperatives, (citizens + municipalities + companies):**<br>– financing at preferential rates: long-term financing by KfW |

Source: own analysis

Since the 2000s, FITs have been in place for all kinds of energy communities, but the scope of application has been reduced over time. For power plants with a capacity of up to 500 kW, the support system was based on FITs until 2014, after which it was replaced by auctions as a way of supporting renewables. According to Friends of the Earth Europe (2018, p. 7), this has resulted in a significant decrease in the number of new registered renewable energy cooperatives. On the other hand, this provision was probably meant to replace subsidies by allowing actors to participate in setting an appropriate price based on competitive factors.

Notably, the German draft NECP underlines a balanced approach, meaning that self-suppliers are exempted from fees, but at the same time those who consume large amounts of self-generated electricity contribute appropriately to finance the energy transition in the long run (Draft NECP for Germany, 2018, p. 94).

Similarly, self-suppliers with capacities above 10 kW and producing more than 10,000 kWH per year receive only a partial tax exemption (60%). They pay a surcharge under the Renewable Energy Sources Act to prevent over-funding in view of the higher level of profitability of larger facilities and at the same time finance the energy transition (ibid.).

The Landlord-to-Tenant Electricity Act (Mieterstromgesetz) provides financial support for tenants' electricity under the 2017 Renewable Energy Sources Act. The installation of electricity facilities on residential buildings has also been incentivised by amending the Corporate Tax Act (KStG), which grants those who operate in residential electricity facilities with cooperatives an exemption from their rental income tax (Draft NECP for Germany, 2019, p. 94).

Germany has provided support for the establishment of renewable energy communities by enacting strong regulatory policies, which include FITs for the initial phase of larger projects, combined with tax exemptions and financial incentives that are regularly reviewed according to new developments in the field.

Moving on to the analysis of the UK, where it can be noticed that the draft NECP mentions energy communities when referring to targets of Local Devolution deals, which are plans that include financial support for community energy initiatives (Draft NECP for the United Kingdom, 2018, p. 77). Yet the policies that are in place in the country go far beyond that (the results of the analysis are presented in Table 4.2 below).

*Table 4.2: Analysis of existing policies and practices: the UK*

| REGULATORY POLICIES | FISCAL POLICIES | PUBLIC FINANCING |
|---|---|---|
| **community interest company:**<br>– FITs: Licensed Electricity suppliers make tariff payments for the generation and export of renewable energy<br>or<br>– CfD between Government and producers | | **community interest company**<br>– feasibility grants<br>– planning grants |
| **community benefit society / cooperative society**<br>***cooperative, nop, charity law***<br>FITs, CfD | | |
| – awareness raising, free consultations regarding energy communities | | |

Source: own analysis

In the UK, a community interest company, community benefit society/co-operative society or a registered charity can be defined as cooperatives, operating as non-profits and under the charity legislation. Other than these, the law regulates for-profit companies that are governed by the Companies Act (DECC, 2015, p. 10).

A FIT scheme was launched in 2010, and is guaranteed for electricity technology (including photovoltaic) of up to 5 MW in total installed capacity. The FIT scheme furthermore obliges certain Licensed Electricity Suppliers as FIT Licensees to make tariff payments for the generation and export of renewable and low-carbon electricity (DECC, 2015, p. 7).

Furthermore, the country has put in place a Contract for Difference (CfD) mechanism. The CfD is a contract between the power producer and the Government for a guaranteed price, which aims to minimise the risk borne by renewable energy producers throughout the project life. It is comparable to the FITs instrument, with the difference being that prices are set in auctions instead of being determined by the Government (IEA-REDT, 2016, p. 4).

Additionally, the government guarantees a wide range of support in terms of public financing. Sound feasibility grants are provided, e.g. £10k–£30k in pre-planning grants from the Urban Community Energy Fund (UCEF) and the Rural Community Energy Fund (RCEF). Moreover, both in England as well as in Scotland and Wales different programmes provide development support, expertise and free information aimed at helping communities develop their own community energy projects (IEA-REDT, 2016, pp. 7–8).

The UK relies less on fiscal exemptions and more on regulatory policies, such as FITs and CfDs, combined with particularly generous financial incentives provided by the above-mentioned funds.

The Netherlands outlined in its draft NECP the latest policies adopted to fiscally incentivise energy communities and for public financing of such projects (the results of the analysis are presented in Table 4.3 below).

*Table 4.3: Analysis of existing policies and practices: the Netherlands*

| REGULATORY POLICIES | FISCAL POLICIES | PUBLIC FINANCING |
|---|---|---|
| **cooperatives:**<br>– FITs;<br>– SDE+ programme:<br>– financial instrument compensating the producers for the difference between the wholesale market price of electricity and the price of electricity from renewable energy;<br>– net metering is gradually being phased out, and replaced by a subsidy for feeding back energy with a lower financial incentive | **rooftop projects (jointly acting self-suppliers):**<br>– full tax exemption if solar arrays are located on the owner's house and energy is distributed to households with a distributor without being fed into the grid<br>**regional energy cooperatives:**<br>– tax reduction for low-income members who are exempt from energy tax on jointly produced energy | |
| **for-profit communities:**<br>– the Government prepared a map for investors with appropriate locations for installing renewable energy facilities | | |

Source: own analysis

First of all, the Dutch regulatory framework envisages a FIT scheme. Furthermore, because the production cost of renewable energy is higher than the market price, the SDE+ programme (Stimulering Duurzame Energieproductie) offers a financial instrument compensating producers for the difference between the wholesale market price of electricity and the production cost of electricity from renewable sources over a period of 8, 12 or 15 years in order to offset the difference in production costs compared to other sources of energy such as fossil fuels (Doci, 2017, p. 97). Residential self-suppliers cannot apply as individuals, but only as a group or community (e.g. as a cooperative) (Netherlands Enterprise Agency, 2019, p. 20). Additionally, the net metering scheme laid down in the 1988 Electricity Act and the Environmental Taxes Act (*Wet belastingen op milieugrondslag*, Wbm) is to be gradually phased out by 2030 and replaced by a subsidy for feeding back energy with a lower financial incentive. The new scheme will make it relatively more attractive for small consumers to use the energy produced simultaneously, because the energy fed back to the grid is financially compensated.

Moreover, the government has introduced a fiscal incentive scheme for energy cooperatives aimed at supporting regional renewable energy communities (energy cooperatives) (Draft NECP for the Netherlands, 2018, p. 41). The Government

has also sought to engage various stakeholders that might participate in energy communities by creating a map of locations that are suitable for investing in community renewable energy projects (Tkalec, 2019).

The Netherlands has largely made use of regulatory policies – such as FITs and the SDE+ programme – and introduced financial incentives, particularly to stimulate self-suppliers to form larger communities. Unfortunately, the legal entities that are envisioned by the Dutch legislation could not be identified due to insufficient data on legal entities applying as energy communities in English.

## 4.4 COMPARATIVE ANALYSIS AND IMPLICATIONS FOR THE SLOVENIAN DRAFT NECP

It should be noted that none of the three countries analysed above has sought to set objectives regarding energy communities, such as the share of self-produced electricity in the total power consumption by households or the share of self-production in the total renewable energy produced. It is difficult to set exact targets since the concept of energy communities involves many and different legal entities which engage in these projects with different intentions. Objectives could, nevertheless, be set for different kinds of legal entities (e.g. expected number of communities of multi-family residential buildings) or cooperatives that establish energy communities in urban agglomerations or villages, or targets regarding the share of private investment in energy projects. In any case, indicative objectives should be set so that strategies can be implemented accordingly.

The analysed states were rather brief in reporting on their policies in comparison to what actually exists in national legislation and the European Commission (2019g, 2019h, 2019i) pointed out the need to provide additional details. Likewise, Slovenia should clarify what already exists and what fiscal policies pertain to what legal entity, so that it can be determined with more accuracy what further policies are needed.

States combine different policy measures and incentives to support self-production of renewable energy and energy communities. It is crucial to understand to what extent states use FITs and net metering. FITs are used both in the UK and Germany, although the latter has reduced the scope of its application. It is essential to understand the role of FITs in supporting energy community projects. It appears that Germany and the UK have used them for the initial stage, and are proceeding to gradually phase them out and make use of auctions instead. The Netherlands, on the other hand, relies on net metering, but still supports commercialisation of

renewable energy by covering the price difference. Understanding the legal entities that can benefit from different measures and to what extent subsidies can foster energy community projects is crucial for developing a strategy in this area. Once these elements are identified, Slovenia should incorporate them in its NECP.

As regards public financing, the UK has put in place generous grants from the budget that are crucial for covering the upfront investment for establishing energy facilities, whereas in Germany the state-owned bank has played a major role. In Slovenia there are several possible ways of financing such projects, and they should be laid down in the NECP.

Furthermore, as outlined in the German draft NECP, it should be explained to what extent energy communities are also responsible for contributing to the energy transition. In Slovenia, the government is currently discussing an idea to replace the renewable energy contribution fee with a grid contribution fee. Once agreed upon, the specifics of this contribution pertaining to energy communities should also be laid down in the NECP.

In this research it was discovered that a great number of provisions are already in place for energy communities in Slovenia. They are, however, scattered around different pieces of legislation and should be collected in a unique body of provisions (see Table 4.4 below).

*Table 4.4: Analysis of existing policies and practices: Slovenia*

| REGULATORY POLICIES | FISCAL POLICIES | PUBLIC FINANCING |
|---|---|---|
| – net metering<br>– rooftop projects for public buildings: possibility to sell surpluses<br>– cooperatives: possibility to set up power plants on municipal buildings and access to contract financing | – rooftop projects for residential buildings: tax exemption if electricity is not fed into the grid | – residential, business or mixed communities: non-refundable financial incentive<br>– favourable lending for investing in energy facilities up to 50kW<br>– up to 10% of initial investment covered by the Eco Fund for energy communities based on Local energy concept (LEC)<br>– up to 20% co-financing of purchase and installation cost for for-profit communities |

Source: own analysis

Out of the obligations stemming from RED2, the main challenges facing Slovenia in the area of renewable energy communities are administrative barriers, particularly as regards the question of contracts between municipalities and communities

for renting premises. Secondly, NGOs highlight (Tkalec, 2019) a lack of awareness-raising by authorities with regard to the possibilities of establishing renewable energy communities. Lastly, this analysis has shown that the possibility of obtaining funds and investment support for projects and for citizens (actors) included in these projects is limited compared to other countries. Especially since the potential to acquire funding through public calls for applications seems unlikely as they give priority to larger projects with lower purchasing prices (Tkalec, 2019).

The cross-country analysis has provided additional ideas on how to upgrade the existing legislation (the results of the analysis are presented in Table 4.5 below).

*Table 4.5: Possible additional measures for Slovenia*

| REGULATORY POLICIES | FISCAL POLICIES | PUBLIC FINANCING |
|---|---|---|
| – remove administrative barriers,<br>– raise awareness about energy communities and public financing possibilities<br>– consider using FITs for the initial phase of larger projects<br>– mobilise private investment in energy facilities | – tax deduction on rental income if the owner participates in rooftop projects | – crediting by a state-owned bank at lower rates for projects undertaken by communities and municipalities |

Source: own analysis

As regards regulatory policies, it was discovered that in Slovenia net metering for small producers is not less advantageous than FIT schemes in other countries. It needs to be established to what extent FITs can be used for larger projects. With respect to fiscal policies, it would be recommended to incentivise the establishment of communities in multi-family residential buildings. The example of the German tax cut for rental income for landlords who engage in energy community projects could serve as an incentive to convince residents of buildings to engage in such projects.

In terms of public financing, it seems there are many ways to obtain funding in Slovenia, although the Eco Fund payments are not comparable to the state grants available in the UK or the Netherlands. Although loans are available from commercial banks in Slovenia, a possibility of crediting at low rates for projects undertaken by municipalities and cooperatives, as is provided by the German state-owned bank KfW, would enable more capital mobilisation.

With regard to investments, the possibility of granting incentives for investors, as in the UK, is precluded by the fact that under RED2 energy communities are not

meant to produce energy for a profit; however, it is up to individual states whether they wish to go beyond this provision. Yet in order to stimulate investments the authorities could, similarly to the Netherlands, prepare a map of appropriate locations for investing in energy community projects.

Last but not least, a targeted plan for disseminating knowledge regarding energy communities is needed to increase public availability of information on the possibilities that are available.

## 4.5 CONCLUSION

The aim of this chapter was to analyse the existing European and Slovenian legislation on renewable energy communities, particularly RED2 and the Decree, as well as good practices from other Member States, in order to prepare proposals on what goals and strategies on renewable energy communities the NECP for Slovenia should include.

The research was limited mainly to analysing policies and legislation, yet a broader overview on the issue should also consider societal problems. Problems associated with electricity generation are not merely technical but rather socio-technical, as they include many aspects, including policies and the society. Technological and policy-related options need to be considered alongside the social and institutional framework within which decisions in the energy sector are made.

Nevertheless, the existing measures that already provide a solid basis for the development of energy communities were singled out. With the Decree, Slovenia enabled new types of organisations and business models to emerge. Moreover, several ways for partially covering initial investments for these projects exist and should be publicly promoted. These measures should be included in the NECP and should follow the objectives that serve as a frame to indicate the direction into which policies should evolve and what legislation they should comprise. Once the legal entities that are to benefit from the policies are identified, the administrative barriers should be simplified and there will be room for improving the fiscal incentives, particularly for jointly acting self-suppliers who participate in rooftop projects. Raising awareness about the possibilities of producing and using energy from renewable resources is of crucial importance. These are additional measures that have been identified, and although they go beyond the need to update the draft NECP and reporting under Regulation 2018/1999 and RED2, they would contribute to positive progress in achieving the goals on renewables and energy efficiency.

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# 5 CARBON CAPTURE AND STORAGE: A VIABLE WAY TO DEAL WITH CLIMATE CHANGE?

**Katja Miklavčič and Sofia Proni Iglič[20]**

## 5.1 INTRODUCTION

Global climate changes and their consequences have indisputably become an integral part of contemporary reality. Therefore, the international community is not only forced to adapt to the consequences of climate change, such as extreme weather conditions (and natural disasters), but also needs to develop policies and technologies to mitigate environmental changes in order to secure life on Earth. One of the technologies that is, according to the EU (European Commission, n. d. a), essential when it comes to decreasing greenhouse gas emissions, is carbon capture and storage (CCS).

As a negative emission technology that is able to capture approximately 90% of the carbon dioxide ($CO_2$) emissions produced from the use of fossil fuels in electricity generation and industrial processes (Carbon Capture and Storage Association, n. d. a), CCS will be thoroughly analysed in this research chapter. Preventing $CO_2$ from entering the atmosphere, the process consists of three phases (ibid.): capturing, transporting and storing of $CO_2$ in depleted oil and gas fields or deep saline aquifer formations. However, CCS is not the only technology used to fight (or at least mitigate) climate change. Although they will not be the main focus of the chapter, one should be aware of other negative emissions technologies, such as direct air capture ($CO_2$ is captured from the air and sequestered underground) or bio-energy carbon capture and storage (BECCS) that consists of the cultivation of crops intaking $CO_2$, using them to produce, for example, electricity, and lastly, the process of CCS (National Academy of Science, 2018). Moreover, it is also important to differentiate between negative emission technologies and green technologies, since the latter, according to Mulvaney (2011, p. ix), "replace/s/ conventional

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technologies with more environmentally benign ones." Inherently, CCS cannot be considered a green technology as its main function is preventing more $CO_2$ emissions from entering the atmosphere and not producing energy without it as green technology does. In other words, if green technologies promote sustainable ways of energy production, CCS foresees additional fossil fuel burning.

Notwithstanding its above-mentioned characteristics and implications of use, CCS is assigned to play a crucial role in combating climate change. However, although the technology of carbon capture and storage is the main focus of this research chapter, the authors do not stop at analysing advantages and disadvantages of this particular technology. When trying to answer the main research question "*Is carbon capture and storage a deliberate plan or a delay in dealing with the issue of climate change?*" the need to acknowledge predominant discourses narrating the general perception of the topic is also emphasised. Even though the EU is not the only worldwide player implementing the CCS technology, this chapter closely deals with EU legislation since, as it is widely known, the EU perceives itself as a decisive player when it comes to tackling climate change (Treaty of Lisbon (2007/09), article 191, for example) [21].

The chapter is divided into three main parts. By analysing primary sources and literature, in the first place, authors describe the development of the EU environmental policy in order to contextualise the EU CCS policy. Understanding this particular policy proves to be crucial in the second part that strives to emphasise arguments for and against the implementation of CCS. Last but not least, a discussion is developed, explaining which predominant discourses could be blamed for the (under)development of CCS and why.

## 5.2 CCS TECHNOLOGY IN THE CONTEXT OF EU ENVIRONMENTAL POLICY

The process of CCS in the EU is regulated by the so-called CCS Directive (2009)[22] that must always be thought within the context of European Environmental Policy (EEP). Although EEP was launched in the 1970s in order to reduce trade risks in the European Common Market (Knill and Liefferink, 2013), it has recently be-

21 Treaty of Lisbon, signed on 13 December 2007 in Lisbon, entered into force on 1 December 2009.

22 Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide.

come of prime importance for the EU and as such omnipresent. The shift in the perception of the EEP has not taken place overnight. If the policy initially focused on the technical standards, its spectrum of tools gradually broadened – for instance with the introduction of the marked-based instruments, such as the EU trading scheme for $CO_2$ (European Environmental Agency, 2011).

Bearing in mind the 1972 Paris summit, especially important because then members of European Economic Community "initiated the practice of developing Environmental Action Programs where the EU bodies and member states set agendas and identify areas for targeted action" (Selin and VanDeveer, 2015, p. 3), Single European Act (1986/87)[23] can be designated as the first European integration treaty that explicitly mentioned environmental protection. Subsequently, The Treaty on EU (also known as Maastricht Treaty) (1992/93)[24] is also important since it introduced the so-called precautionary principle. The principle assumes preventive actions, rectification of the environmental damage at its source, and payments for polluters. It also determines that "/e/nvironmental protection requirements must be integrated into the definition and implementation of other Community policies" (The Treaty on EU, Environment section, para 2).

The development of EEP was extensively stimulated after the adoption the Treaty of Lisbon (2007/09) (Benson and Adelle, 2013). The second paragraph of the Treaty's article 2 C classifies the environment as a field where the EU and member states share competencies. This is particularly relevant because it delivers certain legislative powers to the EU (as article 2 A puts it: "member states shall only exercise their competence to the extent that the Union has decided to cease exercising its competence") and thus gives the EU the ability to act in accordance with its environmental standards. Moreover, as mentioned above and stated in the Treaty of Lisbon (in the section "Environment"), the EU sees itself as a promoter of the measures that (regionally or worldwide) deal with environmental problems and climate change (Treaty of Lisbon, article 191, para 1).

Understanding the development of the EEP and, particularly, its meaning for the EU as a whole, one can notice that the CCS Directive was adopted in 2009 during a period designated by a stimulated development of environmental legislation. The CCS Directive "/…/ establishes a legal framework for the environmentally safe geological storage of $CO_2$" (European Commission, n. d. a) and by doing

23 Single European Act, signed on 17 February 1986 in Luxemburg and 28 February in The Hague, entered into force 1 July 1987.

