CHANGING SOCIETIES: LEGACIES AND CHALLENGES

VOL. III

The diverse worlds of sustainability

Ana Delicado
Nuno Domingos
Luís de Sousa
EDITORS

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EDITORS

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Instituto de Ciências Sociais – Cataloguing-in-Publication Data

Changing societies: legacies and challenges.

Vol. III. The diverse worlds of sustainability.

[electronic resource]

eds., Ana Delicado, Nuno Domingos, Luís de Sousa.

Lisboa: Imprensa de Ciências Sociais, 2018.

3 vols.

ISBN 978-972-671-505-4

CDU 316.3

<https://doi.org/10.31447/ICS9789726715054>

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Proofreading: John Stewart Huffstot

Graphic design: VR

First Published: September 2018

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FOREWORD

In 2016, the Scientific Board of the Institute of Social Sciences (University of Lisbon) decided to prepare a three volume publication in English based on its 2015/2020 Strategic Programme: *Changing Societies: Legacies and Challenges*. Each volume focuses on one of the programme's main research areas: *Inclusion, Citizenship and Sustainability* (I-C-S). The aim was to foreground the science carried out at ICS, make its researchers' innovative contributions to the advancement of knowledge in social sciences more widely known, and leave a significant mark on the national and international scientific agenda. A further aim was to encourage and foster interdisciplinary collaboration between researchers belonging to different Research Groups - as strongly encouraged a few months earlier by the External Advisory Committee during its visit to the Institute.

Once the rules of the game had been thought out, two calls were made to the Institute's scientific community. The first, for the selection of interdisciplinary editorial teams for each volume, was based on the presentation of an editorial project. Candidates explained how their project would explore the theme (Inclusion, Citizenship or Sustainability), as well as their conceptual and possible empirical approaches. The second invited proposals for texts for each of the volumes. Their provisional versions would be presented, discussed and commented on publicly at the ICS Conference, in November 2017, in addition to being subject to the usual peer review processes organised by the volume editors.

The response to this challenge went far beyond our expectations. The numbers do not speak for themselves, but

they do give some indication of the ICS community's remarkable collaborative vitality. They also show the amount of work involved in the initiative: three editorial teams, benefiting from the support of three editorial boards; 21 chapters, 39 authors in the Inclusion Book (vol. I); 13 chapters, 30 authors in the Citizenship Book (vol. II); 14 chapters, 37 authors in the Sustainability Book (vol. III).

However, I would particularly like to emphasise the quality of the editorial lines defined, as well as the texts that have been collected and are now accessible to the reading and scrutiny of a vast international audience. As well as highlighting the virtues of interdisciplinarity in science practice, one of the structuring marks of ICS-ULisboa is that its work is illustrated through different prisms.

On behalf of the ICS-ULisboa Scientific Board, I would like to thank all the authors for their contributions, which invite us into areas of scientific thought and innovation, from issues and concepts to the empirical contexts, through the strategies and methodological instruments used. I also wish to express my gratitude to the editors of the three volumes, for having decided to advance with the original, inspiring proposals for their volumes, as well as for their perseverance and determination over many months of work: Sofia Aboim, Paulo Granjo and Alice Ramos; Marina Costa Lobo, Filipe Carreira da Silva and José Pedro Zúquete; Ana Delicado, Nuno Domingos and Luís de Sousa. My sincere thanks also go to the editorial boards that worked so closely with them: Rui Costa-Lopes, Pedro Magalhães and Ângela Barreto Xavier; José Luís Cardoso, António Costa Pinto and Jorge Vala; João Ferrão, Dulce Freire and Susana Matos Viegas. The Director of the Imprensa de Ciências Sociais (the Social Sciences Press), José Machado Pais, who from the first moment enthusiastically welcomed this publication, disseminated in open access, also deserves our warmest thanks. My final expressions of gratitude are to Carla Araújo, who served as secretary and Marta Castelo Branco, editorial assistant to the project.

Ana Nunes de Almeida
President of the Scientific Board
ICS, University of Lisbon

INTRODUCTION

Ana Delicado
Nuno Domingos
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EDITORS

In 2015 ICS elected sustainability as one of the three main strategic pillars, seeking to understand the socioecological, socioeconomic, techno-scientific, and governance dynamics that preside over transformations and transitions to more sustainable, resilient, and wellbeing-promoting societies, by studying the practices, institutions, processes, and public policies that affect, positively or negatively, these transitions. ICS has a long tradition of performing research on the social aspects of environmental sustainability, mostly based on the work of researchers from different areas within the social sciences. In the 1990s it partnered with ISCTE-IUL to create Observa – The Observatory of Environment and Society, which pioneered the first large scale public opinion surveys in Portugal on environmental perceptions, attitudes, and behaviours.

Sustainability is at the core of other scientific activities, such as postgraduate training (PhD Programme in Climate Change and Sustainable Development Policies, summer schools), public consultations (World Wide Views on Climate and Energy in 2015) and outreach.

Sustainability is a concept that has gained prominence in the past three decades, especially following the 1992 United Nations Rio Conference. The most commonly used meaning of sustainable development stems from the Brundtland Report (1987), and defines it as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

The concept has entered public debate and the political agenda of national governments, inter-governmental (the UN) and supranational (the European Union) organizations, business companies, civil society organizations, and even academia, without a consensus necessarily existing over its meaning. Sustainability has been used to classify a plethora of different, and at times contradictory, practices, from corporate social responsibility to generating value to shareholders, from green economy to anticapitalistic de-growth, from giving priority to the needs of deprived populations to preserving the resources for future generations.

Although conceptual discussions tend to focus on the ecological dimension, sustainability encompasses four interdependent pillars of equal importance: socio-cultural, economic, environmental, and governance. The notion of pillars may not be the most adequate to understand the dynamics of the concept, since the implementation process may highlight different combinations of these dimensions. Not surprisingly, the 17 Sustainable Development Goals, defined by the United Nations in 2015, include a wide

range of objectives, such as ending poverty and promoting good health, quality education, gender equality, renewable energy, building effective, accountable, and inclusive institutions at all levels of government, employment, sustainable cities, responsible consumption, and peace and justice. There are to be pursued through an integrated approach by taking into consideration “the deep interconnections and many cross-cutting elements across the new Goals and targets” (UN GA, A/RES/70/1, 25 September 2015, “Transforming our world: the 2030 Agenda for Sustainable Development”, paragraph 17).

Grounded on epistemological debates and empirical case studies, many questions can be raised in order to problematize research on sustainability: How do different social actors define sustainability? What interests and power struggles lie beneath conflicting definitions? How can progress toward achieving sustainability goals be measured and compared? Are SDG Goals and targets to be achieved at the same pace by all state parties or is there room for a differentiated method of implementation? Is progress made of a series of governmental decisions that have to take into account various societal priorities? What are the opportunity costs attached to these goals and targets and are there value trade-offs? What challenges are faced in the transition to more sustainable societies in different domains, such as energy, food, and transportation? How does public policy address sustainability in both discourse and practice? How do social and demographic trends affect sustainable development? How do the four pillars that broadly defined the concept of sustainable development relate to each other? Can environmental sustainability be socially unfair? What is the connection between sustainability policies and the scale of political intervention? How local is sustainability? Can solid sustainability policies be developed in a context of state competition? Does sustainability support a Western perspective of development?

The definition of the scope of the research object is a disputed matter. One of the most dynamic research issues on sustainability is its rich conceptual debate. The struggle for an intelligible and comprehensive concept is fundamental for its understanding and measurement as well as its policy and political implications. In a scientific field in which applied research is particularly central, the conceptual and methodological construct acquires significant social, economic, and political relevance.

For this volume, we have sought contributions that problematize the concept of sustainability on theoretical, methodological, and empirical grounds. We aimed at chapters that, based on different research projects and disciplinary

traditions, strike a balance between relevant, critical, and audacious general theoretical questions and debates and empirical data (quantitative and qualitative).

THE EVER-GROWING WORLD OF SUSTAINABILITY

A group of autonomous universes of issues and problems have progressively emerged from the development of sustainability studies and policies in the last decades. Its relevance reflects the idea that, understood as a global phenomenon, sustainability depends on a set of interdependencies that must be met in order to achieve balanced objectives and policies, as the benefits of environmental or economic sustainability are not linearly related to other sustainability goals.

Take the example of the ill-defined world of social sustainability. The UN's definition of social sustainability includes principles and goals that overlap with its own institutional policies on human rights, labour policies, education, gender, protection of children, protection of minority groups, and protection of indigenous communities. However, the UN conceives the economic sphere and specifically the activities of companies as the privileged universes through which social sustainability is achieved: "Social sustainability is about identifying and managing business impacts, both positive and negative, on people. The quality of a company's relationships and engagement with its stakeholders is critical. Directly or indirectly, companies affect what happens to employees, workers in the value chain, customers and local communities, and it is important to manage proactively".¹

As an economic unit, the company acts in the national space, subject to norms defined within the nation-state, but in many dimensions it is also an international actor.² Companies, especially large ones with a multinational

1 <https://www.unglobalcompact.org/what-is-gc/our-work/social> accessed 10/7/2018).