24 Treaty on European Union, signed on 7 February 1992 in Maastricht, entered into force on 1 November 1993.

so it also emphasises the precautionary principle (introduced in the Maastricht Treaty). It is plausible to state that minimal common standards for CCS set by the directive are in accordance with the precautionary principle, since the whole process – capture, transport, and storage of $CO_2$ – must be strictly monitored. Operators are, for example, required to obtain permission for storage from national authorities and the latter is obliged to assess the storage. When doing so it has to consider minimum standards set in the CCS Directive (Maver, 2015, p. 111–116). Subsequently, in the so-called operation phase, operators must monitor the storage, report, and eliminate any irregularities. Last but not least, in the post-closure phase operators remain responsible for monitoring, reporting, and corrective measures until the transfer of responsibilities begins (unless a storage permit is explicitly withdrawn). The transfer of responsibilities takes place in a period that cannot last less than 20 years after the closure of the storage (CCS Directive, 2009, article 18, para 1b).

Even though the CCS Directive was adopted in 2009, EU strategic documents regarding climate change and energy action plans have not assigned prime importance to CCS during the last decade. To be precise, the 2020 Climate & Energy Package (targets were set in 2007) states that "the EU supports the development of low carbon technologies, for example through the NER 300 programme for renewable energy technologies and carbon capture & storage /…/" (European Commission, n. d. b). However, according to the European Commission (n. d. c), NER 300 funds were allocated to 20 renewable energy projects in 2012 as well as to 18 renewable energy projects and one CCS project in 2014. The only funded CCS project – White Rose in the United Kingdom that presupposed building a new oxyfuel coal power plant and $CO_2$ processing and compressing units at the Drax power station near Selby (European Commission, 2014a) – remains unimplemented to date.

Furthermore, if the 2030 Climate & Energy Framework (adopted by the European Council in 2014 with the revision of targets in 2018) recognises CCS as one of the key complementary policies in achieving the set goals, since it "may be an option available to reduce direct emissions from industrial processes on a large scale needed in the longer term" (European Commission, 2014b, chapter 4), in the EU 2050 long-term climate strategy (adopted in November 2018) the European Commission recognises tackling the remaining $CO_2$ emissions with CCS as one of seven strategic blocs whose implementation will lead to a climate-neutral economy (European Commission, 2018, p. 8–15)[25]. In other words, recognising that "CCS has

25 The other strategic blocks are: maximising the benefits of energy efficiency; maximising the deployment of renewables and the use of electricity to fully decarbonise Europe's energy supply; embracing clean, safe and connected mobility; circular economy as a key enabler to

not yet reached the commercialisation stage, hampered by the lack of demonstration of the technology and economic viability, regulatory barriers /…/ and limited public acceptance", the Commission in its 2050 long-term climate strategy once again recognised the essential role of the technology due to the fact that fossil fuel technologies will likely still be operational in 2050 (European Commission, 2018, p. 15). However, at time of writing this chapter the "2050 zero-carbon vision" does not have support from all EU member states. The Czech Republic, Estonia, Hungary and Poland remained resilient at the European Council summit on 20 June 2019, predominantly due to the set date (2050) for achieving carbon neutrality as well as concerns regarding the funding for "greening the economy" (Morgan, 2019).

## 5.3 CCS AT THE INTERSECTION OF DIFFERENT DISCOURSES

Having framed the EU CCS Directive in the context of the EU environmental policies, this chapter will now focus on rationales for implementing policies regarding CCS. Subsequently, criticisms will be depicted.

Firstly, as recognised in the CCS Directive (2009, preamble) and reaffirmed in the EU's 2050 long-term climate strategy, the use of CCS is necessary in order to meet climate change targets. In December 2015, member states of the United Nations Framework Convention on Climate Change (UNFCCC) adopted the Paris Agreement, which aims to hold for its signatories the increase in the global average temperature below 2 °C and to pursue efforts to limit the temperature increase to 1.5 °C. The Paris Agreement requires that anthropocentric greenhouse gas emission sources and sinks are balanced by the second half of this century (Anderson and Peters, 2016, p. 182). In order to implement obligations inherited to the Paris Agreement, the EU, particularly, committed to at least 40% cuts in greenhouse gas emissions (from 1990 levels), at least 32% share for renewable energy and at least 32.5% improvement in energy efficiency by 2030 (European Commission, n. d. d)[26]. However, recalling that in order to strengthen the global response to climate change "all countries would need to significantly raise their level of ambition" (de Conick, Revi et al., 2018), some non-governmental organi-

reduce greenhouse gas emissions; smart network infrastructure and interconnections; and, last but not least, reaping the full benefits of bioeconomy and creating carbon sinks (European Commission, 2018).

26 By July 2019 it was not known whether it is necessary to revise the 2030 targets (and the subsequent legislation in the member states) in order to implement the EU's 2050 long-term climate strategy.

sations, for example the World Wildlife Fund (WWF), therefore believe that the EU's efforts and set targets to limit temperature increase to 1.5°C are not ambitious enough, since the EU is not aiming to reach net-zero emissions by 2040, but only by 2050 (World Wildlife Fund, 2019).

If the question of the EU's (in)sufficient ambitiousness can be left alone at this point, it is crucial to recognise that the EU strategy has like-minded non-governmental actors that might prove important when it comes to the forming and/or influencing the public opinion. If some of the non-governmental organisations are concerned that an "alternative to CCS may not be the successful deployment of renewables, but a continuation of conventional coal" (Anderson and Chiavari, 2009, p. 4812), Bellona Foundation, a Norwegian non-governmental environmental organisation based in Brussels, can be mentioned as one of the international actors that believes – as does the EU – that targets can only be met "/…/ through a combination of an unprecedented increase in energy efficiency, massive deployment of renewable energy technologies, accelerated deployment of CCS and application of CCS on bio-based energy sources" (Bellona Foundation, n. d. a). By only upgrading technologies in the fossil fuel industry, up to 15 % of $CO_2$ emissions can be reduced, but in combination with CCS, it would be possible to achieve reductions of up to 95 % (Maver, 2018).

Having said so, and again recalling the recent recognition of the importance of the CCS in 2050 long-term climate strategy, it is crucial to take into account that, according to the International Energy Agency (IEA), the cost of reducing $CO_2$ emissions will be up to 70% higher internationally without CCS (Carbon Capture and Storage Association, n. d. b). Although governments may perceive investment in CCS technology as an unnecessary financial burden, it can, in the long run, prove cheaper than emission allowances. Prices of these might become more unpredictable (and, plausibly, more expensive) in the future (Bellona Foundation, n. d. b).

Secondly, in spite of EU investments in renewable energy (e.g. the above-mentioned RES 300 funded projects), it is commonly known that a shift from fossil fuels cannot happen overnight. Arguing this thesis is not the purpose of the chapter, however, one cannot diminish the powerful influence fossil fuel stakeholders have. Many jobs would be lost, claim(s) the fossil fuel industry (trade unionists) as well as certain politicians (US president Donald Trump being one of them), and by stating so they fail to emphasise that the production of renewable energy is more labour intensive than conventional energy production (ECOTEC Research & Consulting Limited, 2002). Inherently, when arguing in favour of preserving jobs in the fossil fuel industries, it is stated that with the utilisation of CCS already existing jobs in heavy industry and fossil fuel power plants would not only be preserved, but a lot of new positions would also be created in the areas near a capture

plant, transport infrastructure, and storage facility (Shapiro, 2010). Taking into account the need to address this particular issue, the European Commission (2018) in its 2050 long-term recognised the need to "leave no region, no community and no worker or citizen behind", and therefore underlined a "just", "socially-fair" transition towards climate neutral economy.

Lastly, EU policies regarding the process of CCS can also be argued to have positive implications in terms of reusing already existing infrastructure and stimulating public-private partnerships that could in the future prove to be a successful model in terms of mitigating climate change. Researchers at the project ACT Acorn centred near Aberdeen, Scotland, led by the consultancy firm Pale Blue Dot (also in cooperation with, among others, Bellona Foundation), are, for instance, exploring the possibilities of reusing old pipelines owned by gas companies that would be used for a common transport of captured $CO_2$ from the industrial cluster to the storage (Maver, 2018). Moreover, as planned in the project, transport and storage would be in the domain of a state company, thus showing that the process of CCS is not necessarily incentivised exclusively by profits. Although the project can be designated as a trendsetting practice, this particular CCS system could only be operational by 2023 (ACT, n. d.).

Having presented arguments put forward by the supporters of CCS, the authors will now consider the ideas and facts questioning this particular technology. The need to question predominant neoliberal approaches that construct our way of perceiving the issue of both CCS technologies and climate change will also be underlined.

Even though the EU is one of the biggest promoters of the "negative emissions" concept of removing $CO_2$ from the atmosphere through technical means, after almost a decade since the acceptance of the EU CCS Directive, which envisaged twelve commercial-scale demonstration projects to be operational by 2015, a large-scale deployment is still pending. When the Report on CCS was being written in the beginning of 2017, no demonstration and commercialisation of CCS has advanced during the reporting period (the previous report was in 2014), and the Commission considers that the legislations of only sixteen Member States are fully conforming to the CCS Directive (European Commission, 2017). If the United Kingdom of Great Britain and Northern Ireland (especially Scotland, to be precise), the Netherlands and, for instance, Norway[27], are showing significant interest in developing CCS technology, the following EU countries prohibited $CO_2$

27 Although Norway is not a member of the EU, it is one of the countries that strives to develop and implement CCS technology (Simon, 2018; Videmšek, 2019).

storage on their territory (d'Aprile, 2016): Finland, Luxembourg, and Belgium forbade it due to unsuitable geology; moreover, geological storage is not allowed in Austria, Estonia, Ireland Latvia, Slovenia and Sweden. Additionally, $CO_2$ storage is restricted in the Czech Republic and Germany (ibid.). Moreover still, CCS projects (in the EU as well as worldwide) do not face obstacles only when it comes to storage limitations. $CO_2$ transport to off-shore storages, regulated by the amendment of the London Protocol's (1996)[28] article 6, is also limited (d'Aprile, 2016). Introduced in 2009, the amendment, creating conditions for $CO_2$ export, still has not entered into force due to insufficient ratifications[29].

Furthermore, it is essential to underline that governments' (insufficient) support for implementing CCS, usually reflected in the legislative frameworks, is – as already underlined – inherently intertwined with public opinion. In above-mentioned Germany, for example, the public have been strongly opposing the implementation of the CCS, mainly due to the costs and risks for the environment. However, in spite of public resentment, in accordance with the EU long-term climate strategy, German chancellor Angela Merkel put the issue back on the table (Wettengel, 2019).

CCS enjoys widespread support for forming mainstream environmental policies which anticipates a massive deployment of negative emission technologies in the majority of mitigations scenarios. The qualitative temperature limits of the Paris Agreement are translated into quantitative carbon budgets, specifying how much $CO_2$ can be emitted across the remainder of the century to keep warming below a given temperature level (Anderson and Peters, 2016, p. 182) and consequently how much has to be captured with negative emission technologies. Regardless of the domination in the scenario landscape, in the EU as well as globally, CCS continues to make extremely limited progress and is currently not on a trajectory to meet the 2 °C target. The capture and storage capacity would need to increase tenfold by 2025 in order to be on track to meet a 2DS (2 degrees' scenario) (IEA, 2017). In 2012, the IEA indicated that a 2DS would require no fewer than 38 large-scale CCS projects to be operational by 2020 (Trade Unions for Energy Democracy, 2015, p. 5). However, the scenario is unlikely to materialise. According to the Global CCS Institute (n. d.), there were 17 operational large-scale CCS projects worldwide by June 2019, with four more estimated to be operational by 2020.

28 London Protocol (1996) aims to prevent and preserve the marine environment from all sources of pollution.

29 According to International Maritime Organization (2019), only Estonia, Finland, the Islamic Republic of Iran, Norway, Netherlands, and the United Kingdom have ratified the amendment by July 2019.

It is worth noting that out of twenty-three CCS large-scale projects globally – either in operation or in construction – approximately 70% of them are engaged in enhanced oil recovery (EOR) (Global CCS Institute, n. d; Trade Unions for Energy Democracy, 2015, p. 7). Promoting CCS as an integral part of EOR technology can be designated as contradictory, since EOR entails using compressed $CO_2$ generated by CCS to release remaining deposits of oil from hard rock or near-depleted oil fields (Trade Unions for Energy Democracy, 2015, p. 7). EOR means that the carbon emissions avoided through CCS are, in a sense, used to generate more emissions. However, proponents of CCS appear to accept that this might be the only way to make CCS cost effective (ibid.) while the market for EOR is expected to grow rapidly as oil fields deplete and oil extraction becomes more complex in North America (Frost & Sullivan, 2015). It is hard to understand what – apart from an economic incentive – there is to EOR and how exactly it helps to stay within the 2DS. Contradictory or not, as Videmšek (2019) puts it when analysing the pilot CCS project in the Fortum Oslo Verne heating and incineration plant as well as the role of oil giants: "/u/nfortunate as that may be, the black titans of the past are the only ones with enough money to kick-start a green revolution".

## 5.4 CCS AS A POLITICALLY APPEALING MITIGATION POLICY

Although CCS and other negative-emission technologies are subject to scientific uncertainties, the scenarios assume, according to Anderson and Peters (2016, p. 182), that negative emissions are technically, economically and socially viable. In reality, there is a lot of issues with the realisation of CCS projects, even with the ones meant for demonstration of the technology, as difficulties appear with finding appropriate sites, financing, and even implementing a legal framework. Some countries in the EU have decided that their terrains are not applicable for negative emission technologies and even when they decide for CCS, financing proves to be unattainable, as private companies – on a larger scale – often lack interest in investing in CCS and governments that are encouraged to do so do not either. From the legislative prospective not only storing $CO_2$ but also its transport faces a significant regulation gap, since only a few (EU) countries showed readiness to ratify London Protocol's amendment regarding $CO_2$ transport to off-shore storages.

In spite of obstacles for CCS implementation, the promise of future and cost-optimal negative-emission technologies is more politically appealing than the prospect of developing policies to deliver immediate rapid and deep mitigation. There are huge opportunities for deep reductions today, such as improving energy efficiency, encouraging low-carbon behaviours, and a continued deployment of

renewable energy technologies (Anderson and Peters, 2016, p. 183). Meanwhile, political support for CCS provides a cover for new fossil fuel infrastructure, for which CCS infrastructure might never be built – as mentioned before, a large-scale CCS deployment is still pending in the EU, which has, in its 2050 long-term climate strategy, recognised CCS as one of the seven pillars for achieving carbon neutrality. Inherently, it is plausible to say that the political support for CCS is in many cases nothing more than the reconstruction of the capitalist political economy along more environmentally sound lines, but with no intention to change the current system and suffer some losses as a consequence. By emphasising economic aspects of the process, CCS, and EOR support in particular, might hence be interpreted as *de facto* support for "business as usual".

"Therefore, a re-evaluation of CCS is inseparable from a full re-evaluation of neoliberal approaches to energy transition and climate change protection, approaches that have clearly failed workers, consumers, and the environment (Trade Unions for Energy Democracy, 2015, p. 16–17). Moreover, Lukacs (2017) states that "/a/t the very moment, when climate change demands an unprecedented collective public response, neoliberal ideology stands in the way." In order to achieve climate change goals, corporations should be regulated to phase out fossil fuels and taxes could be raised in order to invest in renewable energy, for instance. However, it seems that such ideas are not only politically unrealistic, but also culturally unthinkable (ibid.).

Furthermore, if the many reservations about CCS and other negative emission technologies turn out to be valid, the combination of not addressing the reduction of $CO_2$ emissions today and the failure of future technologies will result in a temperature rise of catastrophic consequences, that will be, according to, for instance, Anderson and Peters (2016, p. 183), mostly felt by low-emitting communities, geographically and economically vulnerable. Subsequently, recalling (the EU's) recognition that CCS is a crucial element in both achieving climate change goals and accomplishing the transition to green technology as well as bearing in mind the current lack of implementation of CCS projects in the EU, one cannot help but doubt in the feasibility of achieving the set targets without the appropriate economic incentives. Depending on investments and profits, negative-emission technologies are, therefore, as Anderson and Peters (2016, p. 183) put it, "not an insurance policy, but rather an unjust and high-stakes gamble". Similarly, d'Aprile (2016, p. 7) defines the economic case as "Achilles' heel of the CCS" due to the absence of predictable government support and reluctant private investors when it comes to building plants with CCS equipment.

## 5.5 CONCLUSION

In spite of the fact that CCS and other negative emission technologies hold a pivotal role in (the EU's) mitigation scenarios, relaying on them, as underlined above, presents a high-stakes gamble. The implementation of large-scale CCS projects needed in order to achieve a 2DS seems unattainable, judging by dynamics within the EU in the decade between 2009 and 2019. Although the way the EU has conceptualised CCS as the essential process in achieving climate neutral economy cannot be disputed, it is crucial to consider that the EU has so far failed to create and stimulate sufficient instruments that would provide concrete guidance or financing for research, development and deployment of the CCS process. In other words, the EU deliberated an ideological framework, but the tools for its implementation seem to be lacking.

The attraction of CCS and other negative emission technologies lies in the reduction of current political and economic challenges. Assuming sufficient support from the public – this support can prove to be crucial, as insinuated in the case of Germany, where the debate about CCS implementation shrank in the past due to public criticism – CCS can be described as a politically viable tool on the way to a carbon neutral EU, particularly because it does not presuppose drastic changes to the existing ways of production (by emitting $CO_2$). In other words, much of the CCS appeal emanates in the prevalent capitalist neoliberal world order that sees the natural system in limited terms, nothing more than adjuncts to human economy (Dryzek 2013, p. 174) and is always subordinated to the narrow terrain of the market. This is clearly evident in the predominant use of CCS technology for EOR as well as in the need for profitability of the CCS projects. Therefore, in order to avoid mis-implementation that would lead to a delay in dealing with climate change, one possible way for ensuring the implementation of the needed (large-scale) CCS projects lies in public ownership, where private partnerships *might* prove indispensable. As *will* public approval.

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# EU ENVIRONMENTAL POLICY: EXTERNAL DIMENSION

# 6 THE ROLE OF THE EU IN THE ENVIRONMENTAL POLICIES OF THE ARCTIC COUNCIL

**Magdalena Rakovec and Samo Smole**[30]

## 6.1 INTRODUCTION

The climate change has had and will continue to have a profound impact on the Arctic, one of the most vulnerable ecosystems on Earth. With the rising global temperature and temperature of the Arctic rising twice as fast, the ice covers in the Arctic are endangered, and with this its unique ecosystems and endemic inhabitants. Not only will the changes impact the Arctic and its environment, but they will also influence other regions, including Europe. In an effort to address these environmental challenges, the European Union (EU) has developed a multilayered Arctic policy focusing primarily on environmental protection, also in cooperation with other organisations, including the Arctic Council (European Environment Agency – EEA Report, 2017, pp. 7–9; Hossain, 2015, p. 90).

The EU has established itself as a normative power in international relations, and as such seeks to influence international politics in line with its core norms, including sustainable development and protection of the environment (Afionis and Stringer, 2012, p. 114–115). The EU is considered a normative power since it is able to influence and consequently change what is conceived as normal in the world politics (Manners, 2008, p. 65). The term normative power was coined by Ian Manners, who also developed a tripartite model to analyse EU policy and its influence in world politics. It analyses what principles the EU promotes, how the EU acts, and what impact the EU has had (Afionis and Stringer, 2012, pp. 114–115; Manners, 2008, 65–66). In this chapter, we will analyse how the EU influences and what impacts it has on the environmental policies of the Arctic Council.