2 In addition to complying with national laws, the company must respect international law and conventions, such as those of the Human Rights Convention (International Bill of Human Rights, Human Rights Translated), and the conventions of the International Labor Organization. The Guiding Principles on Business and Human Rights is one of the most frequently cited documents as a means of framing social sustainability policies, encouraging companies to comply with laws and objectives, and reporting problems on the ground to institutions such as the Global Reporting Initiative and Business and Human Rights Resource Center.

nature, are expected to play a leading role in promoting social sustainability, particularly in national contexts where human rights and labour rights violations are recurrent.³ The UN recommends that companies must intervene in the supply chain decision-making by acting on a diverse set of areas: health, education, housing conditions, affirmative action, labour rights, and community sustainability. Companies must commit to these recommendations and be monitored by experts. Failure to comply with corporate responsibility policies or complacency with infractions has economic consequences for businesses: lower productivity, loss of brand value, boycott campaigns, lawsuits, government actions, and bad environment with the competition. According to this approach to social sustainability, poor working conditions, forced labour, insufficient remuneration, lack of respect for trade union rights and freedom of association and collective bargaining, gender discrimination, child labour, and segregation of minorities and the disabled might be detrimental to business.

This ideal type of responsible company, acting in a global economic space, is confronted with agendas of other political and social units: transnational political and economic blocs, nations, regions, and cities. The UN recommendations suggest that companies, in accordance with international conventions, should challenge political and social models and cultural and religious frameworks that create obstacles to social sustainability goals. Therefore, the ineluctable process of globalization is assumed along with the inability of states, particularly in underdeveloped countries, to ensure respect for human, labour, women's and minority rights, and the inability of state institutions to guarantee a free civil society, which in most cases proves to be weak.

If the "planet" is the scale from which social sustainability issues are defined, research, policies, and institutions must deal with the emergence of a planetary society. It is as a function of this planetary society that global objectives, which are fundamental to creating a socially sustainable daily life, are to be considered. The conception of the planet as a whole is key to creating citizenship dynamics that stand beyond those historically defined by nation-states. This is even more important because areas as critical as poverty, inequality, access to education, gender equality, and the inclusion of

3 In this regard companies should consult documents such as Meeting the Responsibility to Respect in Situation of Conflicting Legal Requirements and conform to international standards.

minorities demand global solutions. However, the remission of institutional responsibility for achieving social sustainability goals for the corporate sphere reveals some of the weaknesses of this global representation.

In this volume the chapters that directly address the issue of social sustainability, or that do so indirectly, are significantly concerned about the effects of public policies, or the absence thereof. This certainly does not mean that case studies located at national or even at smaller scales ignore global dimensions. Nonetheless, it is on a national scale that many of the articles in this volume focus, investigating the effects of educational, agricultural, labour, development, and scientific policies. Between these case studies and a globally devised agenda there seems to be an institutional gap. In the European Union most of the national institutions concerned with social sustainability have been deeply affected by economic globalization. The institutional framework provided by the EU institutions to tackle the progressive inability of national social protection systems is feeble and arguably less developed than the institutional network that promotes and regulates economic exchanges.

The research focus on state institutions transversal to the various case studies presented in this collective volume seems to suggest that the nation-state remains the locus where most policies and measures to curb situations of social unsustainability are developed and implemented. In EU member states, public institutions, unlike companies, respond to democratically elected governments, which in itself is not a guarantee of efficiency or protection against global problems, but grants legitimacy to political action and makes political decisions and outcomes subject to scrutiny. Assuming that it is fundamental to achieve global social sustainability and a post-national worldview, as suggested by global programmes such as those present in the SDGs, it is not clear what the institutional scales are, at a European level and beyond, to which these goals articulate.

Several authors in this book have voiced their concern about the vagueness of the definition of social sustainability, which is sometimes too abstract, wide, difficult to measure, and hard to articulate with other forms of sustainability and/or the lack of proper institutions to address it.⁴

These conceptual, methodological, and policy ambiguities are also common to other dimensions of sustainability, such as governance sustainability. In 2013 a High Level Panel of Eminent Persons was convened by the United Nations to

4 On the feebleness of the concept see Boström (2012).

recommend new goals and targets after 2015, when the original MDGs were set to expire. The Report of the Secretary-General's High-Level Panel Of Eminent Persons On the Post-2015 Development Agenda was informed by a broad consultative process under the aegis of different UN agencies and networks, and included the views of both decision-makers and a variety of stakeholders (businesses, the scientific and academic, and CSOs of all quadrants). Although the Panel's work was meant to take stock of the achievements of the Millennium Development Goals (MDGs) over the past 13 years, with a focus on poverty, hunger, water, sanitation, education, and healthcare, the new development agenda had a different approach to sustainability.

The MDGs fell short of integrating the economic, social, and environmental dimensions of sustainable development. Political rhetoric, backed by academia, was now shifting the attention to good governance, defined in terms of institutional capacity, rule of law, accountability, transparency, and wider public participation in policymaking (UN 1999; Callahan 2007) as a precondition for sustainable development. Sustainable development was no longer regarded solely in terms of economic growth, social inclusion, and environmental sustainability, but was largely dependent on the performance of institutions, decision-making processes, and citizenry. In this line, a stand-alone goal on good governance and effective institutions, including two targets related to the fight against corruption, was introduced in the final report of the panel of experts.⁵

This new approach to sustainability was finally translated into the United Nations General Assembly Resolution adopted on 25 September 2015 (A/RES/70/1) entitled "Transforming our World: the 2030 Agenda for Sustainable Development" that came into force on January 1, 2016. The signatory states agreed to adopt measures aimed at *Promoting Peaceful and Inclusive Societies for Sustainable Development, Provide Access to Justice for All and Build Effective, Accountable and Inclusive Institutions at All Levels* (hereinafter, SDG16).

SDG16 was regarded as an important enabler of the rights and policy targets embodied in the other SDGs, but the formulation of its targets was overambitious, fuzzy, and also contested during the negotiations. Some countries feared that the implementation of this goal might lead to stricter

5 A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development – The Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, New York: UN publications. Available online: https://www.un.org/sg/sites/www.un.org.sg/files/files/HLP_P2015_Report.pdf (accessed 23-2-2018).

aid conditionality in countries that are already facing enormous difficulties in meeting the other goals. Others feared that the association of the term “peaceful societies” with the good governance agenda under SDG16 could lead to a situation in which development aid is used to advance countries’ national security agendas (UN Chronicle, 2014).

The adoption of a new approach to sustainable development had implications in terms of resource allocation internally to the UN Development System. According to the Dalberg Report (2017), although most UN entities see themselves as multitask, working across a variety of SDGs, the first six SDGs (on poverty, hunger, health, education, gender, and clean water and sanitation) and SDG16 (on peace, justice, and strong institutions) “have the highest allocations of expenditure and personnel while the environmental and sustainability SDGs (7, 12, 13, 14, 15) have the lowest allocations” (2017, 5).

However, the major challenge to this new approach, and in particular to the achievement of SDG16 target goals, will be felt at the implementation level. Let us leave aside the choice of indicators and suitable metrics to assess progress in the implementation of target goals. Since the end of World War II, donors have been experimenting with governance reform efforts to improve the quality of institutions and legal systems in developing countries. They have done so by investing substantially in democracy and human rights promotion, technical assistance projects for institutional capacity development, and by setting benchmarks and importing best practice models from abroad, and yet progress has been scant. Countries known for their systematic abuses of power and disrespect for human rights, for not having participatory and accountable governments, for having unpredictable and arbitrary fiscal capacity and administrative decisions, for having restricted freedoms and access to information, and for not having fair and predictable rule of law are also known for displaying poor inclusive and sustainable development records. Although some authoritarian or hybrid regimes that have opted for technocratic government solutions are known to display comfortable growth rates and social progress, which may generate positive regime public support, this does not necessarily mean that the benefits of development are being shared and equally enjoyed by those with the least voice. Growth-enhancing policies may suffer from a redistributive bias and exacerbate rather than mitigate poverty and social exclusion. If SDG16 is to work as an enabler of sustainable development and a catalyzer of a profound social transformation,

political commitment and grass-root involvement is needed to achieve the target goals set under SDG16, so that this whole process does not end up being a mere empty rhetoric moulded by technocratic quick-fixes lacking real applicability and impact.

STRUCTURE OF THIS BOOK

This book is divided into three sections. The first comprises three chapters that help to set the scene by addressing the main theoretical and empirical challenges facing the concept of sustainability. The second section brings together chapters that discuss emerging agendas in various sustainability-related issues such as the circular economy, goods insecurity, climate change adaptation, governance, and the role awarded to non-humans. The third addresses transitions to sustainability in fields such as agriculture, energy consumption, food practices, digital media, and good governance.

Chapter 1, by Luísa Schmidt and João Guerra, sets out to analyse social archetypes, the discrepancies between discourses and practices, and the slippage factors that have characterized sustainable development, looking at some indicators that reflect the dynamics of global (un)sustainability and making an overall assessment of sustainability today as a key programmatic concept for transforming society. The authors seek to identify the conditions that will make sustainability possible in the critical circumstances facing humanity in these early decades of the twenty-first century.