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Arctic Council is the main forum for coordination, cooperation and interaction among Arctic States, the indigenous population of the Arctic as well as, although in limited capacity due to the different rights and obligations given to different actors, non-Arctic states and organisations (Koivurova and Hasanat, 2009, pp. 55–56). Its core purposes are environmental protection and sustainable development. The EU has – despite its efforts and interest in the Arctic – not been granted the status of an official observer, although it is an observer in principle and can participate in working groups (Hossain, 2015, p. 90). The EU has long been interested in the protection of the Arctic environment, but until 2008 its policy towards the Arctic was more or less fragmented (various marine, environmental, climate, regional, transport and research legislative acts, strategies and programmes) (EEA Report, 2017, p. 22). However, a coherent EU Arctic policy has been developed since 2008.

The research question of this chapter is the following: How does the EU influence the environmental policies of the Arctic Council? Therefore, the aim of the chapter is to analyse the possible influence of the EU and its actions on the environmental policies of the Arctic Council through the concept of normative power and Manners' tripartite analysis. In order to answer the research question analysis of primary and secondary sources will be used.

The chapter will be structured as follows. In the first part of the chapter, the concept of the EU as a normative power will be presented as well as elaboration on the Manner's tripartite analytical model together with its first dimension. In setting the foundations for the second and third part of the methodological framework, the Arctic Council will be presented and its environmental policies as well as the role of the EU in the Arctic Council. This will be followed by an elaboration of EU policies in the Arctic. In the second part, an analysis of the influence of the EU on the Arctic Council will be conducted by focusing on two specific policies of the Arctic Council: the Marine Oil Pollution Preparedness and Response Agreement, and the Framework for Action on Enhanced Black Carbon and Methane Emissions Reductions. This will be an elaboration on the second and third part of the tripartite analysis: how the EU acted in the two cases, and what impacts it has had on the policies of the Arctic Council.

## 6.2 THE EU AS A NORMATIVE POWER

The fight against climate change and the overall global environmental protection have played a prominent role in the external policies of the EU since the 1980s (Falkner, 2006, pp. 1–3). Due to the central role of the EU in the creation of the current climate change regime as well as the promotion of sustainable development, the EU has proven to be a crucial actor in environmental diplomacy (*ibid.*).

The EU exerts its influence globally through the promotion of global environmental norms, and is building up its "green" normative power (Falkner, 2006, p. 2). Due to the role of environmental norms in the EU, it is "predisposed to act in a normative way in world politics" in the field of environmental protection (Falkner, 2006, p. 4). Although the EU is a normative power in global environmental politics, the authors agree that the model of sustainable development is not pursued on the expense of economic power, and that the status of the EU as an environmental normative power should be always understood also in view of its political and economic interests (Afionis and Stringer, 2012, p. 121; Falkner, 2006, p. 14).

The classification of the EU as a normative power was developed by Ian Manners. The concept is built on the assumption that the power of the EU stems from the importance of its ideas, standards, values and norms (Falkner, 2006, pp. 1–3; Skolimowska, 2015, pp. 111–112). The EU is considered a normative power since it can change, therefore influence, what is perceived as normal in the international politics (Manners, 2002). The EU is a normative power already by virtue of its existence since "it changes the norms, standards and prescriptions of world politics away from the bounded expectations of state-centricity" (Manners, 2008, p. 65).

Manners (2008) offers a tripartite method for analysing EU which gives us the tools to asses if the EU is acting as a normative power, e.g. if it is influencing what is considered as normal in the world politics. The first part of the tripartite analysis focuses on the identification of constitutive principles of the EU[31]. For the purpose of this chapter, we will focus on the principle of sustainable development already identified by Manners. This principle is promoted by the EU through its »enlargement, development, trade, environmental and foreign policies" (Manners, 2008, p. 74). In promoting this principle, the EU is encouraging international environmental protection as well as sustainable management of resources, integration of the environmental protection in the policies of the EU and promoting sustainable development in its developmental cooperation (*ibid.*). Having established that environmental protection, as enshrined in the principle of the sustainable development, is one of the areas of EU's foreign policy objectives and one of the areas where the EU is striving to influence what passes as normal in the international politics, we can move to the next part of the tripartite analysis.

31 Manners (2002, pp. 242-243) identifies five 'core' norms of the EU: peace, liberty, democracy, rule of law and human rights as well as four 'minor' norms: social solidarity, anti-discrimination, sustainable development and good governance.

Second part of the analysis examines "how the EU promotes its constitutive principles as actions and politics in the world politics" (Manners, 2008, p. 77). This is a process of dialogue and engagement, rather than a process of coercion (Manners, 2008, pp. 77-78). Dialogue in this context is understood as two-way process of "deliberation and discussion as part of reasoning the merits of external action" (Manners, 2008, p. 78) and engagement is understood as "initiation and institutionalisation of regular and transparent patterns of communication or partnership" (Manners, 2008, p. 78). Manners identified 6 factors that the EU uses for the diffusion of its norms in order to establish itself as a normative power (Manners, 2002, p. 244): contagion, informational diffusion, transference, overt diffusion, cultural filter, and procedural diffusion. The last factor applies to our chapter since the EU is diffusing its norms with the institutionalisation of its relationship with a third party. This can be done with membership in an international organisation, inter-regional cooperation agreements, or EU enlargement (Manners, 2002, pp. 244–245). In addition, "consistency between internal policies and external prescriptions and actions" needs to be applied in order to establish its normative power (Manners, 2008, p. 76).

The third part of the analysis focuses on the impacts of the actions taken by the EU, therefore how did its actions change and shape the partners and their politics (Manners, 2008, p. 78).

## 6.3 ABOUT THE ARCTIC COUNCIL

As temperatures in the Arctic rise and the ice is melting, new trade routes are opening and intensified exploitation of natural resources is possible. Changes in the Arctic are therefore expected and the future is uncertain. In such circumstances, international cooperation is crucial to manage different interests (Dodds, 2013, pp. 1–8). Since its establishment in 1996 with the Ottawa Declaration, the Arctic Council has emerged as a powerful player in Arctic affairs and forms a central forum for the discussion on the future of the Arctic (Dodds, 2012, p. 14; Dodds, 2013, p. 29; Kankaanpää and Young, p. 1). The Arctic Council is an intergovernmental forum for promoting cooperation, coordination and interaction among Arctic states and Arctic indigenous communities and other Arctic inhabitants on Arctic-specific issues (Declaration on the Establishment of the Arctic Council, Art. 1(a)).[32] The mandate of the Council are "common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic" (Declaration on the Establishment of the Arctic Council, Art. 1(a)).

32 Declaration on the Establishment of the Arctic Council, signed in Ottawa on 19 September 1996.

Participants in the Council are divided into three groups. All Arctic states are Member States of the Arctic Council, which are: Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, Sweden and the United States (Declaration on the Establishment of the Arctic Council, Art. 2). A country is classified as an Arctic country if the Arctic polar circle crosses through it (Degeorges, 2015, p. 1). Nevertheless, only five countries (Canada, Denmark/Greenland, USA, Norway and Russia) are Arctic coastal states and have territorial jurisdiction in the Arctic Ocean (*ibid.*; Hossain, 2015, p. 97). A distinctive feature of the Arctic Council is the participation of six indigenous peoples' organisations that have a status of Permanent Participants in the Council. But also non-Arctic states, inter-governmental and inter-parliamentary organisations, global and regional, as well as non-governmental organisations can be granted observer status in the Arctic Council (Declaration on the Establishment of the Arctic Council, Art. 3). Observers are invited to meetings of the Arctic Council and have the right to participate in the Arctic Council, although mainly at the level of working groups. Their primary role is nonetheless to observe the work of the Arctic Council (*ibid.*).

The Arctic Council mainly servers as a coordinating forum for Arctic diplomacy of the states and indigenous people that have a stake in the Arctic, but it does not serve as a strong legal authority (Richwalder, 2017, p. 38). The decisions it takes, on which the Members States have the exclusive right and responsibility to vote, form soft law and are not legally binding (Johnstone, 2016, pp. 8–9, Richwalder, 2017, p. 44). Nonetheless, the Arctic Council has so far produced and negotiated two legally binding treaties, and has therefore also served as a body in which international law is formed. It negotiated the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, and the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (Richwalder, 2017, p. 36). Both treaties were negotiated solely among Arctic states with no other actors having a chance to participate. The treaties established structured cooperation for the content of the treaties, but at the same time also served as a tool for the legitimisation and enforcement of the control of the Arctic states over the Arctic (Johnstone, 2016, pp. 14–15). The primacy of the five Arctic coastal states in the arctic affairs has been further reaffirmed with the Ilulissat Declaration of 2008 (Dodds, 2012, p. 5). The Declaration emphasises different rights and obligations, and consequently the unique and privileged role of the five states bordering the Arctic Ocean. Moreover, the states reaffirmed their position that no "new comprehensive international legal regime to govern the Arctic Ocean" is needed (Ilulissat Declaration, 2008, p. 1).[33]

33 Ilulissat Declaration, adopted in Ilulissat, Greenland on 28 May 2008.

Protection of the Arctic environment is one of the main purposes of the Arctic Council (Declaration on the Establishment of the Arctic Council, Art. 1(a)). Even prior to the establishment of the Arctic Council, the main area of multilateral cooperation in the Arctic was environmental protection with the Arctic Environmental Protection Strategy (AEPS) adopted in 1991 (Hossain, 2015, p. 92). Under the AEPS, meetings took place at the level of environmental ministers, and all 4 working groups focused on the environment (Johnstone, 2016, p. 3). The working groups were later incorporated in the Arctic Council (*ibid.*). At the forefront today are 3 out of 6 working groups that deal with environmental protection: the Arctic Contaminants Action Program (ACAP), the Arctic Monitoring and Assessment Programme (AMAP), and the Protection of the Arctic Marine Environment (PAME) (De Botselier et al., 2018, p. 25). In its essence, the Arctic Council serves as a forum for a coordinated environmental policy in the Arctic (Johnstone, 2016. pp. 3–4).

## 6.4 THE EU AND THE ARCTIC COUNCIL

The EU applied for observer status in the Arctic Council at the Kiruna ministerial meeting in 2013. At the time of writing, the application of the EU has not been approved by the ministers of the Arctic States (Arctic Council, 2019). The EU's bid for observer status was opposed initially by both the Russian Federation and Canada. The reason for Canada's opposition was primarily the EU's Seal Ban Regulation of 2008 (*ibid.*). The Regulation affected the indigenous populations of the Arctic for whom trade in commercial seal products is a tradition and important part of their economy. The dispute between Canada and the EU was resolved in 2014 with an exemption of indigenous seal products from the EU Seal Ban Regulation (Depledge, 2015). The reason for Russian opposition can be attributed to the overall diplomatic disputes it has with the EU, as well as Russia's reluctance to accept additional external actors to the negotiating table (Hossain, 2015, p. 90).

Even though the EU has not yet been granted official observer status, its position can be voiced by its Member States that are at the same time members of the Arctic Council: Denmark, Finland and Sweden. At the same time, the following EU Member States have been granted observer status: France, Germany, Italy, Poland, the Netherlands, Spain and the United Kingdom. Apart from its Member States, EU keeps close ties with Iceland and Norway through the European Economic Area (The Arctic Institute, n. d.) Nevertheless, it should be noted that none of the EU Member States in the Arctic Council are coastal states, which form the core of Arctic governance and have territorial jurisdiction in the Arctic Ocean (Degeorges, 2015, p. 1). Although Greenland is a Danish overseas territory, it has withdrawn from the EU; therefore the EU does not have jurisdiction over Denmark's Arctic waters (Hossain, 2015, p. 97).

Despite not being a member, the EU may observe the Council's proceedings and has full rights to participate in working group activities. The EU's status is therefore a status of an "observer in principle" (Hossain, 2015, p. 90). Its presence was most visible in the PAME working group, whereas in the other two working groups dealing with the environment its participation was negligible or not visible (De Botselier et al. 2018, pp. 25–26).

## 6.5 EU ARCTIC POLICY

The Arctic and its environment have long been important for Europe. In the last 10 years, however, the EU has become increasingly interested in the Arctic. In line with its leading role in combating global climate change, the EU is firmly engaged in protecting the Arctic environment (Hossain, 2015, p. 2). The EU is aware of the possible impacts that melting ice in the Arctic, rising sea levels, etc. have on a global scale.

Within the EU, the Arctic was first acknowledged as a priority in 2007 with the Commission's Communication and Blue Book on the EU's Integrated Maritime Policy, and later in 2008 by the High Representative's Report on Climate Change and International Security (EEA Report, 2017, p. 22). Both recognised the Arctic region as an area of concern and relevance to the EU (ibid.). The EU's Arctic policy has been developed since 2008 (EEA Report, 2017, p. 21). Prior to that, the Arctic had been addressed more incoherently through various marine, environmental, climate, regional, transport and research legislative acts, strategies and programmes (EEA Report, 2017, p. 22). The first step forward was the European Parliament resolution on Arctic governance, with a proposal for negotiating an international treaty (Hossain, 2015, p. 9). EU institutions have since then adopted a series of other documents, which express the EU's great concern for the preservation and protection of the Arctic environment (Hossain, 2015, p. 9). The EU Arctic Policy's strategies, included in the 2008 Communication from the Commission to the European Parliament and the Council on The European Union and the Arctic Region, highlight three issue areas: "1) protecting and preserving the Arctic in unison with its population, 2) promoting sustainable use of resources, and 3) contributing to enhanced Arctic multilateral governance" (*ibid.*). These documents suggest a shift in the EU's traditional approach to the Arctic (from being politically uninvolved in the region to becoming more engaged). There are some very clear proposals for action to realise these strategies in this Communication (European Commission, 2008). Among others, they include (The European Commission, 2008, p. 11):

– assessing the effectiveness of EU policies and of multilateral environmental agreements in responding to Arctic environmental challenges;

- strengthening international efforts to mitigate climate change and identify areas where support for adaptation to the effects of climate change needs to be provided, including the adaptive management of biodiversity;
- launching a reflection on possibilities for further development of Arctic-related cross-border cooperation and regional programmes to enhance cooperation with the Arctic states;
- working towards the successful conclusion of international negotiations on marine protected areas on the high seas.

With regard to the EU's Arctic Policy and legislative aspects, it is important to note that European Arctic states (Finland, Sweden, Norway, Denmark and Iceland) already have their own national policy frameworks for the Arctic, with a special focus on economic development and environmental monitoring (*ibid.*).

The EU aims to internationalise its regulations, be it through deliberate strategy, or indirectly through anonymous channels of policy diffusion – by striving to raise international standards to the European level through multilateral negotiation, etc. (Falkner, 2006, p. 6). It has established several bilateral and regional cooperation agreements with other states in the Arctic region (Canada, Russia and the United States) that expand its scope of regional engagement (*ibid.*) and are part of the EU's strategy towards the Arctic, included in the Communication from the Commission to the European Parliament and the Council on The European Union and the Arctic Region (The European Commission, 2008, p. 10).

It is also important to take a look at the EU policies that address the Arctic region more indirectly. Such EU policies include (EEA Report, 2017, p. 23): (1) the Framework for climate and energy; (2) the EU biodiversity strategy to 2020; (3) the EU engagement on sustainable development in the context of the UN's 2030 Agenda and Sustainable Development Goals (SDGs); (4) the ongoing work related to green sustainable and inclusive growth and blue economy; and (5) the Roadmap to a resource efficient Europe.

One of the EU's Arctic Policy goals is to mitigate the EU's Arctic footprint. It is estimated that between 24% and 56% of the associated total EU footprint occurs outside Europe (EEA Report, 2017, p. 26). To some extent, this footprint also affects the Arctic region, and "in order to quantify and assess its Arctic impact, the European Commission compiled an *EU Arctic footprint and policy assessment*" (*ibid.*, emphasis added). This assessment suggests that the EU's share in the global contribution to Arctic impacts is around 35% and consists of long-range chemical pollution, black carbon emissions and impact on fish stocks through imports from the Arctic States. To address and mitigate these impacts, the EU has increased its efforts to (EEA Report, 2017, p. 26):

- reduce the greenhouse gases that impact the region;
- promote high-quality international standards applying to Arctic economic activities;
- foster employment in the Arctic through EU imports, regional cooperation programmes and research activities.

Above all, as recognised in the Communication on The European Union and the Arctic Region (The European Commission, 2018, p. 3), "the Arctic challenges and opportunities will have significant repercussions on the life of European citizens for generations to come". Moreover "environmental changes are altering the geo-strategic dynamics of the Arctic with potential consequences for international stability and European security interests calling for /further/ development of an EU Arctic policy" (*ibid.*).

## 6.6 MARINE OIL POLLUTION PREPAREDNESS AND RESPONSE

Although the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response (MOPPR) is a treaty of Arctic states and not of the Arctic Council, its importance cannot be dismissed lightly. As one of the two legally binding documents that were negotiated within the Arctic Council, it shows that the Arctic Council can also serve as a forum where international norms are developed, and indicates the possible influence the Arctic Council could have on international (environmental) law (Johnstone, 2016, p. 9).

At the 2011 ministerial meeting in Nuuk, a MOPPR Task Force was established in order to prepare the treaty (Molenaar, 2012, p. 142). Due to the vulnerability of the Arctic environment and distinct geographical conditions, the need for efficient management and protection from oil spills and pollution is vital (Richwalder, 2017, p. 38). The negotiations leading to the MOPPR agreement lacked transparency since no information on the process was shared with the public and no non-Arctic state or permanent representative participated in the process. Moreover, a request by an NGO to participate in the negotiations was denied (Molenaar, 2012, p. 167)[34]. However, the negotiation process was not completely closed since ITOPF, a non-profit organisation dealing with oil and chemical spills, participated in the discussions leading to the MOPPR (ITOPF, n. d.).

34 The article was written one year after the Task Force was established and one year before the signing of the treaty. No newer information regarding the inclusivity of the negotiation process is available.

The agreement was signed at the Kiruna Ministerial meeting in May 2013 (Richwalder, 2017, p. 37). The document aims to "strengthen cooperation, coordination and mutual assistance among the Parties on oil pollution preparedness and response in the Arctic in order to protect the marine environment form the pollution by oil" (Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic, Art. 1)[35]. It provides mechanisms, among others, national systems for response to oil pollution accidents, notification of other parties about oil pollution, as well as monitoring activities of oil pollution incidents, to prevent the danger of environmental disasters resulting from oil pollution (Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic, Art. 4–7). Due to the distinct and vulnerable nature of the Arctic environment, the treaty established mechanisms for coordinated and prompt response to oil spills (Richwalder, 2017, p. 38).

Nonetheless, the treaty does not particularly distinguish itself from the International Maritime Organization's (IMO) International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) from 1990. The difference is the duty of Arctic States to identify "risks to areas of special ecological significance and to take measures to facilitate ease of transfer of personnel, ships and equipment required in an oil spill emergency" (Johnstone, 2013, p. 11). It is focused more narrowly on the prevention of natural disasters resulting from oil pollution in the Arctic. It sets the areas – alongside the areas in which it already has sovereign rights under UNCLOS – in which states parties to the treaty are responsible for the application of such mechanisms (Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic, Art. 3(1)). In an effort to reaffirm the authority of the Arctic states over the Arctic, the states parties, which means only the Arctic states, divided the Arctic into spheres of which each state is in charge, without taking into account other possible actors that could be able to provide help in ensuring environmental protection from oil spills (*ibid.*). Johnstone (2016, pp. 12–14) warns especially of the exclusivity of the treaty towards the indigenous people, who have the status of permanent participants in the Council. Their cooperation in monitoring and responding to oil pollution is crucial, since they are usually the first to respond in such incidents. But also, other states and observers were excluded from the negotiation process, as well as from being a party to the treaty regardless of the possible help they might be able to provide with their own resources to the state parties (Johnstone, 2016, p. 24).

35 Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic, signed in Kiruna on 13 May 2013.

In the EEA Report, the EU acknowledges that the transportation of extracted oil from the Arctic presents a "set of environmental, social and legal challenges that industry and government have to manage" (2017, p. 53). Furthermore, the EU acknowledged the European dimension in the "accidents and oil spills involving European ships and oil rigs, and European ships coming to the rescue or taking part in the clean-up operation" (EEA, 2017, p. 77). The European Union has taken a position that an integrated and coherent response from various stakeholders is needed to address the multi-layered Arctic issues. It has taken a critical stance towards policies addressing only individual dimensions and self-enforcing feedback mechanisms (*ibid.*). The MOPPR can be viewed from this perspective, since it fosters a coordinated response of Arctic states but does not acknowledge the need for response by other actors as well, including the EU.

Within the EU and its European Maritime Safety Agency (EMSA), the acknowledgement of the need to provide quick and efficient response to marine pollution, including oil pollution, led to the establishment of a network of stand-by oil spill response vessels with the EMSA Action Plan for Oil Pollution Preparedness and Response in October 2004 (EMSA, 2014, p. 7; EMSA, 2018, p. 2). The services can be used to respond to oil spill accidents anywhere in European waters or shared sea basins. The services are available to "EU member states, EFTA/EEA countries and non-EU countries sharing a regional sea basin with the EU" (EMSA, 2018, p. 2). Furthermore, the EU is funding Integrated oil spill response actions and environmental effects – the GRACE project. The project is focused on "developing, comparing and evaluating the effectiveness and environmental effects of different oil spill response methods in a cold climate" (Grace, 2016). The work of the project is therefore directly applicable for the protection of the environment resulting from oil pollution in the Arctic. Their Strategic Net Environment Benefit Analysis, a tool they aim to produce, along with other results of the project, will be shared with "international organizations that plan and carry out cross-border oil spill response cooperation in Arctic sea areas" (*ibid.*).

Judging from Manners' tripartite analysis, the EU failed to directly project its influence in the case of the MOPPR. Despite having sustainable development and environmental protection among its core principles, as well as developed internal norms and policies for managing oil spill accidents, it failed to engage in the process of negotiating the treaty, and later did not become party to the treaty, since only Arctic states are signatories. Therefore, it did not fulfil Manners' criteria of consistency between internal policies and external prescriptions and actions. The basis for evaluating this is engagement and dialogue as a means of external action. Being unable to cooperate as an official observer, the EU was hindered from affecting the policy and exerting its normative power e.g. its influence in the Arctic Council in the said example. This inability, conditioned by the EU's

inability to officially gain observer status, has been crucial – at least in the example of the MOPPR – and stems primarily from the fact that the implementation of the EU's Arctic policy is only possible to the extent that the Arctic states consider it relevant and legitimate for their own interests. In this particular case, the EU's influence on the legal document of the Arctic Council was curtailed regardless of its ability to contribute to the final aim of the document with its framework for managing oil spill accidents.

## 6.7 BLACK CARBON AND METHANE EMISSIONS REDUCTIONS

Another example of interrelatedness between the EU and the Arctic Council is the Framework for Action on Enhanced Black Carbon and Methane Emissions Reductions, which the Arctic Council decided to implement after the Iqaluit meeting in 2015 (Johnstone, 2016, p. 9). This instrument of the Arctic Council is particularly interesting, as it was originally established and developed by the Arctic States, but for the first time, "observer States (including the states of the EU and the EU) are encouraged to take part and their participation is integrated into the framework" (Johnstone, 2016, p. 18). Within this Framework, the Arctic States commit to monitor black carbon emissions and improve inventories and projections for methane emissions. The Arctic States call for cooperation of observers, keeping their own inventories, taking part in meetings and reporting to the Arctic Council on the same basis as the Arctic eight (*ibid.*) Non-state actors are also encouraged to take part under the framework and "take steps to reduce emissions, develop technology and share best practices" (Johnstone, 2016, p. 19).

Black carbon is a very important issue of environmental policies. It is a short-lived climate forcer that arises from the incomplete combustion of carbon-based fuels – be it from diesel engines (including shipping), gas-flaring or burning of biomass (Johnstone, 2016, p. 18). Black carbon is so damaging to the environment because it is black and absorbs solar radiation, reduces the albedo effect of ice and snow that it covers and interferes with clouds (*ibid.*). It has a short-term environmental impact, because it usually lies on the surface only for a few days or weeks at a time, but it accelerates the melting of the ice. It is also dangerous for human health, triggering aggravated respiratory diseases (*ibid.*).

An Expert Group within the Arctic Council was established at the Iqaluit meeting in 2015, with the objective to periodically assess progress in the implementation of the Arctic Council's Framework for Action on Black Carbon and Methane, and to inform policy makers from Arctic states and participating Arctic Council observer states (Arctic Council, 2015). The Expert Group has made recommendations and proposals for further reduction of black carbon and methane emissions

(Expert Group on black carbon and methane, 2017, p. 21). The Expert Group has conducted thorough research together with the Arctic Council's subsidiary bodies (i.e. Arctic Monitoring and Assessment Programme), and a lot of information was also provided in the national reports of the Arctic states, participating observer states and the EU (*ibid.*). The recommendations serve for non-binding, potential measures for short- and long-term reductions (*ibid.*). Although the black carbon and methane framework is constructed and controlled by the Arctic States, which establish the rules, observers are also invited to join (Johnstone, 2016, p. 19). The Expert Group also has a very inclusive composition. One or two experts can be nominated by each Arctic state and by permanent participants. Observer states can also nominate a representative to the Expert Group, but they are limited to only one participant each. Such inclusiveness is a virtue of the Expert Group, as a treaty-based approach to black carbon in the Arctic could not have been this inclusive with non-Arctic observer states (*ibid.*). There is another argument for such institutional form. A treaty-based response of only the Arctic states would be inadequate, as a treaty cannot create obligations for third parties. The Arctic states deem it important to have ownership of any Arctic initiatives, and a treaty-based regulation would renounce their political ownership of the issue (Johnstone, 2016, p. 20).

As mentioned, the EU also acknowledges the danger of black carbon, methane and other short-lived climate pollutants (SLCPs). In order to address this issue, the EU has ratified the UNECE Convention on Long-Range Transboundary Air Pollution (CLRTAP), and it has launched an EU action on SLCPs through the Air Quality Policy Strategy and as a partner of the Climate and Clean Air Coalition (European Union External Action, 2017). Moreover, the EU has engaged in Arctic Council initiatives, such as the Expert Group on Black Carbon and Methane.

There is also an ongoing project to contribute to the development of collective response to reduce black carbon emissions in the Arctic – the so-called EU Action on Black Carbon in the Arctic, coordinated by the Arctic Monitoring and Assessment Programme (AMAP). This action is policy-focused, with an aim to mitigate black carbon emissions and develop strategic partnerships. The goal is to enhance relationships between the EU and key international partners (Canada, Russia, the US – all of which are Arctic Council member states) (EU Action on Black Carbon in the Arctic, 2018, p. 4).

Although most of the work (observation, reporting, etc.) of the initiative is conducted by Arctic Council working bodies – the Arctic Contaminants Action Program (ACAP), AMAP, the Conservation of Arctic Flora and Fauna (CAFF) working group, and the Emergency Prevention, Preparedness and Response (EPPR) working group – the EU contributes funding; the action is implemented

through the EU's Partnership Instrument providing €1.5m for action implementation in 2018–2020, which is the full cost of the project (*ibid.*). The interesting part of the EU Action on Black Carbon in the Arctic project is its implementation, as it is an exemplary case of the EU's impact on the Arctic Council, and vice versa. The policy part is originally developed by the Arctic Council, while the EU contributes financially (EU Action on Black Carbon in the Arctic, 2018, p. 9).

From the normative power perspective, the EU – through its policies (EU Action on Black Carbon in the Arctic) – has an influence on the policies of the Arctic Council in terms of regulatory impact, and also as an emitter of black carbon (the black carbon emitted within the EU has a direct impact on the Arctic) (Romppanen, 2018, p. 3). More precisely, the EU has the regulatory competence to control black carbon within its jurisdiction and an internal mandate to deal with regional environmental problems, especially climate change, as a joint concern of its Member States. Above all, "the EU is motivated to participate in Arctic (climate) governance and black carbon offers a good platform for such participation" (*ibid.*).

The main influence of the EU on the environmental policies of the Arctic Council is its funding and support for the development of commitments and targets to limit production of Arctic black carbon, as we have shown with the examples above. However, the EU's limits can be found in the actual authority and potential of policy measures, which are quite limited. Specifically, "expert groups" such as the one under the Black Carbon Framework have very limited authority, as they reach only as far as collecting the data reported to them by the states themselves (Johnstone, 2016, p. 22).

To evaluate through the lens of Manners' tripartite analysis, the EU can be considered a normative power in this specific policy issue according to the second (promoting the EU's constitutive principles as actions and policies) part of the analysis. This is because it has launched an EU Action on Black Carbon in the Arctic (European Union External Action, 2017). Regarding the third part of the Manners' analysis (impacts of the actions taken by the EU), the EU is covering full cost of the project (€1.5m for action implementation in 2018-2020). However, since this is an ongoing project, it is too soon to draw final conclusions about precise impacts of the EU's contribution.

## 6.8 CONCLUSION

In this chapter, we addressed how and to what extent the EU influences the environmental policies of the Arctic Council, using the concept of normative power

and Manners' tripartite analysis. The first part of the analysis refers to the principles the EU promotes, in this case environmental protection. Already Manners acknowledged that sustainable development and environmental protection are among the constitutive principles of the EU. In order to diffuse its norms in the observed region, the EU primarily strives to become an observer in the Arctic Council, since it is the central forum for cooperation and consultation in the Arctic. However, the efforts of the EU in this direction have been unsuccessful so far.

The broad assessment of how the EU acts was made through an analysis of its Arctic policy. The interest of the EU in the Arctic has been formulated only in the last 10 years, and its policy towards Arctic is not fully developed yet. Three main elements of EU Arctic Policy can be highlighted: (1) protecting and preserving the Arctic in unison with its population, (2) promoting sustainable use of resources and (3) contributing to enhanced multilateral governance. Regarding environmental protection, the EU is trying to mitigate its Arctic footprint, to maintain biodiversity of Arctic species, etc. We can conclude that the EU has well-developed internal norms regarding the Arctic.

In the second part of the chapter, EU's influence on the environmental policies of the Arctic Council was analysed by looking at two issue areas and their regulations: marine oil pollution (the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response – MOPPR) and mitigation of black carbon (Framework for Action on Enhanced Black Carbon and Methane Emissions Reductions). In the case of the MOPPR, the EU's influence was not observed, as the implementation of its Arctic policy is possible only to the extent that the Arctic states consider it relevant to and legitimate for their own interests. The EU, along with other observers, did not have the possibility to participate in the treaty despite its efforts in managing oil spills and generally well-developed internal policies and norms regarding protection against oil pollution. In this particular case, the EU's influence on the legal document of the Arctic Council was curtailed regardless of its ability to contribute to the aim of the document, and the EU did not establish itself as a normative power since it did not fulfil Manners' criteria.

The Framework for Action on Enhanced Black Carbon and Methane Emissions Reductions and its implementation is a story of better EU–Arctic Council cooperation. The EU Action on Black Carbon is a policy initiative aimed at mitigating black carbon emissions and developing a strategic partnership between the EU and Arctic states. Although most of the work is conducted by the Arctic Council's working bodies, the EU's influence is observed in its financial contribution (€1.5m). The EU also has a regulatory impact (control of emissions, mitigation of climate change).

The EU strives to establish itself as a normative power in the Arctic, by exerting influence onn the Arctic Council and its environmental policies. From perspective of Manners' tripartite analysis, we focused on how the EU promotes its constitutive principles as actions and policies (engagement in dialogue and promotion of sustainable management of resources, integration of the environmental protection in the policies of the EU and sustainable development in its developmental cooperation etc.) and how did EU's actions impact the policies of the Arctic Council (it supported them financially etc.).

Despite its developed principles of environmental protection, EU's actions and influence – be it in the drafting of legally binding treaties or participation in the drafting and implementation of Arctic Council initiatives – are limited to the extent that the Arctic states consider them relevant and legitimate for their own interests. However, the EU's influence on the environmental policies of the Arctic Council is mostly in its role as financial supporter of various Arctic policies (we discussed the issues of black carbon and methane emissions for example). A question that remains open for future research is to what extent do EU Member States that are also members of the Arctic Council influence the policies of the Arctic Council in line with the norms and positions of the EU.

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# 7 THE EUROPEAN UNION'S ENVIRONMENTAL POLICY AS AN ELEMENT OF SOFT POWER: A CASE STUDY OF THE EU-BRAZIL STRATEGIC PARTNERSHIP

**Ajda Hedžet and Dora Matejak**[36]

## 7.1 INTRODUCTION

The relations between the EU and Brazil have been steadily gaining momentum since the early 1960s, by acquiring more structure, dynamics and density. First with the establishment of economic and commercial cooperation agreement in 1980s, signing of a more formal agreement called the Framework Agreement for Cooperation between the European Economic Community and Brazil in 1992, and finally with the establishment, signing and implementation of a formal Strategic Partnership (SP) in 2007 (Ferreira-Pereira, 2016, p. 55). More specifically, it was at the first EU-Brazil summit, where the EU and Brazil entered in a SP agreement that structured and integrated their relationship in the field of environment, energy, poverty, education, human rights and many others (Saraiva, 2017).

However, despite the growing importance on the EU level, the SP has not yet been conceptualised in a straightforward way – neither at a legal nor political level (Ferreira-Pereira & Vysotskaya Guedes Vieira, 2015). And, unsurprisingly, at the first meeting of the post-Lisbon European Council, they "could not even agree on the definition of a strategic partner" (Blockmans & Laasit, 2012, p. 147). However, there at least exists a consensus that the establishment of a given SP results from the perception that it encapsulates a positive-sum game formula, since it has "to be based on a balance of mutual advantages and commitments" (Van Rompuy, 2010, p. 3) and that the true shared base for the creation of SPs is that "countries trying to establish a strategic partnership share mutual and strategically important targets or even vital interests. In this regard, there should be a collaboration between parties with a long-term plan and roadmap /.../" (Ametbek, 2018, p. 1).

As written in the European Commission's (EC) (2007, p. 1) document Towards an EU-Brazil Strategic Partnership, the EU and Brazil agreed on the importance

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of rule of law and human rights, concern about climate change and the pursuit of economic growth and social justice at home and abroad. It is in the same document (EC, 2017, p. 2) that Brazil is also acknowledged as a regional leader and a global emerging power (Blanco & Luciano, 2018, p. 461). The importance for Brazil to have the EU as a strategic partner is colossal, with the EU being its second largest trading partner (Bager & Reis, 2019). Likewise, the EU sees the great importance in Brazil, due to its size, GDP and the influence the country has in the region (Gros, Alcidi, & Giovannini, 2013, p. 7).

Since the EU initiated the establishment of the SP in the 2000s, the topic of the environment has been highlighted as a highly significant topic of the agreement (Ferreira-Pereira & Vysotskaya Guedes Vieira, 2015). In the example of the Brazil-EU partnership, all together 31 sectoral groups were created, which encompass a wide variety of topics and which are subsequently being discussed as the parties agreed on their importance (Blanco & Luciano, 2018, p. 4). After having formalised the SP, high-level summits and ministerial dialogues between representatives have been organised annually. The EU-Brazil SP was also materialised in two joint action plans (JAP), which covered the periods 2007–2011 and 2011–2014, and a joint statement (JS) during the 2014–2017 period (Saraiva, 2017). These documents aimed to specify the goals and the areas of cooperation of the EU-Brazil partnership in each period (Blanco & Luciano, 2018, p. 6).

As a result of the constant dialogues and documentation, parties agreed to work together to combat climate change and reduce the carbon impact, making it a highly important part of the SP (Joint Action Plan, 2008, p. 2). In this chapter, we claim the EU sees not only an opportunity to cooperate, but also to influence and attract – acting as a soft power (Nye, 2004, p. 6). Soft power was defined in the 1980s as "the ability of a country to persuade others to do what it wants without force or coercion" (Nye, 1990, p. 154). It is an idea that "others will align themselves to you and your policy preferences because they are attracted to them" (Breslin, 2011), and to achieve that, long-term close relationships are essential (Nye, 2004, p. 8).

This chapter begins by introducing the conceptual and theoretical framework, based on secondary international relations literature addressing the softer conceptualisations of power and values, which extends into the introduction of the EU strategy in the sphere of environmental norms. Moreover, the relationship between the EU and Brazil is closely examined on a multilateral and bilateral level. As our analysis is based on a case study of the Brazil-EU SP, we will look closely into documents that emerged from its creation – the JAPs and a JS – to find out which environmental topics bind them together and where did the EU see the opportunity to use its soft power. Afterwards, we will closely examine the

cooperation in the field of biofuels, portrayed as the field with the most potential for the benefit of both parties, as Brazil is the world's second biggest producer of biofuels and the EU confirmed the enhanced use of renewable energies is a key priority of the EU energy policy (EC, 2007, p. 8). The aim is to see what (if any) impact did the EU have on Brazil that led to a gradual increase of its environmental standards that could have originated from the SP. Thus, the research question guiding us through the chapter is the following: *Is the EU using the SP as a tool to exercise its soft power in the environmental sphere, and if yes, how?*

To find the answer, throughout the chapter we intend to apply the method of analysis and interpretation of primary as well as secondary sources, such as commentaries on climate policy and scholarly literature on climate policy. Acknowledging that this topic has been studied by Afionis and Stringer (2012), we have carefully researched their results for our analysis, while also adding more contemporary data. Following Afionis and Stringer (2012, p. 12), who observe, that Brazilian policy-makers on the one hand welcome European involvement, but on the other hand complain about the EU's 'obsession' with the Amazon", which nevertheless results in other potential avenues of climate change cooperation, the chapter will focus on the cooperation between the EU and Brazil in the sphere of biofuels.[37] As analyses of the EU SPs with countries like China and India have already been widely examined (Afionis and Stringer, 2012, p. 8), this chapter attempts to make a contribution to the academic study and debate on the EU's SP with Brazil.

## 7.2 IS THE EU SPREADING ENVIRONMENTAL NORMS?

Since its establishment, the EU has made scholars wonder about and inquire into what interests such an atypical organisation pursues. Looking through academic writings, one sees that answering such a question was affected also by the changing understanding of power.[38] The question of interests the EU pursues has aroused

37 However, in line with the sharp increase of rainforest fires in Amazon during 2019, which represented an increase of over 80% over the same time period compared to the previous year (INPE, 2019), the issue of Amazon has once again peaked in importance and needs further scholarly attention. In addition, it cannot go unmentioned, that this might be in correlation with the new administration, led by president Bolsonaro (in power since January 2019), under which forest protection and enforcement of illegal logging has been weakened (Kaplan, 2019).

38 With traditional understandings of power as a coercive means (Dahl, 1957) being over time found to be outdated, and being replaced by its ability to influence goals, set agendas and use persuasion to encourage behaviour, and secondly also through the exercise of passive appeal encouraging emulation causing a change in behaviour (Lukes, 2005).

considerable interest in recent years, with academics and practitioners debating or arguing wheatear the EU is a civilian rather than military power (Duchêne, 1973, p. 20; Smith, 2005; Whitman, 1998), using soft power to affect behavioural changes through attraction rather than coercion (Nye, 1990, p. 8.). Furthermore, it is pursuing post-national or ethical interests in an attempt to shape global order through normative change rather than the use of force (Manners & Whitman, 2003; Therborn, 1997).