João Guerra and Luiz Brito Lourenço, in chapter 2, present the 2030 Agenda and its 17 Sustainable Development Goals, providing an overall appraisal of their implementation. The authors explore the available database of *SDG Index and Dashboards 2017*, crossed by Human Development Index and income average of countries, as well as more concrete and diachronic information, gathered mostly from the World Bank databank.

The final chapter in this section, authored by João Mourato et al., addresses the alternatives aiming at radically changing our present actions in order to attain different, more sustainable, futures. The chapter explores the conceptual origins, role and scope of these alternatives against the backdrop of the debate on wider transitions toward sustainability. It systemizes diverse proposals of socio-political movements embodying alternatives toward sustainability, as well as some of the resulting on-the-ground practices.

Section two of this book begins with José Luís Cardoso's chapter on the historical grounds of the concept of circular economy. The author argues that the ingredients that were used to form the concept of the circular economy, such as the shortage and perishable nature of resources, the stationarity of growth rates, the rejection of consumerist abuses, the criticism of the society of abundance, the appeal for sharing and reciprocity, and the preservation of the environment, already had antecedents that were deeply rooted in the history of economic ideas.

Chapter 5, by Vasco Ramos and Nádia Salgado Pereira, addresses the impact of food insecurity and material deprivation over mental health and well-being, drawing attention to the proximity between food security and sustainability in terms of intergenerational justice and distribution. Based on case studies of families undergoing food insecurity in Portugal, the chapter issues public policy recommendations covering not just employment and income policies, but also primary health care and specialized mental health services.

Chapter 6, authored by João Mourato, Luísa Schmidt, and João Ferrão, also relies on a case study of a research project on local adaptation strategies to discuss the governance of climate change. The chapter engages in an analysis of the concept of adaptation, followed by a deeper look into adaptation research and practice, before introducing the ClimAdaPT.Local project and framing it against the backdrop of contemporary adaptation research and practices, by illustrating the ethos underpinning the project's research focus and methodological approach.

In chapter 7 Luís de Sousa examines the role of information and communication technologies in reducing corruption risk and fulfilling the Sustainable Development Goal 16 *Promoting Peaceful and Inclusive Societies for Sustainable Development, Provide Access to Justice for All and Build Effective, Accountable and Inclusive Institutions at All Levels*. It addresses transparency and "open government" as a necessary condition for the concept of good governance, discussing how government openness can be implemented through the use of ICT, and assessing its role in preventing and combating corruption.

This section ends with a chapter by Verónica Policarpo et al. connecting children, animals, and sustainable development. The authors point out the absence of animals in sustainability discussions and in Sustainable Development Goals, criticizing its anthropocentric approach and naturalist vision that treats animals and vegetables as resources to be exploited. They

argue in favour of a biocentric approach that ensures planetary survival and an enhanced awareness of animals as sentient beings, proposing the transition to a meat-free diet and a vegan-orientated education in the early stages of children's lives.

The third section starts with chapter 9, authored by Maria do Mar Gago. As in chapter 4, the author claims that the historical origins of environmentalism far precede contemporary accounts, connecting it to the rise of imperialism. The chapter explores the relationship between these two terms in the case of Portuguese Africa. Its main aim is to examine how environmentalist ideas and practices were appropriated and articulated by imperial agents, by describing their scientific tradition and following them in their missions to the coffee producing regions. The author seeks to understand how Angolan coffee, with its environmental, technological, and cultural specificities, challenged enlightened prejudices regarding native agriculture.

Chapter 10, by André Silveira et al., focuses on the olive oil production in Alentejo to discuss the sustainability of agricultural intensification. The authors draw on actor-network theory to explore the making of sustainable rural places, particularly place-specific interdependencies between economy, community, and ecology. Based on qualitative methodologies and a geo-historical approach that considers the economic, social, and environmental legacies of past agricultural modernization processes, and their implications for the present and the future, the chapter examines the sustainability of the ongoing agricultural intensification and financialization processes in the area of the Alqueva dam.

Ana Horta and Mathias Gross's contribution addresses the crucial issue of energy transitions. Chapter 11 begins by presenting the mainstream view of how digital technologies can contribute to a sustainable energy transition, with a focus on the role attributed to households' information about these technologies and how this has been discussed as a deficit of knowledge. The chapter then de-constructs technological determinism and rational choice by highlighting the complexity of relationships between users and technologies at the household level, proposing instead a theoretical framework based on ignorance studies. Non-knowledge is not taken as a barrier to social acceptance of digital technologies, but rather as a label for the uncertainty and unpredictability of ways users can deal with these objects.

Chapter 12, by Sónia Goulart Cardoso et al., presents a preliminary study on public support for vegetarian meals in public canteens. The authors

assess the influence of a set of beliefs and individual variables, namely, views concerning the environment, meat-eating habits, and perceived vegetarian threat.

Virginia Calado's chapter 13 is in close relation with chapter 5, by discussing food insecurity but on a wider, global scale, influenced by UN policies. The author calls for more consideration of the contribution that ethnography can give in an issue dominated by extensive, quantitative studies.

Finally, chapter 14, by José Luís Garcia et al., identifies and analyses current trends in the organization and management of online media. The authors examine media sustainability and sustainable journalism as an extension of the concept of sustainability to the media field taking place in a period in which the convergence between the processes of digitalization, globalization, and liberalization brought about a thorough reconfiguration of the media universe and of the rationales underlying the production, dissemination, and consumption of information. Based on a set of four case studies, the chapter questions the extent to which the broadening of sustainability may have produced contradictory meanings, between two fundamental aspects of journalism; the business aspect related with the media companies, their market positions and stakeholders' interests; and the ethical and political aspect related with sustainability's informative function and counter-power role, aimed at an inclusive, responsible and responsive politics.

The book ends with a brief postscript by João Ferrão, in which he reflects on the contributions of the social sciences to the sustainability debate, highlighting the seven main aspects that bring coherence and unity to the diverse contributions in the book.

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CITE THIS CHAPTER AS:

DELICADO, A., N. Domingos, L. de Sousa. 2018. “Introduction”. In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 11-23.
<https://doi.org/10.31447/ics9789726715054.00>

PART I

Setting the scene

1.

Sustainability: dynamics, pitfalls, and transitions

Luísa Schmidt
João Guerra

INTRODUCTION

The holistic notion of sustainable development (SD) — i.e. the integrated promotion of social well-being, economic prosperity, and safeguarding of the natural environment — arose with the first signs of the ecological crisis in the 1960s and 1970s. However, the concept acquired consistency and visibility, above all, with the publication of the Brundtland Report, which defined its scope: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987, 43). Later on, Agenda 21, the action plan emerging from the Earth Summit (UNCED 1992) contained proposals for action, promoting an idea of governance for sustainability (i.e. with greater involvement and participation of all interested parties, from international institutions to citizens) and taking into account the basic prescriptions of the Brundtland Report: to provide for current and future human needs and, at the same time, to respect ecological limits.

This is accordingly a polysemic idea that combines two different areas: development (which promotes quality of life) and sustainability (which makes that objective viable in the long term). Given that the concept of sustainability originates in the biological and ecological sciences, it was created to describe the limits to the extraction and consumption of natural resources that ensure their underlying ecosystems are not threatened. In the social science field, in line with a practice started in the Brundtland Report, the term is usually used as a result of SD or as a synonym for it. In the latter case, the focus is directed to the relationships between natural, social, and economic capital, highlighting the conditions under which such complex and interdependent relationships may last (Vos 2007), but opening up myriad possibilities of achieving that durability.

In effect, “the idea of sustainability assumes that there is some appropriate convergence of economy, environment, and equity that we should try to achieve. But whose convergence? If the convergence were based on the very high-consuming developed world model, the world would be depleted of resources very quickly. But if the world were to strive towards a model of subsistence sustainability, there would be an outcry from the more developed nations” (Brinkmann 2016, 233).

SD has thus given rise to considerable criticism, with many authors arguing that the need to restrict production and consumption practices has basically

been ignored. Even if, as Herman Daly stated in his seminal 1990 article, development does not mean growth – “growth is quantitative increase in physical scale, while development is qualitative improvement or unfolding of potentialities” (Daly 1990, 402) – the idea of development has become “distorted” through the imposition of economic growth as an unquestioned social objective: “as countries experience increased growth their productive capacity expands and they ‘develop’...” (Redclift 2005). In other words, this close association, which stubbornly persists at least in political discourse and the social imaginary, has produced a kind of vicious cycle of inoperability, based on the subordination of SD to the market imperative i. e. “grow or perish” (Flinders 2012).

Perhaps for this reason the expression “sustainable development” has often been rejected in favour of the simpler “sustainability”. However, it should be emphasised that despite the different origins and semantics related to growth – i. e. “sustainable development assumes that growth is possible and desirable, (...) sustainability does not assume that economic growth is essential, nor that economic growth will inevitably result in net environmental harm” (Redclift and Springett 2015, 113), both terms see the economy, society, and the environment as three interdependent aspects of the same reality.