Interestingly, it was the explanation that the EU is not a conventional superpower-in-waiting that gained a lot of attention. An idea, which is based on Ian Manners' (2002) writings, in relation to which he argues that the EU as a normative power acts primarily through ideas and values, and not military or economic force. It is a suggestion that has provoked considerable interest among scholars of EU foreign policy (Adler & Crawford, 2004; Diez, 2005; Lucarelli & Manners, 2006), with some scholars applying this perspective to explain the EU's leadership on global environmental governance (Scheipers & Sicurelli, 2007; Vogler & Stephan, 2007). Even arguing as seen from the example of Leonard (2005, p. 2) that the EU plays the role of 'a new kind of power', with a focus on 'transformative power' that is reshaping the world according to own values and norms.

One can also find a variety of arguments in literature as to why the EU has started to prioritise spreading and externalising its environmental norms. On one side, Afionis and Stinger (2012) show that the EU often behaves as a 'soft imperialist', pursuing self-interested objectives, while hiding behind normative rhetoric; Manners (2007) arguing that the promotion of norms, such as sustainable development in order to legitimate itself with sceptical EU citizens (Manners, 2002, p. 244); Scheipers and Sicurelli (2007) suggesting that the EU has focused on environmental issues, such as climate change in order to develop its identity in contrast to 'the other' of the United States; and Vogler and Stephan (2007) suggesting that the EU's general commitment to multilateralism has been central in explaining its consistent support for multilateral environmental agreements. While the precise causal arguments vary, it does seem likely that the EU's desire to establish an identity and a reputation as a 'normative power' encouraged the EU's leadership position in global environmental issues. After all, García (2015, p. 623) shows the European integration project scores especially high in the field of latent power, having served as inspiration for other regional groupings.

While conceptualising EU as a normative power, the fact that the EU is an actor in possession of a combination of soft and hard power resources (Goldthau & Sitter, 2015) has also been taken in account. This meant that the EU began being associated with a specific type of international power – civil power (Scichilone, 2014, p. 248). This conceptualisation highlights the prevalence of civil action and the use

of economic instruments in opposition to the security and defence policy (Smith, 2004). From a civil power perspective, EU foreign policy can be seen to include a coercive dimension, since it resorts to forms of pressure, such as political, economic, and normative conditionality, and even to sanctions (mainly economic) and to military means (mainly in humanitarian and peace missions, which retain a significant civil dimension) (Telo, 2009; Azpíroz, 2015, p. 6).

Azpiroz (2015, p. 6–10) argues that through propagating the EU's soft power resources, which include culture, principles, institutions, and foreign policy strategies, EU public diplomacy contributes to the exercise of soft power, and even to some extent, to its normative and civil power. These soft power resources include: European Culture and Identity (uniting for peace and prosperity as a brand for presenting EU externally as an actor working towards common good and as a model for regional integration); EU Principles inserted into Article 10A of the Lisbon Treaty; EU Institutions: the European External Action Service (EEAS) and EU Foreign Policy Strategies. In relation to Foreign Policy Strategies, Azpiroz (2015, p. 10) adds that one can find that Article 10A of the Lisbon Treaty already mentions the fundamental aims that guide EU's international activities, building upon the EU's identity, principles, and political practices. In summary, these are: to defend peace; to support sustainable development as a means to eradicate poverty; to promote the removal of barriers to international trade; to provide humanitarian aid; and to promote an international system based on multilateralism.

With a slow start in the 1970s, during the 1980s and early 1990s, the EU emerged as a regional and global leader in many different fields of environmental politics and policy-making (Vogler, 2005; Zito, 2005). Such development was in opinion of Selin (2015) made possible because of the acceptance of a series of amendments to the Treaty of the European Economic Community (Rome Treaty), which expanded the EU's legal authority on environmental issues and increased the influence of EU bodies over individual member states. However, in the early years, the environmental legislation still represented an important part of the single market agenda, after all, the policy was established with the intention of establishing a level playing field across the EU (Burns, Eckersley & Tobin, 2019, p. 2). After over four decades of policy building in the field of environmentalism, EU law-making has yielded a large and still expanding body of environmental policy that includes rigorous mandates and standards. However, this complex governance system has produced decidedly mixed outcomes (Selin & VanDeveer, 2015, p. 327).

Presently, the strategy of the EU in the field of sustainable development is being focused more and more towards the outside. As the EC (2019a) has explained in its report *A Sustainable Europe by 2030* in scenario 3 (EC, 2019c, p. 38), to achieve the set goals, priority for the future needs to also lay in "Putting enhanced focus

on external action while consolidating the current sustainability ambition at EU level". After all, the EU already has developed high standards on the inside, established ambitious policies and championed the Paris Climate Agreement, however it is "through its external policies and open, rule-based trade agenda, /that/ the /EU/ has also shared sustainable solutions with third countries" (EC, 2019a, p. 2). In addition, the report also mentions that "the EU could decide to promote its environmental, social and governance standards more strongly through trade agreements and multilateral negotiations. The EU could also work even closer together with international organisations in pursuit of the same goals" (EC, 2019c, p. 38).

This position of the EC is well in line with Zelina's (2019) stance, who argues that in terms of sustainability the EU has a unique opportunity to re-establish itself as the leading actor. After all, the rising public awareness of global warming effects is presently increasing quickly and greater so at a higher rate than ever before. The current focus on the impending climate crisis should allow the EU to create a strategic agenda around an idea that both sets the EU apart from other powers and enjoys cross-border support amongst its own people. Public awareness of global warming effects is greater than it has ever been and is based on the Eurobarometer report on Attitudes of European citizens towards the environment (EC, 2017).

## 7.3 THE EU'S STRATEGY AT PLAY

While the EU's foreign policy activity and attention in regard to environmental cooperation with Latin America has arguably been mostly focused on laying the groundwork for a global climate change regime in line with the EU's environmental beliefs. In fact, as often stressed in policy statements and strategies, the EU continues to look for a partner in Latin America to create ambitious global climate change and other environmental biodiversity conservation regimes. This was first explicitly indicated in the 2003 European Security Strategy that in addition to its multilateral or global actorness, the EU also adopted a wide range of bilateral and interregional environmental relations with other actors globally (European Council, 2003).

Yet, despite the EU's support for universal norms and its global environmental leadership aspirations, it is also one of the world's largest trading blocs, presently accounting for around 15% of the world's trade in goods (Eurostat, 2019). Trade was often highly prioritised also in important policy statements and joint *communiqués*, where the EU has seemed rather unenthusiastic about putting environmental cooperation high on the list of priorities (Selleslaghs, 2017a, p. 13). Another explanation is offered by Van Schaik (2012) who explains that the EU has also been trying to team up with countries with a progressive agenda, within

which it aims to push for world-wide, strict and legally binding agreements on issues such as deforestation, reduction of greenhouse gasses (GHG), biodiversity conservation, etc. (Selleslaghs, 2017b, p. 26).

Although the EU's relations on a bilateral, bi-regional and multilateral level are not necessarily incompatible, they still might have opposing effects to the goals set in the EU's agenda (Renard, 2016, p. 28) and might lead to cooperation without full synchronisation. Thus, one can understand why the EU has created and managed various cooperation, exchange and mobility projects and organised joint initiatives, high level dialogues and information/best practices mechanisms in order to further its environmental agenda towards Latin America (Selleslaghs, 2017a, pp. 25–26). Such initiatives are found in the SP with Mexico and Brazil, with the SP with Mexico high-level dialogues on the environment and climate change having been established in 2011 and 2012 respectively. And most importantly within the EU and Brazil which for a number of years has held an annual EU–Brazil Dialogue on the Environment Dimension of Sustainable Development, discussing progress in international negotiations, domestic policies and technical cooperation and providing "a space for frank discussions" (Edwards & Roberts, 2013, p. 17).

## 7.4 THE EU-BRAZIL PARTNERSHIP

In the past, Brazil has been perceived as a distant country by the European Community. The wave of change came in the 1970s with the economic and commercial cooperation agreement (known as a 'first-generation agreement') with Brazil, which was institutionalised later, in the 1990s. Yet, in comparison to other regions, like African or the Pacific countries, Brazil and the entire continent of South America was still left at the margin of European foreign policy interests (Piening, 2017). It was not until 29 June 1992 and the signing of the Framework Agreement for Cooperation between the EC and Brazil, which is known as the first significant agreement between the two parties, that the dialogue between the EC and Brazil gained importance. The reason for that is the lead position Brazil started gaining after the Common Market of the South, known as 'Mercosur', had been founded (Ferreira-Pereira, 2016, p. 57). The Framework agreement incorporated a development clause that envisaged the future expansion of bilateral cooperation between the two parties. As Ferreira-Pereira (2016, p. 59) claims, it was the failure of the EU–Mercosur free trade agreement that created an increased interest in Brazil alone, which subsequently led to the SP formation.

The formation of the SP as a tool for reaching mutual benefit is a turning point in the bilateral relationship between the EU and Brazil. Their determination to maintain and build on the partnership is shown in the organisation of annual

dialogues that cover over fifteen areas, including: political issues and human rights, the environment and climate change, culture and education, maritime and air transport, energy, and science and technology (Delegation of the European Union to Brazil, 2016).

Not long after the formation of the SP in 2007, the first JAP was signed, which introduced the main focus areas of this new, reinforced cooperation. Out of the main five areas, which are stated in the introduction, the significant one for this chapter is "Enhancing the Economic, Social and Environmental Partnership to promote sustainable development" (Joint Action Plan, 2007, p. 1). In the first JAP one can find both the EU and Brazil showing determination to integrated work in the field of sustainable development and climate change. They agree not only to enhance the collaboration between themselves, but to work together on a multilateral level – both supporting and promoting the UNFCCC and the Kyoto Protocol (Joint Action Plan, 2007, p. 1). Both, the EU and Brazil, state they will do their best to reach the goals that were set on an international scale, calling on developed countries to take responsibility and show an example of reducing their emissions, while at the same time they stress the importance of developing countries in that process (Joint Action Plan, 2007, p. 11).

According to JAP, the parties show special interest in sustainable forest management and combating illicit trafficking of forest products. Moreover, they show their support in maintaining biodiversity, promising they will support sustainable methods by exchanging experiences on best practices (Joint Action Plan, 2007; Joint Action Plan, 2011). Furthermore, the parties have written that they will 'carry out training and capacity building activities' for their citizens, to preserve their land, forests and marine areas, and to organise joint projects which will be inspired by international targets and agreements (ibid). They will do so by investing in research and technology and sharing knowledge and good practices. The same is repeated in the second JAP (ibid).

Also, sustainable and reliable energy supplies have been placed high on their schedule. They believe enhanced usage of renewable energy with the focus on promoting energy efficiency is vital in reaching United Nations (UN) sustainable development targets. Both the EU and Brazil acknowledge the power of technology and the endless possibilities of today's world, where we can replace fossil fuels by other, cleaner energy sources. They see the opportunity here for mutual economic benefit by focusing on biofuels (Joint Action Plan 2007, p. 13). The Conference report emphasises this area to be "one of the building blocks of the EU-Brazil partnership" (Conference Report, 2012, p. 3). Subsequently, a EUR 500 million loan agreement between the European Investment Bank and the Banco Nacional de Desenvolvimento Economico e Social for renewable energy and biofuels projects

only supports the previous statement (Conference Report, 2012, p. 4). With that being said, it is not surprising they built on the topic of clean energy in the second JAP. Both guarantee free trade and promotion of investments in the clean energy sector. Enhanced focus on joint management of low carbon technologies is mentioned, as well as promoting biofuel markets on an international level and such energy in developing countries (Joint Action Plan, 2011, p. 22).

The second JAP does not differ from the first one, it only reconfirms the commitment to the same goals and strengthens the relationship and collaboration between Brazil and the EU. As stated in a conference report following the second JAP: "They agreed that the EU and Brazil will further deepen the political dialogue in order to generate a greater convergence of positions on key global challenges and in major international conferences and Summits". (Conference Report, 2012, p. 4). Developing sustainable development strategies and investing in joint research has been emphasised, as well as the plan to compensate third countries as part of their long-term commitment (Joint Action Plan, 2011, p. 20).

Instead of the third JAP, for the 10th anniversary of their SP, Brazil and the EU have voiced the success of a decade long collaboration in a Joint Statement in 2017. According to the statement, investments and trade have increased on both sides, as well as their collective projects that focus on research and development for the benefit of areas like science and innovation, information and communication technologies, energy, human rights, climate change, sustainable development and economic issues. In addition to the success on a bilateral level, they also mention their achievements on a multilateral level through deepening the dialogue between the EU and Mercosur (Joint Statement, 2017).

Moreover, on 28 June 2019, the EU and Mercosur reached a trade agreement following more than 20 years of negotiations.[39] With the EC stating that this Agreement would allow for the EU and Mercosur members to export more, strengthen workers' rights and ensure environmental protection, encourage companies to act responsibly, and uphold high food safety standards, as well as protect the quality EU food and drink products labelled as Geographical Indications from imitations (EC, 2019d). In the environmental sphere, the Agreement is said to prohibit either side from "encouraging trade and investment by: derogating from environmental laws failing to enforce environmental laws", while also "containing commitments on sustainable fisheries and sus-

39 However, the EU-Mercosur trade agreement needs to be ratified by the European Parliament and the Mercosur countries' congresses. The ratification is expected by 2021 (The Dialogue, 2019).

tainable forest management, among others", and both sides agreeing to "to effectively implement the Paris Agreement on climate change" (EC, 2019c, 14). In addition, the EC (2019c, p. 14–15) also mentions that these commitments on environmental protection (sustainable development) will be enforceable "through a dispute settlement mechanism".

The EU has been acknowledged internationally for caring about sustainability (Zelinia, 2019), at the same time it is also a global power whose foreign policy methods are associated with persuasion and cooperation, making the EU a power prone to use soft power (Azpiroz, 2015, p. 6). In the analysis of JAPs and the JS, we recognise the EU's will to keep building the SP and working toward tighter cooperation in the environmental sphere. Organising frequent summits and dialogues that led to the creation of the analysed documents gives the EU the opportunity to continue the conversation on the environmental issues stated in the SP, but also to react on the new ones that might arise through the years (Stattman and Gupta, 2018, p. 11). It is through summits and political dialogues that the EU is applying its soft power as they allow frequent cooperation, which creates an opportunity to deepen the relationship, leading to mutual understanding, networking, expressing ideas and creating future plans. As can be seen, the EU's implementation of soft power largely relies on developing continuous cooperation under the SP (Azpiroz, 2015, p. 26).

Soft power "means getting others to want the same outcomes you want" (Nye, 2004, p.7). If we look at the example of the EU and Brazil, the summits and dialogues are an important way for the EU to adjust its methods and understand how its attempts are being portrayed by Brazil. Also, they allow the EU to transmit its own knowledge and expertise, which will produce a favourable outcome in the future (Azpiroz, 2015, p. 25).

Apart from creating new opportunities to apply its soft power methods through enhanced cooperation, the EU uses the SP to attract Brazil by promoting the economic benefit, gained from trading more sustainable products (Zeilina, 2019). Brazil seems to be a relatively closed economy – its tariffs on imports are around 8.3%, the highest among other emerging and advanced economies (Dutz, 2018). In addition, the number of exporters relative to the population is very small (Picanco, 2018). However, thanks to the SP, the EU benefits from "reduced tariff and non-tariff barriers and maintains stable rules and regulations for investors and traders" (EEAS, 2016). Following the second JAP, in 2012, the EU was the second most active trade partner in the region and the most important foreign investor; it was also an important donor of official development aid (Azpiroz, 2015, p. 11).

The SP has created new opportunities for economic cooperation (Zeilina, 2019), among which we will look more closely into the cooperation in the field of biofuels.

After all, biofuels have been portrayed as a key component of building the SP in JAPs (Conference Report, 2012, p. 3).

## 7.5 COOPERATION IN THE FIELD OF BIOFUELS

Brazil has shown a lot of willpower to implement sustainable development over the past few years. In 2018, renewable sources generated 88% of energy in Brazil, with hydropower and biofuels as the main contributors (Brasilia, 2018). However, Brazil is still one of the biggest polluters in the world. It can be argued that the EU is aware of Brazil's significant role in tackling climate change on a global scale, hence its readiness to work with Brazil more closely (Afionis and Stringer, 2012, p. 54). Furthermore, in 2003, the first EU Directive on the use of biofuels and renewable fuels entered into force. The goal was to promote the usage of biofuels and renewable energy in general as an alternative to fossil fuels in transport (Directive 2003/30/EC). As a result, the use of biofuels for road transport increased to 2.6% in 2007 (Stattman and Gupta, 2018, p. 4). During that time, Brazilian production of sugarcane ethanol was high with very low production costs (ibid). Moreover, it was that same year that saw the two parties enter the SP.

Shortly after formalising the SP, the EU hosted the International Conference on Biofuels, designed to offer an opportunity to widen cooperation with Brazil. The aim was to develop "common standards in order to enable an international market to grow whilst ensuring sustainable production, resulting in the reduction of GHG emissions, and addressing other sustainable development objectives" (EEAS, 2016). The SP has created an enhanced relationship between the two parties and the conference is an example of taking this partnership in a direction that corresponds to the EU environmental values. We see this move as an 'attempt to attract' Brazil to take a sustainable approach in the production of biofuels. The EU and Brazil, as shown in JAPs, acknowledge the mutual benefit from biofuel trade, but the EU is taking a step further by inviting Brazil to benefit from the knowledge on how to execute production in a more sustainable way. This will lead to the EU demanding the imported biofuels to be sustainable in the future.

In 2009, the EU launched a Renewable Energy Directive (RED). By 2020, the EU aims to have 10% of the transport sector fuel come from renewable sources such as biofuels (RED, 2009, art. 8). The target has been raised to 14% until 2030, when the EU sets to introduce the Renewable Energy Directive II (RED II) (RED II, 2018, art. 25). Moreover, the EU promised to ensure the commercial availability of second-generation biofuels, as first-generation biofuels could have a severe environmental impact (RED, 2009, p. 2). Detailed reports from the importers on land-use change will be requested in the future, as well as other environmental

impact data from the increased production of biofuels. Thus, the RED is making sustainability objectives that are officially part of EU biofuel policies by defining basic sustainability criteria (Stattman and Gupta, 2018, p. 4). The RED II took a step further, taking stricter measures in addressing the indirect land use change (ILUC) and capping the use of conventional (food based) biofuels at 7% and setting nonbinding national targets for advanced biofuels (non-food based) at 0.5% for overall energy use (RED II, 2018. art. 25).

Initially, Brazil was not content with the new directives and their influence on future cooperation. President at the time of the first RED, Lula da Silva, demanded lower trade barriers for biofuels, claiming "this step would reduce global pollution from GHG, strengthen energy supplies for rich countries and raise incomes in poor nations" (Stearns, 2014). In addition to certain dissatisfaction from the side of Brazil, Stattman and Gupta (2018, p. 5) pointed out that the EU, by raising its environmental standards, is actually increasing the GHG in other developing countries that serve as suppliers, among which was Brazil. The people in Brazil started blaming the increased production of biofuels for the increased price of food; with some even claiming that sugar cane production is one of the core causes of deforestation of the Amazon (Guardian, 2014). Even though the government of Brazil contradicted this statement, it was clear to the EU that a need to straighten the measures and set boundaries for imported biofuels existed (Stattman and Gupta, 2018, p. 5).