The way the transition to more sustainable patterns of development is viewed and implemented depends, for that reason, on the experiences and opportunities those patterns provide, and the extent to which they commit to challenging “dominant values and goals, as well as current practices of development” (Pelling, O’Brien and Matyas 2015, 124-125). Thus, as Tim O’Riordan emphasises, the years ahead “will make or break the effectiveness of any meaningful transition to sustainability no matter how this deeply ambiguous concept is defined” (O’ Riordan 2014, 497).

This chapter will accordingly, in section one, analyse social archetypes, the discrepancies between discourses and practices, and the slippage factors that have characterised SD. Section two regards some indicators (e. g. trends in the ecological footprint and social inequality) that reflect the dynamics of global (un)sustainability. Section three makes an overall assessment of sustainability today as a key programmatic concept for transforming society. The conclusion seeks to identify what conditions will make sustainability possible in the critical circumstances facing humanity in these early decades of the twenty-first century.

FROM ARCHETYPES TO SLIPPAGE

Considering the current global situation and indicators relating to aspects of SD, we may state that most of its ideals went by the wayside. For some, moreover, SD was a kind of “white blackbird, which no-one has ever found” (Latouche 2004, 26-27). Behind poor results dissected below, there are a few archetypes (i. e. sets of beliefs, interests, and basic social values) that underpin attitudes towards sustainability and/or SD that do not always converge.

In day to day life, these archetypes – (a) dominant social paradigm, (b) thin, and (c) thick versions of sustainability (Vos 2007) – influence choices and boost positions on a pathway that has been delimited by slippage factors such as: (i) the excessive attachment of the idea of sustainability to the environment, which makes it difficult to see the problems in an integrated way; (ii) the trivialization of the terms SD and/or sustainability, which drains them of meaning and effectiveness; (iii) their subjugation to economic growth, which continues to “colonise” the social imaginary in modern life.

ARCHETYPES OF SUSTAINABILITY

Let us begin therefore with social archetypes, adopting the advanced definition suggested by Caroline Myss. According to this author, “although archetypes are collective symbols (...), they can also speak to us individually, as personal archetypal patterns that are the foundation of our beliefs, drives, motivations, and actions, organising and energising all our relationships in life” (Myss 2013, 2-3). Table 1.1 shows those foundational models of behaviour, offering in schematic form three possible types of archetypes of sustainability, as put forward by Robert Vos (2007).

The first approach is based on the Dominant Social Paradigm, focused mainly on the growth imperative and anthropocentric values in which environmental issues are of only residual significance among the most basic concerns. In this approach nature is basically seen as a source of resources and raw materials, and techno-scientific rationality emerges as an indispensable and effective ally in overcoming the environmental difficulties imposed by development. This sceptical position in relation to the existence of an ecological crisis assumes that resources are infinitely renewable, and that the human capacity to overcome the above-mentioned difficulties is likewise infinite. Hence, there are no limits to economic or demographic growth. Issues of social equity are

Table 1.1 *Archetypes of sustainability*

	DOMINANT SOCIAL PARADIGM	THIN VERSIONS OF SUSTAINABILITY	THICK VERSIONS OF SUSTAINABILITY
ONTOLOGY OF NATURE	Nature as raw materials for the human economy	Some intrinsic values recognised in nature	Many intrinsic values recognised in nature
SUBSTITUTION FOR NATURAL CAPITAL	Infinite substitution	Some natural capital cannot be substituted	No declines in natural capital
ECONOMIC GROWTH	No limits	Win–win relationship emphasised	Must slow and reverse growth
POPULATION GROWTH	No limits	Population growth must be accompanied by per capita offsets	Must slow growth and achieve declining populations
ROLE OF TECHNOLOGY	Technological rationality	Cautious scepticism	Deep scepticism
SOCIAL EQUITY	Left to the market	Takes connections into account	Attention to redistribution
STAKEHOLDER PARTICIPATION	Decisions by experts	Collaborative stakeholder processes	Grassroots democracy

Source: Vos (2007, 336).

not related to ecological issues and, since the latter are not a core concern, their resolution is left to techno-science and the laws of the market. In this line of thinking, decisions are mostly reserved for technicians and the politicians they advise, with no room for public participation and sharing in decision-making, which the Brundtland Report (WCED 1987), the Rio Declaration, and Agenda 21 (UNCED 1992) all clearly advocate.

The *thin* version addresses sustainability in a pragmatic way. This is a reforming and conciliatory vision that seeks to achieve change based on close co-operation between the various seats of power and civil society and, in this way, to influence decision-making processes. This approach awards nature intrinsic value, but subject to the social and economic values on which the success of any action leading to conservation and/or protection of nature's values depends. Arguing above all for “win-win” situations, this approach recommends paying special attention to social inequalities (invariably tied to environmental inequalities) and appeals for the involvement and participation, as far as possible, of all parties and interests present. Economic and demographic growth should therefore be seen in that context of reconciling interests, in

which they take on an ambiguous role together with science and technology. On the one hand, these drivers of development are seen as being responsible for current ecological problems, albeit with varying degrees of responsibility. On the other hand, there is recognition of the crucial role they may play in some cases in obtaining solutions to those same problems.

The *thick* and most radical version of sustainability adopts demanding positions, above all in connection with the need to protect the environment and fight for the maintenance and viability of ecological conditions. In general terms, it assumes that there is greater difficulty in reconciling environmental and socio-economic interests. In this approach, nature has an intrinsic value, not dependent on human interests. Accordingly, there is no belief in any prodigious solutions put forward by science and technology to maintain ecosystem equilibrium. Rather, it advocates a re-orientation of the economy, the system of production, and the consumer society, with a view to slowing down or even reversing economic growth; closer attention to demographic issues which, in large measure, are associated with those of development; and an effective redistribution of resources to provide for the needs of less favoured nations and communities. To this end, it is deemed essential to have a policy of broad and coherent participation in decision-making processes, on the assumption that building public consent, by means of participative and deliberative methodologies, is fundamental in ensuring the success of restrictive measures that are not always easy to implement (Jackson 2009).

Assuming these archetypes are not watertight, the SD model chosen will depend on the interplay of power, interests, and socio-cultural circumstances, based on many possible configurations (Guerra 2011). Moreover, it is this elasticity of the concept that has enabled it to become ubiquitous, while at the same time being devalued in theoretical and normative-programmatic terms (Sachs 2015). The worsening of the ecological crisis over recent decades has contributed to this, alongside the albeit intermittent socio-economic crisis (Schmidt and Guerra 2016). As Olivia Bina states, “the transition between millennia was marked by the exacerbation of both. In developed nations economic growth (in terms of GDP) tumbled, unemployment and inequality of wealth and income reached new heights, producing a knock-on effect on emerging economies” (Bina 2013, 1023).

Indeed, the Dominant Social Paradigm, living up to its name – which assumes the growth and centrality of humanity in the world as incontestable values (Dunlap et al. 2000; Dunlap 2008) – has tended to prevail, involving

certain constraints and barriers that have had significant slippage effects, such as those we analyse in greater detail below.

PREDOMINANCE OF THE ENVIRONMENT

Environmental concerns began to acquire some visibility in society from the 1960s on, when the first avowedly environmental disasters occurred, signs of dwindling resources emerged, and it was recognized “that human activities are altering the ecosystems on which our existence – and that of all other living species – is dependent” (Dunlap et al. 2000, 426). This confirms the idea that we are undergoing a societal reassessment of our worldviews, questioning the imbalances in our relationship, as humans, with the physical environment. This new social paradigm – the New Environmental Paradigm – has taken hold in most modern societies, albeit at different speeds and in a non-linear way, progress alternating with setbacks (Dunlap et al. 2000).

Be that as it may, as a result of the “rapidity of change and the speed with which new situations are created [and] follow the impetuous and heedless pace of man rather than the deliberate pace of nature” (Carson 1962), concern with environmental decay has become the conduit and bedrock of the idea of sustainability. Publication of Rachel Carson’s (1962) “*Silent Spring*”, the “*United Nations Conference on the Human Environment*” in Stockholm (UNCHE 1972), and publication of *The Limits to Growth* (Meadows et al. 1972), are three milestones in the emergence and gradual consolidation of new ecological values and the resulting rethink of Humanity’s place in a world of planetary limits.

Certainly, it was not the visibility and prominence of environmental issues that alone blocked implementation of SD, given that there is no future without the ecological conditions to sustain it. But the projection they achieved relegated other aspects – societal, institutional, economic – to the background, or at least circumscribed them to disconnected action plans, making it difficult to see the required overall picture. As a result, the notion of sustainability often coincided with “environmental sustainability” and the concept of SD ended up having an influence primarily on global environmental policies and through them on national environmental policies.