Even though the producers of soybean-based biodiesel in Brazil will have to adjust their production methods to demonstrate their GHG emissions are in accordance with the standards of the directives, the sugarcane-based variant has a lot of potential, as the GHG emissions suit the directive's rules (Zahnister, 2014, p. 10). Also, Lendle and Schaus (2010, p. 9) believe that the possible negative effects of soybean production on the rainforest are not concerning, as sugar cane production mainly takes place on former pasture land. Moreover, to prevent deforestation and ensure that the exported biofuels are in accordance with the directives, the land with large surfaces covered in native vegetation will be protected, thus preventing the use of sugarcane cultivation. The same is applied for the protected areas like the Amazon and Pantanal (ibid).

Nevertheless, both parties have decided to collaborate to enhance production and reduce the impact on the environment, as is clearly seen in the analysis of JAP. They issued a call for proposals and projects that will focus on the development of advanced technologies for the production of second-generation biofuels from Brazilian and European feedstock (EC, 2011). Furthermore, since 2017, Brazil started the process of implementing the so-called RenovaBio law, whose goal is to stimulate the production of biofuels such as ethanol, biodiesel and biogas and

doing so in a sustainable way, thus decreasing GHG emissions and reaching the targets set by the Paris Agreement (Cantarella, 2018).

The EU is a large global economic power, and by introducing the mentioned directives with set targets, the EU became one of the largest markets for sustainable biofuels (Stattman and Gupta, 2015, p. 42). These actions have stimulated Brazil to reshape the environmental sustainability of its biofuels, particularly ethanol (Stattman and Gupta, 2015, p. 46). Unlike the previously presented methods of soft power usage by deepening the good relations, in the case of biofuels, the EU decided to impose its will. This was also noticed by scholars Afionis and Stringer (2012), giving the EU the title of 'soft imperialist'. What we see from these actions is the level of importance the environmental issues have for the EU – imposing strict sustainable criteria could have had a serious impact on its relations with Brazil, however, it resulted in Brazil taking a positive approach towards sustainable methods in the biofuels sector.

## 7.6 CONCLUSION

Throughout this chapter, the focus of our research was on examining how the EU employs its role of an environmental protection advocate while looking at the SP with Brazil. More precisely, how is the EU's soft power propagated through the SP. The research analysed the element of soft power in the EU's foreign policy through the work of numerous scholars. We showed the EU's aim is to build on its identity, principles, and political practices in the area of environmental protection, written in resources such as the foreign policy strategy implemented by the EEAS and EU Principles that can be found inside the Lisbon Treaty.

The chapter discussed how the present strategy of the EU in the field of environmentalism is being focused more and more towards the outside. Thanks to the enhanced public awareness of global warming effects, the EU has a unique opportunity to re-establish itself as the leading soft-power actor in the field of the environment. Thus, the EU continues to look for a partner in Latin America to create ambitious global environmental changes and Brazil is seen as an important ally due to its size and influence in the region.

The SP between the two parties that started in 2007 has marked the environmental protection as its vital part. Brazil and the EU set goals to cooperate in the fields of sustainability, deforestation and biofuels, which was written in two JAPs and announced in JS. It is through frequent dialogues that the EU is able to strengthen this relationship – a crucial factor in applying soft power. Moreover, the SP paved the way for the EU to attract Brazil to its ideas by opening up a possibility of

economic gains. When examining the cooperation in the area of biofuels, the EU has been able to: engage its soft power, use established diplomatic mechanisms in combination with the EEAS Brazil, organise an international conference on biofuels as well as other events where shareholders shared knowledge aimed at developing common standards, and ensure sustainable production. In addition, it also issued a call for proposals and projects that will focus on the development of advanced technologies for the production of second-generation biofuels from Brazilian and European feedstock, thus influencing behavioural changes by using attraction rather than coercion. The EU, while pursuing its interests, also influenced the reshaping of the biofuels market.

Based on our analysis, we conclude that the EU has been able to use the special relationship in the form of an SP with Brazil as a tool to exercise its soft power in the environmental sphere. After all, the SP created common areas of interest and has been able to give the EU the opportunity to strengthen the cooperation between the actors on a bilateral level, engage in continuous dialogue, include shareholders in an attempt to attract Brazil towards its interests, and finally affect changes in behaviour and viewpoint on environmental protection and sustainable development.

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# 8 THE EU'S COOPERATION WITH AFRICA IN THE FIELD OF ENERGY: SPILL-OVER EFFECT OR OUTSOURCING?

**Ana Klemen and Patrik Bole**[40]

## 8.1 INTRODUCTION

The EU's transition to a more sustainable and green Energy Union has been high on the Juncker's European Commission's agenda. The end goal of such transformation is to achieve a carbon-free society in line with the 2015 Paris climate agreement. This process, among other things, entails strengthening of the EU's external dimension by enhancing its global leadership role, especially in the field of the environment (European Commission, 2017, p. 3). A multilateral approach to the environment has become a general characteristic of the external action of the EU. However, this characteristic contradicts the sovereignty approach pursued by the United States and China, as the EU tries to profile itself as a "soft power" in the field of environmental politics (Delreux, 2016, p. 299). Due to its proximity and unused energy potential, Africa has sparked the EU's interests for cooperation in the field of energy. The fundamental instrument for cooperation between Africa and the EU in the field of environmental protection is the Joint Africa-EU Strategy (JAES), whose bases are, according to its text, the principles of partnership, ownership and solidarity (European Commission, 2018).

One of the most important fields of the Africa-EU cooperation under JAES is energy. The EU and African countries agreed that they will strengthen their cooperation and solidarity in the sustainable management of energy resources and that they will aim at continuing to promote energy access, security and safety, and regional cooperation (European Commission, 2007). In order to do so, they established the Africa–EU Energy Partnership (AEEP), which is a channel between the two continents that aims to address common challenges of energy security and access to new and renewable energy and efficient, affordable and clean energy services (*ibid.*). One way to achieve this goal is to increase investments in the African

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energy infrastructure by the EU (*ibid.*). In order to achieve the goals in line with JAES and AEEP, African and the EU ministers adopted a series of what they called realistic, measurable and concrete political targets, known as the 2020 Targets, at the AEEP's first High Level Meeting in 2010 in Vienna (EUEI.org, 2018).

The sustainable energy transition model (SET model) stipulates that transformation to a zero-carbon society includes technologically advanced society meeting all of its energy needs by using energy from renewable resources while ensuring enough energy for the whole of society. This model also states that for larger economies this process is significantly slower than for smaller economies, due to more extensive infrastructure. According to the theorists of SET, innovation will eventually bring about the standardisation and general adoption of the carbon-free society model, starting in the world's most developed countries and then spreading to the countries on the periphery. Furthermore, according to the SET model, developed countries and trends on the global level can shape opinions on fossil fuels and clean energy policies in other, less developed countries. However, some authors (Charles et al., Ölund and Mobarek), whose suggestions we deal with in this chapter, claim that this is not necessarily the case and that developed countries, such as the EU Member States, can be using energy partnerships for their own benefit – to speed up their transition into carbon-free societies.

The EU countries are much more developed than African countries in terms of economy and access to energy, which is why the EU-Africa cooperation in the field of energy is rather interesting and unusual. A huge part of Africa's population (for example 24% of the population of Sub-Saharan Africa (Waiyaki Nganga, 2016) still lacks access to electricity, while Africa's economies are growing, which exposes the need for the development of its energy structure. This could be achieved, for example, by foreign investments, assistance and knowledge-sharing. Therefore, it is quite clear why African countries entered into the energy partnership with the EU in the first place, while the EU's motives are not so obvious. In line with the SET model, AEEP could be seen as a result of a spill-over effect, meaning that the EU's policies regarding transition into zero carbon societies affected Africa's views and policies on this matter and that the EU is only assisting Africa. On the other hand, the EU has its own agenda of reaching a carbon-free society and could be assisting Africa in order for it to produce more clean energy which the EU could then import. The aim of this chapter, therefore, is to critically assess the EU's cooperation with Africa in the field of energy. This chapter will try to answer the following research question: *How can we understand and evaluate the EU's cooperation with Africa in the field of energy through the SET model?* In order to do so, the main method used is the analysis of primary and secondary sources.

The first part of this chapter includes a literature review regarding Africa's energy potential for the EU and regarding SET model, which is the theoretical starting point for the research done in this chapter. In the second part, dedicated to analysis, the following is analysed: (1) the EU's clean energy consumption, production, and needs, to see if Africa's clean energy was and will be needed in the EU; (2) the EU's energy policies and targets for the future to determine whether they predict the import of clean energy from Africa to the EU; (3) the progress of the implementation of 2020 Targets to see which goals have been implemented in order to see who they benefit; (4) production and consumption of clean energy in Africa in the period before the establishment of AEEP compared to the latest data to determine whether the EU could have affected the speed of Africa's transition into a carbon-free society. In the third part, findings are drawn based on the analysis and conclusive remarks are laid down.

## 8.2 CONCEPTUAL FRAMEWORK: AFRICA'S ENERGY POTENTIAL AND SET

First and foremost, one should be aware that energy affordability in Africa is a critical issue due to low incomes combined with inefficient and expensive forms of energy supply. Furthermore, electricity prices are very high by world standards, with access to modern energy sources being limited. In oil producing countries, oil production is being subsidised (IEA, 2014, p. 19). It is concerning that only 24% population of Sub-Saharan Africa has access to electricity,[41] and what is more, Africa's energy generation capacity bar South Africa stands at 26 Gigawatts, equalling the energy capacity of Argentina alone, for example (Waiyaki Nganga, 2016). Interestingly enough, Africa is rich with energy resources, while most of its energy potential remains unexploited. It is estimated that Africa's energy generation capacity could be up to 1.2 terawatts without solar energy, and 10 terawatts with solar energy included, with the latter being a source that Africa has in abundance. It is also estimated that by 2030, more than 25% of Africa's total energy will come from various clean energy sources, which represent a substantial increase from 2013, where such estimation for 2040 was held at 5% (*ibid.*).

In terms of renewable energy, one of the 2020 Targets is also the deployment of 10 GW of additional renewable energy capacity in Africa by 2020, with the largest capacity additions predicted to come from wind power (IASS, 2016, pp. 25–26). As

41 In 2019, the population of Sub-Saharan Africa was estimated at over 1 billion and represents 14.37% of all the world's population (World Population Review, 2019).

such, a great opportunity for Africa remains in terms of renewable energy, since the energy sector is vital for the continent's future development and national governments have a substantial role to play in ensuring such development (Waiyaki Nganga, 2016).

According to Charles et al. (2009, p. 5549) the main goals that the EU pursues through JAES are to find a solution to "a) the EU's overall energy vulnerability and desire to reduce its reliance on imported fossil fuels for transport; b) the requirement for diversification of its energy sources; c) securing biomass for its biofuels production; d) increasing the use of greener energy within the Member States; e) meeting its ambitious short-term targets for biofuel use" (*ibid.)*. Africa represents a logical export partner due to historical and colonial connections to Europe and it has a lot of physical space for the production of biomass and other renewables which the EU lacks, not to mention that Africa has always been a source of human, agricultural and mining resources for Europe (*ibid.*). Because of its geographical proximity to Europe, it makes sense in terms of logistics as well as transport to source energy from Africa in order to increase the EU's energy security (Charles et al., 2009, p. 5550). In order to address the problem of its dependence on the external supply of fossil fuels, the EU is determined to secure a variety of sustainable energy supplies, such as nuclear, wind, sea and geothermal energy (*ibid.*). In fact, solar power production in the Saharan desert and hydropower projects on African rivers have great potential to lower the EU's dependency on fossil fuels and augment its use of sustainable energy resources (*ibid.*).

What is more, Mobarek (2016) states that since the EU adopted a series of ambitious climate change targets, it should re-think the logic behind continuing to subsidise renewable energy projects in the EU, while clean energy can be obtained at lower prices from its neighbours who are rich in renewable energy resources. Better wind and solar conditions on the southern Mediterranean coast and in North African countries make up for lower energy production costs in comparison to the EU. For example, Morocco already has a 400 MW link of clean energy with Spain with on-going solar and wind energy programmes that aim to increase its wind and solar capacity in the next years for at least 4,000 MW. For that reason, the import of clean power from Morocco to the EU is possible without any significant investments in transmission infrastructure (*ibid*). By importing renewable energy, the EU could also increase its energy as diversification could lead to a lowered reliance on gas imports (*ibid*).

Global economy is nearing the carbon emission threshold and is set to exceed the point of no return in the event no actions are taken, posits Giddens, who argues for the necessity of alternative energy sources in order to replace contemporary infrastructure to meet future energy needs (Giddens, 2009). Dodging the point

of no return would require alternatives in the form of a new energy transition, as current systems are unsustainable in the long run, claims Grubler (2012). Perhaps a goal of long-term sustainability could be reached through transformation to a zero-carbon society, as proposed by the *sustainable energy transition* (SET) model. Sgouridis (2014, p.3) defines this model as "/.../ a controlled process that leads an advanced technical society to derive all of its energy needs from renewable resources while maintaining sufficient final energy services per capita." The model envisages the transformation of an economy based on depleting energy stocks to an economy based on renewable energy flows (Sgouridis and Csala, 2014, p. 2609).

As the authors state, the SET model holistically addresses sustainability attributes of energy transition. When devising this model, the authors considered Grubler's (2012) insights on transition, which assumes that energy end-use capacity precedes the energy generation capacity. It also argues that energy transitions rates vary between larger and smaller economies, as the former have a more extensive infrastructure and the processes is slower in contrasts to the smaller economics. Thus, theorists of energy transitions models would claim that sustainable transition encompasses the interplay of technology, regulatory frameworks, society, and the market environment (Batinge et al., 2019). Looking at the technological factor, Grubler argues (2012) that similarities in patterns can be drawn between energy transition and the s-curve, which illustrates the technology diffusion processes (*ibid*). This in turn means that innovation will eventually lead to general adoption and standardisation, spreading from the global centre to the countries on the periphery.

Yet, for the adoption of new technologies, as Batinge et al. (2019, p. 1092) argue, one has to consider the interaction between society and technology, which depends on a wide range of factors, such as the stage of development and the benefits that this technology can offer to society. The level of development is especially important since contemporary transition paradigms in energy are devised based on a locked-in fossil regime, whilst the deficit in energy services might not have been extensively considered in research focusing on exploring potential transition guidelines to sustainable energy sources (Batinge et al., 2019, p.1094). As Batinge et al. claim (*ibid.*) the reason can partly be attributed to the fact that the frameworks were developed in a context where electricity markets' demands are satisfied.

In this chapter we focus on relations between the EU and Africa in the field of energy, where the latter is perceived as an unmet power market.[42] In the absence of a conventional path dependent energy infrastructure, there is limited friction

42 Scott (2015) asserts that the size of an unmet power market is approximately 60% of the population, equivalent to about 600 million people.

on renewable energy growth. Therefore, a considerable opportunity for unmet markets to adopt contemporary renewable energy technologies exists.

The socio-technological landscape policies on the global level also influence society's energy consumption behaviours and indirectly shape opinions on fossil fuels and the receptivity to renewable energy (Betinge et al., 2019, p. 1093). The EU policies, especially those pertaining to energy, climate, carbon tax and trading, might also have a spill-over effect on the development of energy in Africa (*ibid.*). In fact, some of these policies have led to funding projects for Africa from the EU, such as the European Union's Electrification Financing Initiative, the Africa-EU Renewable Energy Programme, the Sustainable Energy Fund for Africa, among others, to support clean energy in Africa (*ibid*). In general, spill over in economic terms refers to »the impact that seemingly unrelated events in one nation can have on the economies of other nations« (Investopedia, 2019). It is a common unwritten rule that the larger a certain economy is, the more spill-over effects it is likely to produce across the global economy (*ibid.*). For our research specifically, technological spill-over effect plays an integral role. The latter is defined as »beneficial effects of new technological knowledge on the productivity and innovative ability of other firms and countries« (Jesselyn & Mitchell, 2015, p. 212). To understand the role of EU in this field, Jaffe et al. (2015) posit that "energy public policies play an important role in stimulating innovation in this sector, since private firms have too weak incentives to invest in clean technologies«. This could be the case for firms in Africa in general, thus it is worth highlighting here that Grosse-Puppendahl et al. (2017, p. 4) observe the EU's financial instruments for access to energy and report that European Council emphasised »/.../ the need to crowd in private sector finance by using innovative financing and project development initiatives and instruments, such as the Electrification Financing Initiative (ElectriFI), the Africa-EU Renewable Energy Cooperation Programme (RECP), and the Regional Investment Facilities, as well as through the guarantee fund proposed as part of the External Investment Plan«. At this point, it is also worth citing theoretical model devised by Liu et al. (2016, p. 4), albeit focusing their research on China, where they posit that »/f/oreign capital investment used for renewable energy technology will increase the investment of environmental protection, such as the new equipment installation of waste water and solid and the development of production process for low energy consumption and emission.« The latter is meant to be showcase a result of the impact of technology spillover on environmental performance as one of the example of a spillover effect. In our research therefore, we could perceive that the EU is trying to stimulate the development of clean energy in Africa through its instruments and cooperation.

Looking at the SET model, we can lay down three initial assumptions about Africa: (1) its economy is much smaller than the EU's, comparing their GDPs (the EU's

GDP in 2018 was 18,769billion $ (Statistic Times, 2019), while in the same year Africa's GDP was 2,337 billion $ (Statistic Times, 2019a); (2) its level of technological development is much lower than the EU's; (3) Africa is perceived as an unmet energy power. Considering all these assumptions, we will evaluate the EU's energy cooperation with Africa through the SET model. Our primary goal is to determine whether this cooperation can be considered as a result of the spill-over effect, meaning that the EU's policies regarding transition to carbon-free society affected Africa's policies in this field as well, or is the EU searching to supplement its own clean energy resources by outsourcing clean energy from Africa to achieve its transition into a carbon-free society, as Charles et al., Ölund and Mobarek suggest. We shall achieve this by (1) examining the EU's clean energy consumption, production, and needs, to see if Africa's clean energy was and will be needed in the EU; (2) looking into the EU's energy policies and targets for the future to determine whether they predict the import of clean energy from Africa to the EU; (3) examining the progress of the implementation of 2020 Targets to see which goals have been implemented in order to see who they benefit; (4) comparing the production and consumption of clean energy in Africa in the period before the establishment of AEEP compared to the latest data to determine whether the EU could have affected the speed of Africa's transition into a carbon-free society.

## 8.3 OVERVIEW OF EU AND AFRICA IN THE FIELD OF ENERGY

### 8.3.1 EU's energy consumption, production and needs

The EU's energy market is the world's largest regional market and the EU is the world's largest importer of energy (European Commission, 2010). In 2016, the EU consumed 1640.62 Mtoe of energy and this figure has not changed much since 1995 (European Commission, 2018a, p. 41).[43] The production of energy in the EU, however, has been gradually decreasing over the years – from 969.3 Mtoe of energy in 1995, to 770.4 Mtoe in 2016 (European Commission, 2018a, p. 35). This means that net energy imports into the EU have risen in the same period – from 736.43 Mtoe in 1995 to 903.71 Mtoe in 2016 (European Commission, 2018a, p. 38). In 2016, the EU imported 53.6% of all the energy it consumed and its import dependency has risen by 24.5% in comparison to 1995 (European Commission, 2018a, p. 66).

43 Mtoe stands for million tons of oil equivalent (Eurostat, 2019).

Of all the energy consumed in the EU in 2016 almost 35% came from petroleum and products, while 23% came from gases (European Commission, 2018a, p. 22). Similarly, the majority of energy imported into the EU came from petroleum and products (58.6%) and gases (29.8%) (European Commission, 2018a, p. 39). Between 1995 and 2016, the imports of all types of fuels have risen, with the import of gases and electricity almost doubling (European Commission, 2018a, p. 45–59).

Most of the energy imported into the EU comes from Russia, but the African continent is also one of the main suppliers. Several African countries can be found among major energy exporters to the EU. Nigeria, Algeria, Angola, Libya and Egypt are all among the top 15 exporters of crude oil and liquefied natural gas to the EU. The export of this type of fuel from other African countries has also risen significantly between 2010 and 2016 (European Commission, 2018a, p. 64). Algeria, Nigeria and Libya are also among the top 8 suppliers of natural gas to the EU. It is interesting to note that the export of natural gas from all these three countries was rising fast between 1995 and 2010 before decreasing in the period between 2010 and 2016 (European Commission, 2018a, p. 65).

In 2017, 17.5% of all the energy consumed in the EU came from renewable energy (European Commission, 2019b, p. 10). Even though this represents a significant increase from 5.1% in 1995 (Waiyaki Nganga, 2016). In the period from 2014 to 2017, the pace of the increase of this share had slowed and for that reason it is of the utmost importance to redouble efforts in order to reach the 2030 target of 32% (European Commission, 2019b, p. 10). Looking at the latest draft plans, in 2030 the share of renewable energy consumption will reach between 30.4% and 31.9% at the level of the whole of the EU, so new robust policies and measures must be taken by the EU member states (European Commission, 2019b, p. 3). While renewables make up a major share (27.4%) of the energy produced in the EU, they represent only a very small percentage (0.6%) of all the energy imports (European Commission, 2018a, p. 36, p. 39) and in their reports to the European Commission, the EU member states did not really express intentions to import more renewable energy from non-EU countries, such as African countries.

Based on the data acquired, we can see that in the last two decades the EU has been becoming more and more dependent on energy imports, but not on renewable energy imports which represent only a minor share. In the same period, the EU has been importing crude oil and liquefied natural gas from several African countries in quantities that are not insignificant. However, the EU imports less than one percentage of renewable energy from non-EU countries and this number has not changed much since 2007 when JAES was established, meaning that the EU certainly has not been outsourcing clean energy from Africa. Considering their reports, they also do not intend to.

### 8.3.2 EU energy policies and strategies

In 2010, the European Commission adopted "Energy 2020 – a strategy for competitive, secure and sustainable energy" outlining the main goals of the EU energy policy until 2020, which are to reduce its greenhouse gas emissions by at least 20%, increase the share of renewable energy to at least 20% of consumption, and improve energy efficiency in order to achieve energy savings of 20% or more (European Commission, 2010, p. 2). This strategy identifies 5 priorities designed to achieve the following goals (European Commission, 2010, p. 5–6): (1) achieving an energy efficient EU; (2) enabling free movement of energy and building a pan-European integrated energy market; (3) empowering consumers and achieving the highest level of safety and security; (4) strengthening the EU leadership in energy innovation and technology; (5) strengthening the external dimension of the EU energy market. The latter is very important for our research, because this priority talks about building energy partnerships with non-European countries, such as African countries (JAES) in order to provide sustainable energy in line with the Green Paper on the Development Policy (European Commission, 2010, p. 19).

Furthermore, in 2014, the European Commission adopted the 2030 Framework for climate and energy that includes targets and policy objectives that the EU aims to achieve in the period between 2020 and 2030 (European Commission, 2014). One of the main targets is to ensure that at least a 32% of all the energy consumed in the EU comes from renewable sources, meaning it will have to almost double this number from 2017 (17.5%). This agenda also proposes to diversify the supply of the imported energy and sets itself the task of reducing greenhouse gas emissions for 40% by 2030, relative to 1990 levels (European Commission, 2014). Other broader goals within the 2030 Framework aim for a) an at least 40% reduction in greenhouse gas emissions (from 1990 levels), b) an at least 32% share for renewable energy c) an at least 32.5% improvement in energy efficiency (European Commission, 2019b).

Looking beyond 2020 and 2030, the European Commission has in 2011 also laid out an Energy roadmap 2050, which explores different routes towards energy decarbonisation and refers to areas such as energy efficiency, renewable energy, nuclear energy, and carbon capture and storage (European Commission, 2011). With this Roadmap, the EU expresses its commitment to reduce greenhouse gas emissions to 80–95% below the 1990 levels by 2050. What is important to note is that the roadmap merely introduces different scenarios that the EU can follow to achieve the goal of gas reductions targets. Interestingly enough, the roadmap puts focus on North Africa as well as with a view of how to best harness the solar energy potential of the Sahara in order to expand and diversify links between the European network and neighbouring countries (European Commission, 2011, p. 18).

In 2015 however, the EU committed itself to another major goal in light of the Paris Agreement. The EU and its member states outlined what post-2020 climate actions they intend to take under the Paris Agreement. The EU communicated their INDC (Intended nationally determined contribution)[44] in a commitment to a binding target of an at least 40% domestic reduction in greenhouse gas emissions by 2030 compared to 1990 (Council of the EU, 2015, p. 1). This ambitious goal portrays the EU as the leading agent in global climate change action in comparison to other non-EU member states, for example (Carbon Brief, 2015).

### 8.3.3 The EU-Africa cooperation in the field of energy

The EU and Africa's mutual interests are reflected in JAES, which is the fundamental instrument for cooperation between Africa and the EU in the field of environmental protection (European Commission, 2018). JAES is a document that was adopted at the Africa-EU Lisbon summit in 2007 with a view to establishing long-term cooperation on mutual and complementary interests that had been jointly identified (*ibid.*). According to this document, its basis are the principles of partnership, ownership and solidarity, and its main goal is to bring African and European continent closer together by strengthening economic cooperation and promoting sustainable development, and to ensure that that the two continents live side by side in peace, democracy, human dignity, security, prosperity and solidarity (*ibid.*).

One of the fields of the African-European cooperation outlined in the JAES is also energy. Under Paragraph 81, the sides involved in the Strategy agreed that due to international energy challenges the EU and African countries should focus more on sustainable energy in their relations (European Commission, 2007). This article also states that the two sides will strengthen their cooperation and solidarity in the sustainable management of energy resources and that they will aim at continuing to promote energy access, security and safety, and regional cooperation (*ibid.*). Paragraph 82 establishes the Africa–EU Energy Partnership (AEEP) which is a channel between the two continents that will address common challenges of energy security and access to new and renewable energy and to efficient, affordable and clean energy services (*ibid.*). What is more, under this Paragraph African and the EU countries pledged to mobilise increased investments for energy infrastructure on the African continent, both through the existing EU Energy Facility and other financial instruments (*ibid.*). Paragraph 83 states that the two sides will try to launch a dialogue on the peaceful use of nuclear energy (*ibid.*).

44 The Paris Agreement requires each Party to prepare, communicate and maintain successive nationally determined contributions (NDCs) that it intends to achieve (UNFCCC, n. d.).

AEEP was established as one of the eight partnerships under JAES and is a strategic dialogue between African and the EU countries, whose most important objective is supposed to be the improvement of access to sustainable, secure and affordable energy in Africa (EUEI PDF.org, 2018). Its special focus is the increase of investments in African energy infrastructure (*ibid.*). Political guidance for the partnership is provided by the Steering group, whose current members are the Common Market for Eastern and Southern Africa Secretariat, the African Union Commission, the European Commission, Egypt, Germany and Italy (AEEP Forum.org, 2018). The Secretariat's job is to foster a strategic political dialogue and network between African and the EU countries (EUEI PDF.org, 2018). In order to achieve the objectives, outlined in JAES, the EU and African ministers adopted what they called a series of realistic, measurable and concrete political targets called the 2020 Targets at the AEEP's First High Level Meeting in 2010 in Vienna (EUEI PDF.org, 2018a). These goals are divided into three pillars:

1. Access to modern and sustainable energy to at least an additional 100 million Africans (ibid.).
2. Energy security; the goal is to double:
   - the capacity of cross-border electricity interconnections;
   - the use of natural gas;
   - African gas exports to Europe (*ibid.*).
3. Renewable Energy and Energy Efficiency:
   - 10,000 MW of new hydropower;
   - 5,000 MW of wind power;
   - 500 MW of all forms of solar power;
   - 3x the capacity of all other renewables (such as biomass and geothermal energy);
   - improve energy efficiency in Africa in all sectors (*ibid.*).

The first pillar aims at improving the lives of Africans by providing them with modern and sustainable energy. The goals under the second pillar are aimed towards improving energy security on both continents – Africa and Europe – by strengthening energy links between its countries. The goals under the third pillar, however, are very concrete and primarily aim at improving energy efficiency and access to renewable energy of Africans. However, by strengthening the existing and building new energy links those goals could also apply to the EU.

Until 2019, two reports on the progress of achieving the 2020 Targets have been published – one in 2014 during the AEEP's Second High Meeting and the other in 2017 (*ibid.*). The second report focuses, among other things, on what has been done so far with regard to achieving the 2020 Targets. The first important finding of this report is that renewable energy capacities in Africa have increased immensely

in the period between 2010 and 2016 (EU Energy Initiative Partnership Dialogue Facility, 2017, p. 11).

The goal under the third pillar, namely, to increase all forms of solar power for at least 500 MW was achieved in only four years; in 2010, African solar facilities provided only 146 MW of energy, but at the end of 2016 this number reached 2,382 MW (EU Energy Initiative Partnership Dialogue Facility, 2017, p. 12). It is predicted that additional 7.7 GW will be installed by 2020 (*ibid.*). The goal of installing 5,000 MW of wind power has not been met yet, however, it will likely be met by 2020, since by the end of 2016 African wind power capacity had already risen to 3,822 MW (*ibid.*). Hydroelectric power is the dominant source of renewable energy in Africa, since in the time period between 2010 and 2016 additional 6,984 MW were added to the national grid (*ibid.*). What is more, there are large hydropower projects under construction at the moment that are scheduled to become operational by the end of 2020 and will add more than 40 GW to the grid (*ibid.*).[45] The goal of producing 10,000 MW of new hydropower by 2020 will therefore be met as well.

Other renewables, such as biomass and geothermal energy, have more than doubled in the years 2010–2016 (from initial 676 MW to 1,513 MW in 2016) and a huge geothermal energy project in East Africa that is currently in its last stages of construction will provide additional 3 GW (*ibid.*). Therefore, the aim to triple the capacity of other renewables by 2020 should be met, too. However, African countries still have great potential for increasing energy efficiency, for no significant progress has been made in this field, because none of the specific goals under the second pillar have not even remotely been met (*ibid.*).

Yet another goal has already been met: the goal to secure access to sustainable energy to additional 100 Africans (1st Pillar) – in 2016, 544 million Africans had access to electricity in comparison with 307 million in 2010 (*ibid.*).

As of the second pillar – energy security – no significant progress has been made so far. Since 2010, no new operating lines for cross-border electricity connections have been established, the domestic consumption of natural gas is increasing very slowly, and African natural gas exports to the EU are actually falling (EU Energy Initiative Partnership Dialogue Facility 2017, p. 14), because the EU now imports more of it from Russia due to smaller logistical problems and lower prices.

45 However, these projects are not necessarily the result of JAES.

In the period from the establishment of AEEP to 2016, the EU investments into African infrastructure had risen substantially. From 2007 to 2010, the EU allocated 6 billion dollars for the development of Africa's infrastructure, while this number was 5.2 billion in the period between 2010 and 2013, and even doubled between 2014 and 2016 to reach 10.5 billion dollars (EU Energy Initiative Partnership Dialogue Facility, 2017, p. 64). The EU also funds multilaterals that support Africa's infrastructure development, gives loans and investment grants to individual African countries and projects in the scope of AEEP (*ibid.*). Furthermore, in 2007 the EU, its Member States and the European Investment Bank established the EU-Africa Infrastructure Trust Fund (EU-AITF) (*ibid.*). Its aim is to increase the EU's and Africa's investments into infrastructure and services related to it, or more specifically, to provide grants for regional as well as cross-border infrastructure projects in energy, transport and communications, water and telecom sectors (*ibid.*). It is estimated that up to 2017 AU-AITF grants had leveraged investments worth 18.5 billion euros, which contributed to additional 7.1 GW of renewable electricity and 26,193 km of newly installed or upgraded transmission or distribution lines (*ibid.*).

To sum up, the goal under the first pillar has already been achieved, meaning that more than 100 million Africans gained access to modern and sustainable energy. Four out of five goals (10,000 MW of new hydropower; 5,000 MW of Wind Power; 500 MW of all forms of solar power; 3x the capacity of all other renewables) under the third pillar have been met or will be comfortably met. However, neither the fifth goal (to increase energy efficiency in Africa in all sectors) under the third pillar nor the three goals under the energy security pillar have been achieved. Basically, all of the goals that have been achieved so far are beneficial only to Africans in terms of their energy supply and security, since no new energy lines that could enable more energy exports to Europe have been established. And what is more, the EU has significantly increased its investments into African infrastructure since the establishment of AEEP.

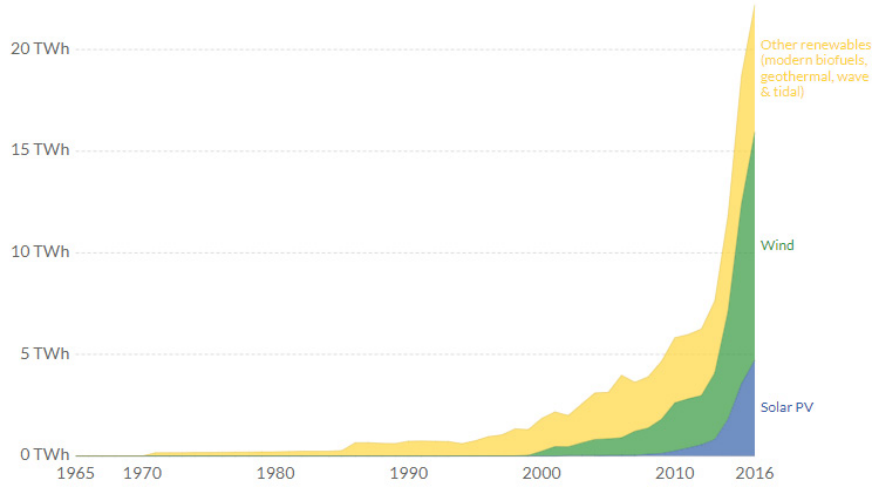
### 8.3.4 Renewable energy production and consumption in Africa

Looking at the data on renewable energy production in Africa from 2006, we discovered a few interesting facts. Firstly, renewable energy production has been increasing since 2006, when total renewable production stood at 94,743 gigawatt hours (GWh) (IRENA, 2016, p. 3), which rose to 152,721 GWh in 2017, meaning that it rose by almost two thirds (62%) in one decade (IRENA, 2019, p. 3). Secondly, in the year before the establishment of AEEP, renewable energy production in Africa rose from 94,743 GWh to 96,352 GWh (1696 GWh of difference) (IRENA, 2016, p. 3). In the year following the establishment of AEEP this

number rose by almost 6000 GWh (*ibid.*). The following years were no different; production of renewable energy was rising each year at a pace much faster than between 2006 and 2007, except in the years 2010–2011 (IRENA, 2019, p. v3). The biggest growth happened in the years 2007–2008, 2012–2013 (from 120,443 GWh to 128,408 GWh), and 2016–2017 (from 142,833 GWh to 152,721 GWh), which marked the greatest growth in history of renewable energy production in Africa (*ibid.*).

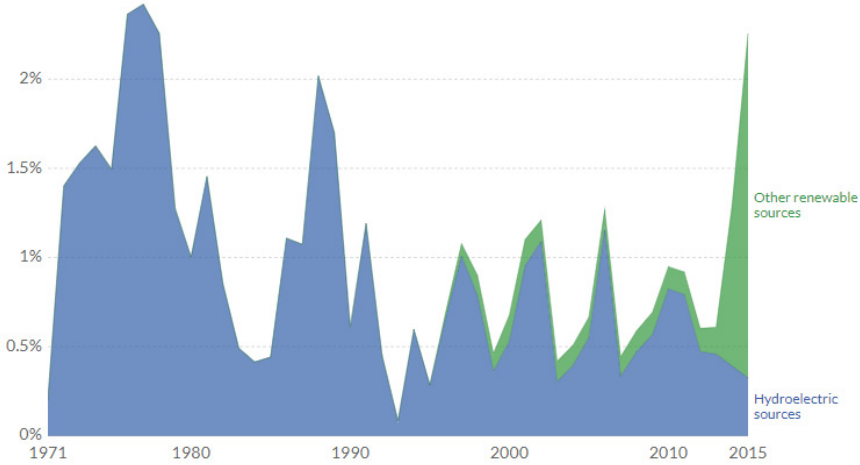
Furthermore, from the charts bellow it can be observed that total renewable energy consumption has been rising almost non-stop over the last 50 years, with the steepest rise ever recorded in the period between 2008, a year after the establishment of AEEP, and the present day. What is more, the share of renewable energy of the total energy production in both South Africa and Sub-Saharan Africa has reached one of the highest percentages in history. It is clear that Sub-Saharan Africa has recorded a continuous rise of this percentage since 2007 and that this percentage is very high (22.84% in 2015) compared to South Africa (2.26% in 2015) which predominantly still runs on its traditional energy source, coal. Therefore, there are still some big differences within the African continent when it comes to renewable energy production, which can be attributed to several factors, such as differences in government policies, prices of traditional versus renewable energy sources and differences in investment preferences of external investors.

*Picture 8.1: Total long-term renewable energy consumption in Africa, measured in terawatt-hours (TWh) per year*



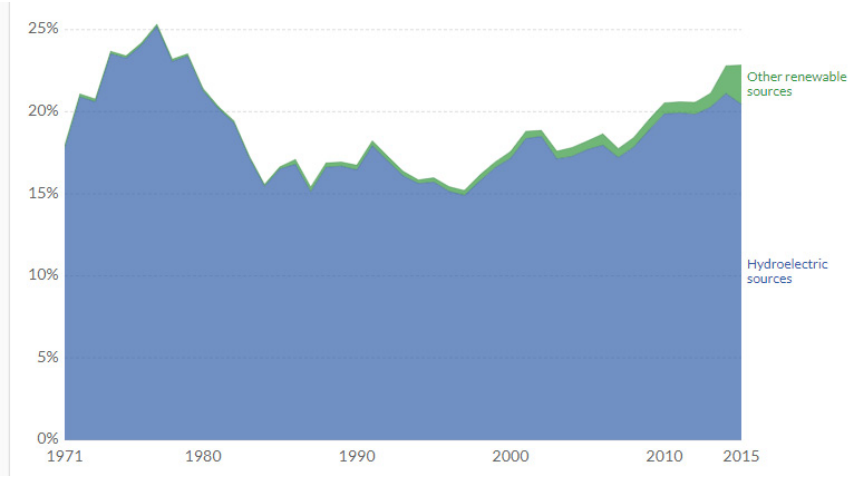

Source: Richie and Roser, 2019

*Picture 8.2: Share of renewable production in the electricity mix, measured as a percentage of total electricity production in South Africa in the long run*




Source: Richie and Roser, 2019

*Picture 8.3: Share of renewable production in the electricity mix, measured as a percentage of total electricity production in Sub-Saharan Africa in the long run*




Source: Richie and Roser, 2019

## 8.4 OUTCOMES OF AEEP

Africa has been a source of human, agricultural and mining resources for Europe throughout their common history, especially during colonialism. It is rich with natural resources, it has enormous energy potential and a lot of unused physical space, it is geographically close to Europe, and it already has some energy links with Europe (especially solar energy infrastructural connections), so it would make sense both in terms of logistics and transport to import energy from Africa to the EU. This is suggested by several authors, such as Charles et al. (2009), Ölund (2012) and Mobarek (2016), especially in the light of the EU energy targets that it intends to reach until 2020, 2030 and 2050. But at the moment reality differs substantially from the suggestions of authors, whose claims we consider in this chapter. Also, the EU member states' predictions show that at the current pace, the EU would almost reach the target of consuming 32% of renewable energy out of total energy consumption by 2030, without increased imports.