Although there is a degree of consensus that the societal dynamics that bring about environmental decay have direct implications for public health, societal well-being, and the economy – affecting above all countries and groups

less well prepared to face up to the challenges of that environmental decay – the trend over recent decades has been for an insistent and counterproductive separation of these areas. While on the one hand it has always been argued that “sustainability is not exclusively or even primarily an environmental issue” (UNDP 2011, iv), on the other hand it is undeniable that many practices and “theories on sustainability view equity and the plight of the poor as separate and unrelated” (UNDP 2011, 19). This means, without denying the central importance of environmental issues in modern societies, that the holistic (and overlapping) socio-environmental thinking behind the original idea of SD has not prevailed. Instead, disconnected battlefronts were created. If they had come together, the defenders of the holistic approach to sustainability argue, they might have produced more satisfactory results.

TRIVIALISATION OF LANGUAGE

In spite of all this, the idea of SD has gained widespread acceptance, driven by the ecological crisis and its effects on people’s (present and future) lives. From the time of the Brundtland Report on (WCED 1987), it became a cross-cutting concept, at least in terms of discourse, in many development policies. Despite this broad consensus, “murmurs of disenchantment are also being heard. ‘What is SD?’ is being asked increasingly frequently without, however, clear answers forthcoming” (Lélé 1991, 607).

“Surfing the waves” of the politically correct masks reality and deters any sceptical or prejudiced reaction to sustainability, which is thus “in real danger of becoming a cliché (...), a fashionable phrase that everyone pays homage to, but nobody cares [about]” (ibid.). This gap between discourse and reality has repercussions on the state of the world and aggravates inequalities amongst countries and social groups, on account of the exponential growth of the ecological footprint which, with this lame global reaction, today threatens ecosystem viability and human civilisation as we know them, reflecting the global and unprecedented effects of human activity on the planet, which have ushered in a new era: the “Anthropocene” (Crutzen and Stoermer 2000; Latour 2017).

As we have seen above, it is true that environmental decay was the *leitmotiv* of SD but, in a global perspective, its “adverse consequences are time-delayed and/or distant on a huge planet. Time lags and geographical distance between anthropogenic causes and harmful consequences are conditions that push

unsustainability and danger out of focus and make them very different from the experience of disaster that becomes a focusing event. These conditions foster complacency which impedes action to avoid incubating disasters” (Murphy 2015, 400). Thus, even though SD has become part of the social, economic, and political jargon spread by the institutions of global governance, and a slogan for environmental and development activists, the world situation is tending to deteriorate, whichever way it is looked at.

While the progress SD has made should not be discounted, its effective implementation has often taken place in a fundamentally evasive fashion (Adger and Jordan 2009), superficially and in large measure with no results (Redclift 2005). Effective integrated action would be required to deal with the social and environmental effects of pollution and resource scarcity. In practice, however, crucial reforms have been delayed, and action has been limited to “wishful thinking” (Dryzek 2003; Guerra and Schmidt 2016), thereby necessarily diminishing the practical results of SD. In sum, we are living “in an age of sustainababble” (Engelman 2013), in which the very term “sustainability” is itself used in a not very sustainable way.

GROWTH AS OBJECTIVE

From early on the problems of co-ordinating development and sustainability were stressed as significant barriers to undertaking more balanced development. In a way, SD is the result of combining two contradictory terms that render it an oxymoron of poor practicality (Daly 1990; Redclift 2005). As Herman Daly warned shortly after the publication of the Brundtland Report, the idea of growth is too strongly embedded in the semantics of SD – and apparently on its own merits. See for example the following sentence, extracted from the Gro Harlem Brundtland’s preface: “What is needed now is a new era of economic growth – growth that is forceful and at the same time socially and environmentally sustainable” (WCED 1987, Chairman’s Foreword).

To be fair, Brundtland was arguing for socially and environmentally sustainable growth and was thinking above all of poorer countries less well equipped to face the challenges of sustainability. But as Daly wrote: “since the human economy is an open subsystem of a finite, closed, global ecosystem which does not grow (...), the term ‘sustainable growth’ should be rejected as a bad oxymoron — poetically unevocative, as well as literally contradictory. The term ‘sustainable development’ is much more apt, but in critical need of

operational clarification if it is to live beyond the short life expectancy of the average buzz word” (Daly 1990, 402).

Perhaps because that clarification never took place, the promises of the movement initiated at that time are forever stubbornly postponed. Environmental decay continues without mercy, just like the inequalities that produced and encourage it (Moore 2011), and despite the implicit renunciation of the capitalist/productionist development model that underpins the consumer society, little has been done to bring about the change advocated.

On the contrary, since the 1990s the

neoliberal ascendancy (the “Washington Consensus”) used fiscal incentives and sanctions at the international level to “roll back” the state, in both developed and emerging economies, and to give free rein to the market through abolishing government subsidies to producers, combined with the overhaul of external tariffs (“structural adjustment”). These market reforms eventually paved the way for accelerated economic growth, notably in the BRIC countries (Brazil, Russia, India and China) at the expense of growing internal inequality and the plunder of natural resources (Redclift and Springett 2015, 4).

In other words, despite the widespread discourse on sustainability, the questioning of market ideology – grow-or-perish – is frequently seen “as the act of a lunatic, idealist, or revolutionary (and frequently all three)” (Flinders 2012, 138). The consequences of growth are ignored, and promises are made to cater to the satisfaction of everyone’s needs (present and future generations) without questioning the patterns of excessive consumption, which only current North/South inequalities make possible (Moore 2011) – all this despite the increasing application of those patterns to the so-called emerging economies, which help to call planetary limits even further into question.

FROM UBIQUITOUSNESS TO A CROSSROADS

The difficulties of implementing SD are due, in the final analysis, to the same factors that made it ubiquitous: elasticity and polysemy. “At the very least, the definition varies by scale and context of application; at the most, it varies by ideological constraints in its application” (Vos 2007, 334). Perhaps for this reason, the difficulties in its effective application have unfolded at the various levels of governance and in the diverse documents and international

conferences that have taken place since the Earth Summit. The last two World SD Summits, for example – Johannesburg (2002) and Rio+20 (2012), stood out for the lack of targets, timescales, and concrete commitments, representing clearly retrograde steps compared to the Rio Summit in 1992 (Soromenho-Marques 2003; Schmidt and Guerra 2016).

At the same time, as outlined by the Intergovernmental Panel on Climate Change, anthropogenic global warming is the foremost of an entire set of emerging development problems that require an integrated response (IPCC 2012). Based on such and other above-mentioned findings and warnings, there have been successive reports demonstrating the progressive deterioration of the global environment – with the continuous increase in greenhouse gases, pollution of air and water, the accelerated depletion of natural resources, and the increasing gap between rich and poor countries, and within them.

With some results that cross ecological and economic data, surmounted by a set of social perceptions' indicators, in the following pages we illustrate this detachment between proposals and achievements.

The trends in the Global Footprint are a good illustration of the discrepancy between that which is preached and that which is in fact implemented. It confirms the established inertia – a political and social reluctance to adopt different attitudes and behaviours (Wuthonow 2005) – which despite the holistic, cross-cutting, and omnipresent idea of SD and its normative documentation, has exacerbated the ecological deficit, i.e. the difference between nature's regenerative/productive capacity and the ecological footprint. In effect, the data of Figure 1.1 point to a disappointing record of implementation of SD, confirming that the relationship between the right to development (mentioned in the Bruntland Report and in Rio 1992) and the stabilisation of ecosystems, advocated at least since the publication of *Limits to Growth* in 1972, continues largely ignored.

In the same way, the Millennium Goals approved in 2000 by the United Nations General Assembly, which aimed at eradicating poverty by 2015, with clearly quantified targets, fell far short of being achieved (Anand and Sen 2000). That was one of the reasons why the UN set out new "Sustainable Development Goals" for 2015-2030.

The evolution of wealth distribution over recent decades is also not satisfactory. In line with the Milanovic's Elephant curve (Figure 1.2), there are positive trends between 1988 and 2011, with growth of income in some countries, mainly China, but also countries like India, Brazil, Turkey, and

Figure 1.1 World ecological deficit/reserve per capita (1961-2013)

Source: Author’s own elaboration from © 2017 Global Footprint Network. *National Footprint Accounts*, 2017 Edition. Please contact Global Footprint Network at data@footprintnetwork.org for more information.

Figure 1.2 The Milanovic’s elephant curve (1988-2011)

Source: Birdsall (2017).

many Eastern European countries, leading to millions of people climbing above the poverty threshold. However, in the rich countries of the North, growth over the same period was dramatically lower. Of course, the starting point is so profoundly unequal that enormous differences between North and South persist.

With incomes of the middle and lower-middle classes in rich countries having been adversely affected as a result of the financial crisis (2008-2011), confidence in the institutions and functioning of democracy were eroded (Guerra, Schmidt and Valente 2017), leading increasingly to “destabilising political repercussions as the squeezed middle class seek more responsive politicians to champion their cause” (O’Riordan 2014, 498). This situation, which often degenerates into populist movements boosted by defence of “our living standards” against globalisation and the financial system, may become an additional barrier to sustainability, because those who most benefitted from the period of crisis were the “richest of the rich”, whose rates of growth match the minoritarian, but exponential concentration of wealth represented by the elephant’s trunk in the diagram. This “trillionaire” minority has far exceeded other groups and, at least in the West, in a mass of “losers” in the middle and lower classes, was the only group that can clearly be viewed as a “winner” (Birdsall 2017).

To sum up, over the last two decades we have witnessed: (i) growth in societal inequalities, with a small group of the hyper-rich benefitting from deregulation; (ii) the crumbling of social trust and the rapid rise of populist demonstrations that feed on growing feelings of insecurity, and (iii) the exponential growth of consumption in some countries of the South, with no effective “degrowth” in the North offsetting it.

Thus, despite the pattern demonstrated by Milanovic’s Elephant curve, when looked at overall, inequalities between countries remain broadly unchanged or have increased, with no one effectively gaining, apart from a small group of highly privileged people. This is evident in Figure 1.3, which combines the Ecological Footprint with the Human Development Index for 2013. There is a statistically significant co-relation (Linear $R^2 = 0.560$) that seems to prevent the pursuit of the imperatives of sustainability, making it difficult to find an example that complies with the minimum standards required to achieve truly sustainable development. This situation occurs as a result of (i) excess production and consumption and consequent ecological decay, and (ii) lack of resources to enable a dignified life (i.e. human development).

Figure 1.3 confirms, above all, the regional imbalances revealed in the clear concentration of a large number of poor countries in the lower left-hand corner, together with a relatively low ecological footprint (low consumption, low environmental impact) and intolerable levels of societal sustainability (e.g. Burkina-Faso, Burundi, Chad, Democratic Republic of Congo, Eritrea, Mozambique, Niger, and others). At the opposite extreme we find those countries with a high ecological footprint together with high indices of human development. This covers a small group of countries including the richest and most developed in the world, which means oil-producing countries like Kuwait and Qatar, for example, together with Australia, Canada, the us, and many of the countries of the European Union.

Global imbalances become even more obvious when countries' incomes are considered (Figure 1.4). While low-income countries account for a little more than half of what the planet can produce to meet their needs (0.6), high-income countries require the equivalent of 3.7 planets to achieve the same goal. In other words, if the standard of living of the rich countries were to become widespread, we would need almost four planets. Even if the index

Figure 1.3 Ecological footprint and GDP per capita in 2013

Source: Author's elaboration from © 2017 Global Footprint Network. *National Footprint Accounts*, 2017 Edition; Human Development Report 2013 – UNDP (<http://hdr.undp.org/en/data>).

Figure 1.4

*Ecological footprint in 2013
– Earths needed according
to income*

Source: Author's elaboration from © 2017 *Global Footprint Network. National Footprint Accounts, 2017 Edition*.

underlying the ecological footprint is open to criticisms in terms of how data are collected and measured, the truth is that there is little doubt in overall terms that we are living far beyond the planet's regenerative capabilities, and that situation is the result, essentially, of lifestyles in the more affluent countries.

From this perspective, the “generous” discourse of sustainability is a mere expedient and, for some, a way of legitimising intervention and appropriation of the South's resources by the dominant countries of

the North (Pureza 2000; Latouche 2005, 2009; Redclift 2009). In fact, the sustainability agenda has been outlined almost exclusively by the countries of the North, reflecting their problems and interests, in a kind of Western ecological neo-imperialism (Latouche 2005; Beck 2009). One symptom of this is the dominant and recurring concern with problems that will affect future generations, while at the same time minimising problems facing many regions and countries of the South in the present (Latouche 2005; Redclift and Hinton 2008; Redclift and Springett 2015).

In his recent encyclical *Laudato Si*, Pope Francis gives a clear warning of this imbalance, linking environmental issues to inequalities and seeing the equation of justice and carbon emissions as being decisive for the North/South response to the effects of climate change. He thus challenges the world to pursue truly sustainable development, because he sees in it the necessary capacity to adapt to a more intelligent economy fit to counter the prospective decline of human societies (Pope Francis 2015).

With current levels of societal and environmental decay, sustainability continues to be a guiding concept, and the requirements for pursuing it seem to be the only viable options in a world that is at a difficult and uncertain

crossroads. As Al Gore states: “human civilisation has reached a fork in the road we have long travelled. One of two paths must be chosen. Both lead us into the unknown. But one leads towards the destruction of the climate balance on which we depend, the depletion of irreplaceable resources that sustain us, the degradation of uniquely human values, and the possibility that civilisation as we know it would come to an end. The other leads to the future” (Gore 2013, 277).

This inescapable and urgent idea of change is indeed supported by countless scientists and pre-eminent thinkers from all areas. For example, on the Potsdam Memorandum, adopted at the First Interdisciplinary Nobel Laureate Symposium on Global Sustainability (held at Potsdam, in 2007), scientists from all areas stated that “we are standing at a moment in history when a great transformation is needed to respond to the immense threat to our planet. This transformation must begin immediately and is strongly supported by all present at the Potsdam Nobel Laureate Symposium” (*Potsdam Memorandum*, published in Schellnhuber et al. 2010, 369).

FROM CRITICISM TO MOBILISING FOR CHANGE

To overcome this persistent pattern of unsustainable development, “we need nothing less than a different concept of socio-economic progress, based on a new understanding of the relationship between humans and nature. [Then], the hope is that the limitations of greening discourses will contribute to reinvigorate the discussion around SD models for the 21st Century” (Bina 2013, 1042). From this point of view, some writers underline the importance of sustainability as a discourse to inspire change in society, the economy, and the environment, positing development and environment as two sides of the same coin (Brown 2001). In this perspective, the excessively rhetorical aspect of SD discourse is part of its strength, to the extent that one of its aims is to test how influential it can be, in a kind of persistent, drip-feed effect. It anticipates and promotes public policies and societal practices that take time and require new conditions (Ferreira de Almeida 2000).

In truth, it is difficult to deny that seeds germinate: the topic is on the agendas of national and international policymakers; it has cognitive influence, which enables consensus, even if it is somewhat rhetorical; it has become part of the logic of production; it is embedded in scientific research priorities; and

represents a cumulative process of triumphs. Some indicators are particularly significant, not least the UN's Agenda 2030, as embodied in its Sustainable Development Goals which, unlike the Millennium Goals, are of universal application. On the same scale of importance is the Paris Agreement, ratified by all the countries of the world at COP 23 held in Bonn in November 2017. Despite the announced exit of the US, this agreement will involve joint action by all countries to reduce greenhouse gas emissions, and a set of funding measures and programmes to deal with climate change specifically for the countries of the South.

In addition, many international and European organisations¹ have been encouraged to produce manifestos, with innovative proposals, for a new, greener, more sustainable, and circular economy, in the sense of promoting co-operation for the integrated harnessing of resources (Ferrão 2014). These are manifestos and programmes that define the assumptions of sustainability. In other words, they demonstrate how to restore the "health" of the economic system by creating jobs and businesses and at the same time combating the "crises" of the crisis: dependency on fossil fuels, the devastation of finite resources, the global loss of biodiversity, the food disaster, and stubborn poverty – problems which in turn have effects on the climate cycle and bring enormous risks regarding climate change and its consequences.

Finally, we should stress the key role of civil society as a driver of change. At the heart of its most effective involvement are: (i) the provision of information and scientific knowledge in a creative and motivating way and (ii) new mechanisms for public participation using innovative methods and spaces for civic engagement. The coordination of governance and sustainability strategies is another of the requirements put forward by, for example Agenda 21 (UNCED 1992). This is a *sine qua non* condition for an ethics of practical action, which by reinforcing proximity and establishing trust, is at the heart of the transition advocated, all the more so because weak or weakened states (as today's states increasingly are) need stronger civil societies; and the greater the involvement of all, in a balanced way, the greater will be the success of SD policies (Wuthnow 2005).

1 For example: EC (European Commission), EEAC (European Environment and Sustainable Development Advisory Councils), EEB (The European Environmental Bureau), EOSD (European Organisation for Sustainable Development), OECD (Organisation for Economic Co-operation and Development), SDC (Sustainable Development Commission – UK), UNEP (United Nations Environment Programme), UNO (United Nations Organization), WBGU (German Advisory Council on Global Change).

The potential for public involvement derives from this cross-cutting perspective of sustainability, which is reflected in the way citizens relate to environmental values today, even if anthropocentric values persist and are only gradually replaced, in a dynamic that depends on economic and social circumstances (Dunlap et al. 2000).

In effect, if we take into account some of the ISSP (*International Social Survey Programme*) indicators and how they have evolved in the first decade of the twenty-first century (Figure 1.5), there is a clear trend of general growth in ecological values² among interviewees in 35 countries on 5 continents.³

The higher average scores (3.53 and 3.55) obtained by the statement that questions the planet's ability to continue to support the growth of the world's population should also be noted. They show that this is a problem that the bulk of the world's population has taken on board, even if in some geographical areas an ageing population accounts for a dynamic that trends in the opposite direction.

Two other variables emerge at a second level, questioning "modern life" (3.28 and 3.32) or the idea that much of what is said about the environment and the ecological crisis is exaggerated (3.29 and 3.17). The other remaining three variables – concern with the environment of the future (2.87 and 3.01), the idea that economic growth harms the environment (2.88 and 2.90), and the excuse that doing anything about the environment is too difficult (2.82 and 2.76) – find less agreement amongst interviewees but, even so, show positive average values and are trending consistently towards pro-ecological positions.