Firstly, having examined the data on energy imports to the EU, we found that the EU has been becoming more and more dependent on other countries in terms of its energy security, since it produces less and less energy every year. There are several African countries among the top importers of energy to the EU, but they mostly import crude oil and liquefied natural gas. In fact, clean energy represents only a very small percentage (0.6%) of all the energy imports, with the EU and African countries exporting inconsiderable quantities of it. In addition to this, the percentage has not risen since the establishment of the AEEP. Therefore, we can conclude that the EU has not been outsourcing clean energy from Africa and using it for the realisation of its own sustainable transition plans.

Secondly, this can be further confirmed by taking a look at the implementation of specific goals under the scope of the 2020 Targets. We found that virtually all the goals that have been realised so far or will be until 2020 bring direct benefits only for African countries, or more specifically, its people. Only if the goals under the second pillar were met, would the EU benefit directly from AEEP. But no new cross-border electricity interconnections have been established so far and African gas exports to the EU are actually falling, once again proving that the EU is not using Africa's clean energy for its own needs. What is more, the EU's investments into African infrastructure have risen enormously since the establishment of AEEP.

Thirdly, the data shows that up to this day renewable energy production in Africa has been increasing. African countries have produced almost three times more clean energy in the year following the establishment of AEEP than the year before. Furthermore, since the establishment of AEEP, Africa broke the record in the

production of clean energy several times, most recently in 2017. Total renewable energy consumption has been rising continuously through the last 50 years, with the steepest rise ever recorded in the period between 2008, a year after the establishment of AEEP, and the present day. There is no data on the share of renewable energy production as a percentage of total electricity production for Africa as a whole, but we did look at the data for Sub-Saharan and South Africa. We have found that both have risen substantially since 2007, with occasional down-falls. However, there are enormous differences between the two regions in terms of the share of renewable energy in the total energy consumption.

## 8.5 CONCLUSION

The SET model suggests that clean energy policies on a global scale can influence society's energy consumption behaviours and indirectly shape opinions on fossil fuels and receptivity to renewable energy. Innovations in the field of energy are supposed to eventually lead to general adoption and standardisation, starting in the global centre and spreading to the countries on the periphery. The clean energy SET model also presupposes that European policies, especially those relating to energy, the climate, carbon tax and trading, might result in a spill-over effect on the development of energy in Africa. However, some authors, such as Charles et al. (2009), Ölund (2012) and Mobarek (2016), suggest that it could be the other way around – that countries in the global centre could be outsourcing clean energy from countries in the periphery in order to make their own transition into carbon-free societies possible. Therefore, we set ourselves the task of answering the following research question: *How can we understand and evaluate the EU's cooperation with Africa in the field of energy through the SET model?*

What we found was that AEEP is certainly not the EU's tool for outsourcing renewable energy from Africa, since no existing data can prove this. However, there are several findings that can at least partially confirm that Africa's cooperation with the EU is resulting into certain intended spill-over effects in terms of developing Africa's clean energy: (1) all the goals under the 2020 Targets that have been realised so far or will be until 2020 are beneficial only to Africans; (2) since the establishment of AEEP, the EU's investments in Africa's infrastructure have risen substantially; (3) since the establishment of AEEP, Africa's clean energy production has risen by almost two thirds, with several record-breaking years; (4) renewable energy consumption has been rising continuously over the last 50 years, with the steepest rise ever recorded in the period between 2008, a year after the establishment of AEEP, and the present day; (5) since 2007, the share of the renewable energy in the total energy production in both South Africa and Sub-Saharan

Africa has been rising (with occasional down-falls) and has reached one of the highest percentages in history. However, other factors were not examined, such as changes in government, internal pressures, or cooperation with other external actors, which could also have had an effect on the pace of the sustainable transition in Africa. Therefore, we can conclude that through the SET model, the EU's cooperation with Africa in the field of energy can be understood and evaluated in the form of the spill-over effect, which could help with Africa's transition to sustainable energy, but that further research is needed to completely confirm this claim.

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# 9 CONCLUSION

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The analysis of selected internal and external issues of the EU environmental policy has provided several (new) insights on the volume's research questions. Furthermore, the teaching process and the preparation of this CIR analysis revealed certain challenges regarding scientific research of environmental affairs in general and internal and external dimensions of EU environmental policy in particular, as well as regarding the method of research paper in the process of teaching the EU environmental policy. In conclusion we thus highlight two issues; reflection on innovative (research paper-driven) university teaching, and a reflection on the chapters' findings with regards to the research outline presented in the Introduction.

## 9.1 REFLECTION ON INNOVATIVE TEACHING VIA A RESEARCH PAPER

Many home and exchange students clearly raised a point of lack of environmental courses at the undergraduate university level, not only in Slovenia but also in other EU member states and third countries. This "supply" side clearly does not correspond to the demand, i.e. a strong and widely shared interest among students to learn about the manifold environmental issues. For many students the course we have developed under the Jean Monnet Module umbrella and its content proved to be the first opportunity to get systematically acquainted with the international environmental challenges *per se* and with the EU's environmental policy in particular. Some students who were prior to taking the course not specialists in EU affairs even had the opportunity to learn about the basics about the EU as a political system (institutional competences, policy-making and implementation) and about the EU as an international organization (EU's external action) due to their interest in environmental issues. Our first teaching-related conclusion is thus to:

1. strongly promote design of an environment-related course in university undergraduate curricula. This course can be included in programme curricula as programme specific or elective, depending on the nature of the university programme.
2. A complementary option is to treat environmental education as a mainstream approach via cross-curricular implementation. Environmental issues should horizontally permeate various courses, such as natural sciences, biology, chemistry, physics on the one side and sociology, economics, communication sciences and political science on the other side. Such an approach of main-

streaming could follow the example of human rights policy inclusion in education programmes and the principle of environmental policy integration into other EU sectoral policies, such as energy and agricultural policy.

3. Enable a participation of students in such an environmental affairs based courses. Significant value-added stemming from debates among students and guest lecturers from very diverse professional backgrounds (e.g. machine engineering, (international, European) law, biodiversity, economic development, big infrastructure management, administration, physics, political science, international relations and of course European studies) has been demonstrated in our course.

As for the method of preparing research paper itself, it proved to be a substantial challenge for many students, even the outstanding ones. They have all highlighted a lack of previous experience with research and creative assignments and a need for more intensive guidance from course lecturers. In the end, however, students assessed that the method enabled them to deepen the knowledge on the issues of their particular interest. Research papers stimulated them to be creative when applying and reflecting gathered theoretical knowledge and allowed for a more in-depth, and comprehensive understanding of the subject area. A couple of students explicitly positively evaluated the learning outcome of "capability to produce a literature review and determine gaps in existing empirical knowledge" regarding a particular issue. Some students have assessed that one of the major challenges during the initial data collection phase was non-availability of certain information. From this perspective, building up experience and confidence to identify sources of data and especially assess legitimacy of these sources against fabrication or intentional misinterpretation of scientific findings was an extremely valuable competence students have developed during the research process. The latter should also be understood as a high value added of this method in combination with multiple language skills. Chapter authors have applied their multi-linguistic skills for analysing "local" information relevant to their specific issue. As teachers, we especially agree with students' evaluation that applying a proper methodological framework to a longer independent study was for them the most challenging of research steps. The least problematic part was academic writing as most of the students had prior course and substantial short assignments practise in this domain. In the end, as expected the review process turned out to be entirely unknown to students and they have been introduced to it only via the book editors – teachers. Nevertheless, they could learn on the length of publication process on the nature of double blind peer review, which they could not have ever experienced in classroom. As two students concluded the evaluation of their experience: "We asses that research paper was a demanding yet rewarding method of studying EU environmental policy."

These conclusions clearly indicate that there is room and willingness for a stronger and more systematic introduction of environmental affairs on all levels of the education-process, whereas, the use of the method of research paper at the undergraduate level is very welcomed but requires intensive guidance from course lecturers.

## 9.2 REFLECTION ON EU ENVIRONMENTAL POLICY FINDINGS

In the first part of the edited book which is devoted to internal dimension of the EU environmental policy, **Nuša Muršič** focused on the implementation of the EU's biodiversity policies through the Natura 2000 network and the establishment of protected areas in Slovenia, using the theory of ecosystem services. The theory is based on an approach that evaluates ecosystems and their services by assigning them (economic) value, which should serve as the basis for incentives and investments for preserving the services of ecosystems related to human wellbeing. The designation of Natura 2000 sites in Slovenia has been adequate – which in terms of the theory represents an important investment in the preservation of the natural environment – mainly because of established laws, policies, staff, supervision and management. However, more should be done when it comes to actual protected areas. Supervision and management remain worrisome, and the ecosystem services approach argues they are crucial for maintaining protected sites, so more investment is needed. Although Slovenia has made some progress with the implementation of EU biodiversity policies (specifically the designation of Natura 2000 sites), reports show that biodiversity loss has not been halted rigorously enough, which negatively affects ecosystem services. Apart from inadequate implementation, the main threats to biodiversity have been identified in intensification of agriculture and mass tourism. To improve the situation, agri-environment payments have been introduced in the agricultural sector and a Green Scheme in the tourism sector. They both represent government incentives to ecosystem service providers, which is one of the mechanisms advocated by the theory of ecosystem services for preserving the natural environment and its services. The theory encourages taking measures to help conserve biodiversity, and it also reminds us that ecosystems are not eternal and indestructible. Offsetting the loss of ecosystem services requires very costly alternative solutions, therefore investments in natural capital are necessary, and incentives for the preservation of the natural environment are one way to do it.

**Leah van Oorschot and Brooke Sutherland** chose to analyse waste management systems, in particular barriers to the implementation of the waste hierarchy in Romania, which is one of the EU Member States for which waste management is

a key challenge. A key component of waste management principles in the EU is the waste hierarchy, a priority-ordering of waste practices that has demonstrated promise for achieving more sustainable waste management. Their chapter starts with a review of the waste hierarchy and provides a critical evaluation of the Romanian waste management system, identifying three key barriers to its implementation in the country. Furthermore, they provide a systematic analysis of the same three issue areas in Sweden, a Member State that has managed to incorporate the waste hierarchy in its practices, in order to identify prospective strategies for Romania to improve. Their findings show that if the Romanian Sanitation Service continues to lack the necessary capacity for collecting and recycling waste, Romania might learn from Sweden's approach of organising waste management at the municipal level, so it can utilise private companies' collection capacity while benefiting from a centralised general management to ensure all municipalities are included. Alternatively, further financial investment in the Sanitation Service could build its own capacity and potentially solve the issues of limited collection and stronger capabilities, but this must be paired with strong legislation and enforcement against illegal disposal in order to successfully implement the waste hierarchy.

**Martina Furlan, Ina Pantner Volfand and Iris Šömen** focused on the concept of energy communities as a way of achieving the objectives of the clean energy transition set forth by the EU. In their chapter they analysed the legislative framework in the EU and pioneering Member States in the development of renewable energy communities in order to extract possible solutions for Slovenian policy on renewable energy communities. The EU's energy policy framework is based on the "Clean energy for all Europeans" package, which not only ensures regulatory certainty by requiring Member States to submit National Energy and Climate Plans (NECPs), but also enables European consumers to take on the role of fully active players in the energy transition. In fact, consumers are thus able to generate electricity for their own consumption, store it, share it, consume it or sell it on the market. As new kinds of citizens' organisations and business models emerge, they analysed the processes of good practices already in place in Germany, the UK and the Netherlands by focusing on the regulatory policies governing energy communities, the fiscal incentives enjoyed by members of energy communities, and the means of financing these projects. This was done in order to suggest the translation and introduction of the most suitable policies in the context of Slovenia, where the first step towards renewable energy communities took place. Taking into account the existing Slovenian legislative framework, existing financial incentives and certain administrative and socio-political barriers, they determined the measures that should be included in the Slovenian NECP. Furthermore, they successfully identified additional measures that should be implemented in Slovenia, based on a cross-country analysis.

**Katja Miklavčič and Sofia Proni Iglič** focused on the question, whether CCS represents a viable way of dealing with climate change. Their question arised because CCS is a negative emissions technology consisting of three phases: capture of carbon dioxide ($CO_2$), its transport and storage in depleted oil and gas fields or saline aquifer formations. Moreover, the technology is able to capture approximately 90% of the $CO_2$ emissions produced through burning fossil fuels in electricity generation and industrial processes. The idea of implementing CCS is not new. On the contrary, it has been present throughout the last decades; however, massive deployment is still pending on a global scale as well as in the EU. Having regulated the process of CCS with the CCS Directive in 2009, the EU's goal – twelve commercial-scale CCS demonstration projects by 2015 – remained unreached in July 2019. In spite of this – or, as could be argued, because of this – the European Commission's 2050 long-term climate strategy published in November 2018 envisages CCS as one of the seven essential blocks for reaching climate-neutral EU economy by 2050. Although it is believed to be a politically more appealing option – in comparison to, for instance, green technologies – since it assumes continued use of fossil fuels, CCS implementation (in the EU) remains questionable due to lack of economic resources, insufficient or inadequate normative regulations, and, importantly, public and political opposition. Therefore, taking into account that solutions stimulating CCS implementation will need to be found within the predominant, profit-oriented neoliberal order, public ownership, partial or full, might prove to be indispensable.

The analyses of selected issues of internal dimensions of the EU environmental policy points out significant differences between EU member states and their implementation of the EU's environmental policy in certain areas. These differences represent an important barrier for development of a common and fully effective EU environmental policy. With this regard, the prevailing directive (not regulation) legal mode of the internal dimension of EU environmental policy shows elements of inconsistency in policy implementation due to highly diverse initial natural, institutional and economic conditions, and thus the "weight and size" of environmental challenges for individual member states. At the same time, interstate divergence also demonstrates that "one approach fits all" does not represent an adequate policy solution as it does not take in due account relevant specific national circumstances in EU Member States, especially small member states. Simultaneously, the variety of different approaches is exactly the condition that offers member states and the EU to develop adequate specific policy solutions and modes of their implementation by knowledge-sharing and transfer of good practices.

With these findings in mind, we conclude that the EU environmental policy intended for Member States could formulate clusters of either like-needed states due to natural environment conditions or/and measures targeting similar issue-related problems within Member States. Member States with a highly similar environmental challenges and significantly diverse economic development and infrastructural conditions cannot address their environmental problem in the same way but the current "directive mode" and subsidiarity principle are not effective enough as deeper structural reforms are needed at the stage of policy planning not merely at the phase of policy implementation.

In the second part of the edited book, which is devoted to external dimension of the EU environmental policy, **Magdalena Rakovec and Samo Smole** analysed the role of the EU in the environmental policies of the Arctic Council and established that although the EU's observer status in the Arctic Council has not yet been confirmed, the EU has been active in mitigating its Arctic footprint, protecting Arctic biodiversity, etc. The EU often acts as a key financial contributor in many environmental projects and actions carried out in collaboration with the Arctic Council. Along with its direct contribution to tackling the challenges of the Arctic today, the EU is also recognised as a normative power in this area, because it has helped internationalise and implement various environmental and scientific standards in the Arctic. Their chapter thus investigated the interrelatedness of the EU and the Arctic Council in the cases of the Marine Oil Pollution Preparedness and Response (MOPPR) Agreement and the Framework for Action on Enhanced Black Carbon and Methane Emissions Reductions. It concluded that, in the case of the MOPPR, the EU's influence is limited, as the implementation of its Arctic policy is possible only to the extent to which the Arctic states consider it relevant to and legitimate for their own interests. However, the Framework for Action on Enhanced Black Carbon and Methane Emissions Reductions and its implementation is a story of a more successful EU–Arctic Council cooperation, where the EU is the main financial contributor and has a significant regulatory impact.

**Ajda Hedžet and Dora Matejak** focused on the role of the strategic partnership between the EU and Brazil in allowing the EU to practice soft power as an environmental advocate. Their chapter took into account the research of various scholars in the nature of EU foreign policy in the environmental sphere. The EU has taken the opportunity to portray itself as a power that is focusing on tackling environmental issues. Thus, it acknowledges the importance of emerging powers, such as Brazil, in supporting its initiatives and addressing environmental challenges. In 2007, the two parties entered a strategic partnership which produced a series of dialogues and documents that deepened the relationship. Their chapter analysed whether the strategic partnership allowed the EU to use its soft power in persuading Brazil into shifting its focus towards more sustainable practices. It

supports the claim that the strategic partnership created different areas of cooperation and commitment by discussing the topic of biofuels, an area of interest in which the authors recognise the use of soft power.

**Ana Klemen and Patrik Bole** focused on the EU's cooperation with Africa in the field of energy. In their chapter, they analyse the nature of EU-Africa cooperation in the field of energy using the sustainable energy transition model (SET model), which stipulates a transformation to a carbon-neutral society and envisages technologically advanced societies meeting all of their energy needs by using renewable resources while ensuring sufficient energy supply for the entire society. Eventually innovation should bring about standardisation and a general adoption of the carbon-free society model, starting in the most developed countries of the world and then spreading to the countries on the periphery. Furthermore, according to the SET model, developed countries and trends on the global level can shape opinions on fossil fuels and clean energy policies in other, less developed countries. However, some authors (Charles et al., Ölund and Mobarek) whose claims are considered in their chapter, argue that this is not necessarily the case and that developed countries, such as the EU Member States, may be using energy partnerships for their benefit – to speed up their own transition into carbon-free societies. For these reasons, the chapter set to answer the following research question: *How can we understand and evaluate the EU's cooperation with Africa in the field of energy through the SET model?* Their chapter found that the Africa-EU Energy Partnership (AEEP) can be understood as a result of a spill-over effect rather than out-sourcing of energy on the part of the EU. However, the authors acknowledge that further research is needed to fully support this claim.

Finally, the authors established in their study cases that the EU has contributed to the internationalisation and implementation of various environmental and scientific standards in Arctic and has also successfully promoted a strategic partnership with Brazil that deepened their relationship and enabled the EU, by discussing the topic of biofuels, to persuade Brazil into shifting its focus towards more sustainable practices. It has also been established in the case of EU-Africa energy cooperation that the EU has not been using the energy partnership for its benefit, contrary to what some other authors suggested. Rather, the Africa-EU Energy Partnership could be understood as a result of a spill-over effect in terms of developing Africa's clean energy and its transition to sustainable energy. Despite the notion that some other factors were not examined in the analyses and that further research is advised to fully evaluate the EU's promotion of measures to deal with environmental problems in its cooperation with Africa, the conclusion appears consistent with the final observations of other chapters. Thus, with regard to analysed issues of external dimension of the EU environmental policy and above findings it is possible to conclude that the EU has been (at least partially) consistent in promoting

measures at international level and that its action resulted in international co-operation and contributed to a more successful dealing with certain regional or worldwide environmental problems.

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