These values provide evidence of some hesitation between opting for anthropocentric or ecological values. But the general trend is for a progressive greater support for ecological values, even considering the fact that the economic and financial crisis which began in 2008 may have caused the pro-ecological inclination of some interviews to waver (but not regress). Without

2 For variables that do not call on environmental values – "much about the environment is exaggerated" and "doing [something] about the environment is too difficult" – the trend is negative. So here too there is increasingly a pro-ecological and pro-sustainability attitude.

3 In the third round of ISSP Environment (which took place between 2010 and 2012) the following countries were present: Argentina, Austria, Belgium (Flanders), Bulgaria, Canada, Chile, Taiwan, Croatia, Czech Republic, Denmark, Finland, France, Germany, Iceland, Israel, Japan, South Korea, Latvia, Lithuania, Mexico, Netherlands, New Zealand, Norway, Philippines, Portugal, Russia, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, Great Britain, and United States.

Figure 1.5 *Trends in agreement with statements relating to the environment*

Source: Author's elaboration from ISSP Research Group (2012): International Social Survey Programme: Environment III – ISSP 2010. GESIS Data Archive, Cologne. ZA5500 Data file Version 2.0.0, DOI: 10.4232/1.11418.

this, the trends recorded could well have been much more positive (Guerra, Schmidt and Valente 2017).

The 35 countries in the sample may not be representative of the whole planet, so these results should be viewed with a degree of caution. Here too, moreover, we can see the planetary imbalances that consecutively exclude many millions of human beings. The idea, however, is to show how environment, economy, and modern ways of living are intimately connected not just in their physical consequences (social and environmental decay), but also in perceptions of them and in the positions adopted by citizens in the most diverse geographical contexts, given that the trends are global and emerge regardless of the affluence of the countries in which the study took place.

To finalise this analysis let us examine whether these same interviewees feel any effects of ecological decay in their day-to-day lives. The results in Figure 1.6 show that almost half (44.6%) of them do; about one quarter of them (24.5%) are undecided, and only one quarter state that they feel no direct effect of ecological decay on their day-to-day lives. It is significant, therefore, that a large majority of interviewees are somewhat apprehensive about environmental problems.

Interest in, and concern with, the environment derive undoubtedly from a multiplicity of contextual factors, in which attitudes about modern life and the

Figure 1.6

Direct effect on everyday life of environmental problems

Source: Author’s elaboration from ISSP Research Group (2012).

economy are only part of a complex set of interdependencies. There are many other variables involved, but these have not been analysed here, for lack of space. For example, in many of the countries usually regarded as being more developed, growing ecological awareness goes hand in hand with implementation of more effective environmental policies. For this reason, signs of ecological recovery may contribute to a positive assessment of national performance and thereby produce environmental danger and risk assessments that reduce people’s concerns, but not their appreciation of the quality of the environment, whether for present or future generations. In fact, when environmental disasters do arise, as occurred in 2011 with the accident at the Fukushima

nuclear plant in Japan (Schmidt, Horta and Pereira 2014), the critical sense becomes sharper and more prominent, making inroads in countries where environmental policies are not as well developed and have produced fewer environmental gains.

CONCLUSIONS

As Eli da Veiga (2012 [2011]) points out, until the late sixties of the last century, the adjective “sustainable” was just jargon used by some scientific communities to evoke the possibility of an ecosystem not losing its resilience. However, as we have tried to emphasise above, after the “legitimacy” gained in the Brundtland Report and the Agenda 21, the notion has been put under suspicion on all fronts: from the staunchest “grow-or-perish” supporters to the most fundamentalist environmental defenders. The disconnect between

the proliferation of discourses on Sustainable Development and the failure to apply them in practice seems a source of discredit, which results from three basic factors:

- Inherent contradiction, which makes the concept an oxymoron, and thereby difficult to apply in practice, because of the prevalence of the economic imperative to “grow-or-perish”, in the face of societal inertia and the ineffectiveness of politicians and policies. The linear objective of economic progress produces risks of ecological damage. When it is claimed by everyone, regardless of the level of economic development, it may become unsustainable (Latouche 2009);
- The ubiquitousness and elasticity of the terms SD and/or sustainability, which, having the advantage of being disseminated and their principles and objectives widely known, also trivialise the concept by applying it on occasions that often do not go much beyond rhetoric and superficiality. While it is not new, the concept of sustainability has come to be accepted, and has been partly assimilated, but little implemented in practice, in a slow process that does not challenge established interests (Redclift and Hinton 2008).
- Its excessive association with environmental problems, which ultimately weakens SD programmes. This is not because environmental problems are insignificant, but because government and political institutions tend to undervalue the ecological crisis and hence to operate and make decisions in a way that discounts the linkages between environmental problems and economic dynamics, in a context of “organised irresponsibility” (Beck 1995).

These disconnects occur because the rigour implicit in “thick sustainability” goes hand in hand with greater demands (e.g. more improvement, more commitment, more complexity). While these produce disagreement and resistance, the more obvious choice (for political decision-makers, but not only them) normally falls on the “thin” version of sustainability. As Thaddeus Miller rightly stated, “the context and conflict that come with thickness are absent in thin sustainability” (Miller 2011, 30). The option to go for less demanding versions of Sustainability is thus often a deliberate one and, while on the one hand it enables progress on certain points on which there is a consensus, it is also true that it helps to postpone the more significant decisions.

In this no man's land, the less pressing and less visible consequences of environmental, societal, and economic decay are ignored, and in general terms people and institutions become complacent, hindering more effective action. The results of the increasing ecological footprint, and increasing inequality, are a good demonstration of the relative failure of SD policies adopted in recent decades. What we have witnessed is not a balance between the *thin* and *thick* versions of sustainability, but basically the maintenance of the dominant paradigm, intersected now and again by more successful actions generally more in line with the *thin* version.

Even so, it cannot be denied that there has been “a continuous shifting of efforts to try to advance long-term sustainability based on local, national, regional, or international conditions” (Brinkmann 2016, 232). This shift, over almost three decades, did not go unnoticed in the world – by institutions, political actors, and citizens. Despite the relative lack of success, of which we have given an account here, it cannot be said that we would be better off without the effort that was actually made to popularise and even implement Sustainability, even if in an *ad hoc* and “thin” manner. The data show some signs that extreme poverty has been reversed and that environmental awareness has become a cross-cutting and ongoing phenomenon. Hence the significance of policies that acknowledge (and put into practice) the holistic nature of Sustainability, and the importance of disseminating the results of successive world reports so as to: (i) establish that the path the world currently continues to pursue is unsustainable, and (ii) outline the urgent need to reverse this destructive process by building Sustainability.

For the challenge of change to have tangible effects, citizen mobilisation and involvement take on a key role in an increasingly interdependent world, in a situation that demands collective and across-the-board commitment not only in ways of thinking, acting, producing, and consuming, but also in reorganising, restoring, and improving, and even more so in a context of the progressive weakening of states. In this sense SD emerges as the narrative most likely to overcome the challenges of the twenty-first century. Because it involves all – citizens, businesses, government – in a global programme to revive the economy in new ways that will reconcile employment and the conservation of the environment, not forgetting the most vulnerable groups and the need to ensure equitable access to available resources. This may be wishful thinking but, as Tim O’Riordan emphasises, the transition “is [already] happening in the streets and fields of the unexplored niches of heartening sustainability

transitions” (O’Riordan 2014, 516), even if very gradually and while not being immune to the social and economic status quo. These initiatives, often undertaken by civil society at the local level, are specific, ephemeral instances of short-lived resistance. And they will continue to be ephemeral if the transition to Sustainability, advocated by nearly all and practiced by almost no one, does not become reality. But there seems to be no other way.

While it is true that social norms and behaviours are resistant to change, and even more so the institutions of government that could influence them through active public policies – which surely makes it more difficult to achieve long-term change – it is almost certain that we have little room for manoeuvre and that the time remaining to us is rapidly running out.

The global crisis which, to a large extent, remains *ad infinitum* in contemporaneity, can be seen as “a declaration of bankruptcy by a society that subsidises its ‘wealth’ by externalising the main part of the costs linked to production and consumption, imposing them on coming generations, on human beings living far away, and on nature’s capital. These costs involve the exploitation of the environment, as well as financial debts and burdens” (Töpfer 2010, 375).

This means that all that is left is to take compliance with the Sustainable Development Goals adopted by the UN in September 2015 seriously. In strengthening the socio-economic aspects of SD, these goals seek to embed an effective strategy for eliminating poverty, reducing the growth in consumption, and preventing the decay of ecosystems, which will necessarily involve the difficult challenges of stopping exponential population growth and reducing carbon emissions, as provided for in the Paris Agreement.

On the other hand, sustainability is also a matter of better articulating the conservation of human life and human quality of life with the conservation of natural resources and environmental quality. For SD to be effectively practiced, a proactive complementarity must be achieved between a narrative of ecological limits (which underlines difficulties and the aggravated pressure on natural resources) and a more optimistic narrative that does not impose the inertia by discouragement (Schmidt 2017). In line with ecological modernisation (Mol 2002), and counting on ingenuity and innovation at various levels: technological, scientific, institutional, political, human... this kind of Promethean narrative can also help to reverse the degradation process if associated with the idea of limits and adjusted to natural constraints.

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CITE THIS CHAPTER AS:

SCHMIDT, L., J. Guerra. 2018. "Sustainability: Dynamics, pitfalls and transitions". In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 27-53.
<https://doi.org/10.31447/ics9789726715054.01>

2.

The 2030 Agenda: trends of transition toward sustainability

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INTRODUCTION

Sustainability is a ubiquitous landmark in contemporaneity, and its definition is as diverse as it is ambiguous. On its behalf, the Earth and Mankind's salvation is often claimed, but more than the planet's rescue, what sustainability implies is the reinforcement of the transition process through new social practices and behaviours (Veiga 2011 [2010]). It is an outcry for innovative ways of preserving the commons, and to efficiently maintain the ecosystems' biocapacity on which depends the conditions of existence of the present and the future generations.

Nevertheless, the ubiquity of the concept, coupled with its programmatic and conceptual elasticity, has probably contributed to some disenchantment and measurement difficulties, though the world situation would hardly be better without it. At least from 1987, when the seminal and the most consensual definition of Sustainable Development (SD) was established by the Brundtland Report (WCED 1987)¹, many successes have been obtained. Whether they will be enough to avoid the announced ecological disaster is the question.²

In any case, three decades later, rather than disagreeing on unreached global principles, the lack of consensus on how to act and how to measure progress made seems to be a critical failure. Global governance bodies, national and local governments, civil society, and people from different social segments yearn for logical references to guide individual behaviours and essential decision-making in the absence of a steady, broad, inclusive, and long-termed path of fostering environmental and social quality. The deployment of framing, measurement, and monitoring tools is thus crucial to overcoming the "wishful thinking" in which SD has become (Guerra and Schmidt 2016), and "Sustainable Development Goals" (henceforth SDGs), are well positioned for it.

In this chapter we thus present the 2030 Agenda and its 17 SDGs in a disruptive context of environmental and social imbalance. To better illustrate trends of such context of implementation, after presenting the holistic view

1 For a more precise definition, please see Schmidt and Guerra in the first chapter of this volume.

2 The concept of sustainable development is an oxymoron that contains a combination of contradictory terms or purposes: (1) the fulfilment of essential needs of Humankind, particularly the world's poor; (2) the imposed ecological limits to economic growth and development and, therefore, to meet present and future needs of humanity (WCED 1987). Such inherent contradiction, claims the critical thinking of SD, primarily results in its ineffectiveness or poor effects (Redclift 2005).

of sustainability and its background, the current framework of 2030 Agenda will be analysed. Then, the available database of *SDG Index and Dashboards 2017* (see at www.sdgindex.org) will be used to provide an overall appraisal of this ongoing endeavour, crossed by Human Development Index and income average of countries. Also, to cover the trends released by former Millennium Development Goals, the review will be complemented by other more concrete and diachronic information, mostly gathered from the World Bank databank (<https://data.worldbank.org/>).

Our aim is to present the current world situation so that, as claimed in the 2030 Agenda, no one is left behind (UN General Assembly). However, when the very battery of SDGs indicators is under refinement and not yet universally available, this goal was only partially achieved. Many countries (by insufficient or disqualified data) are not present in the analysis, and this must be underlined as a significant constraint. The concluding remarks would thus reflect on the expected results of the 2030 Agenda and on opening and follow-up strategy, which seeks a traceable transition toward a more balanced society, from both an environmental and a social point of view.

BACKGROUND OF A HOLISTIC VIEW

Environmental problems and their rebounds to human-life are at the root of SD and emerged with the industrial revolution and its impact on natural resources (Redclift 2005). Therefore, some pioneering work on the genesis of the Brundtland Report must be mentioned. One of the keys surely is “Silent Spring” (Carson 1962), a postulate empirically built about the threat of life on “earth’s green mantle” by the use of synthetic pesticides. Carson’s work was a trigger of the environmentalist movements, and thus of a social change based on the gradual emergence of a new ecological worldview (Dunlap 2008).³

But the primordial attempt to measure the exponential impacts of civilisation on a finite planet was “The Limits of Growth”. Based on model equation simulations of futures that warned about the potential for a global collapse of the biological system that sustains human life, this work became

3 As per Riley Dunlap, this process of gradual and non-linear social change is driven by, among other things, the increasing environmental concern, and the assumption of environmental values and attitudes. However, to cover all the process, the author suggests the use of the term “worldview”, since it reflects the growing degree to which people view the world ecologically (Dunlap 2008).

an influential appraisal of environmental degradation, but also the genesis of the sustainability idea. Worries about “human environment” came from the exponential economic and population growth within limited resource supplies and industrial pollution (Meadows et al. 1972). Nevertheless, the book was not unanimously accepted. Some authors criticised the assumption of replay by the world of the US pattern of consumption (Furtado 1974).

If we look at Household Final Expenditure trends from the 1970s to our days, according to the World Bank, with countries aggregated by their profile of income some evident differences do confirm Furtado’s doubts (Figure 2.1). Note that the top line in the chart represents the total amount of the world final consumption expenditure in the period from 1970 until 2015, followed top-down by curves respectively of the expenditures by high, middle, and low-income countries, according to the availability of their official data. Thus, at least in part, Furtado’s criticism was right in considering the incapacity of the low-income states to have performance similar to prosperous economies.

Even so, if one compares those data with the current impacts of global consumer society, Meadows’ team was also right. The total of the world’s final consumption expenditure (sum of private or household and government consumption) rose from US\$ 15.196 trillion in 1970 to US\$ 53.999 trillion in 2015. During this period, 2009 was the only year in which a decrease occurred.

Figure 2.1 World household final expenditure (in constant 2010 US\$)

Source: Authors’ own elaboration. Data retrieved from World Bank National Accounts Data - <https://data.worldbank.org/indicator>.

The financial crisis caused a loss of US\$ 216 billion in expenditures but recovered in 2010 by an absolute increase of US\$ 1.244 trillion in expenditure: from a negative annual growth of 0.45% in 2009, there was an upswing of 2.51% in 2010 (Figure 2.2).

After all, Carson's and Meadows' warnings seem to have had a tiny effect, and more than ever "the numbers are overwhelming (...). Earth's being battered by humanity – and it's coming from every direction. Greenhouse gases. Ocean acidification. Chemical pollution. It has all reached a point where our future is at risk. For the first time in human history, we may have pushed the planet too far" (Rockstrom and Klum 2015, 15). And all this happens in a world where unacceptable levels of deprivation perpetuate: 766 million people, 45 million of them children, lived on less than \$1.90 a day in 2013; poor nutrition causes 45 percent of the deaths among children under age 5, etc. (UNDP 2016), and despite the common acceptance that sustainability would hardly happen in a world where wider questions of social needs and welfare are ignored or not integrally related to ecosystemic limits (Agyeman et al. 2002).

Bearing this in mind, and that the metrics of well-being deserve a separate follow-up with a reliable compass other than the reductionist Gross Domestic Product (Stiglitz, Sen and Fitoussi 2010), the UN-sponsored "Millennium Summit" was held at the United Nations headquarters in New York City, in September 2000. It resulted in the landmark "Millennium Declaration" and the Millennium Development Goals (MDGs), adopted but not entirely fulfilled by 189 countries. Mostly seeking to eliminate human poverty and to promote

Figure 2.2 *Household consumption expenditure and CO₂ emissions*

Source: Authors' own elaboration. Data retrieved from World Bank National Accounts Data – <https://data.worldbank.org/indicator>.

equity and social capabilities, this international agreement implied a set of commitments that have brought considerable success (Table 2.1).

However, despite MDGs' results and beyond – “between 1990 and 2015 the aggregate HDI value of the least developed countries increased 46 percent, and the aggregate HDI value for low human development increased 40 percent” (UNDP 2016, 26) – clear signs remain that humanity is still despoiling the present at significant cost to the future (Rockstrom and Klum 2015). On the one hand, the gains made in the last decades are far from addressing the negative impacts of the increasingly globalised consumer society. On the other hand, this imbalance tends to exacerbate the effects on

Table 2.1 *Millennium Development Goals Achievements*

GOAL	RESULTS IN 2015
Eradicate Extreme Poverty and Hunger	Population under US\$ 1.25/day reduced to 14% (50% in 1990), totaled 836 million (1.9 billion in 1990); Undernourished dropped to 12.9% in developing areas. Middle class (more US\$ 4/day) tripled.
Promote Universal Education	School net enrolment reached 91% (83% in 2000); Youth (15-24) literacy increased to 91% (83% in 1990). Gender gap narrowed.
Promote Gender Equality and Empower Women	Asia: 103 girls enrolled for 100 boys (74 in 1990); 41% paid workers outside rural area (35% > 1990); Parliamentary representation in 90% of 174 countries. Less 13% vulnerable employment of female work.
Reduce Child Mortality	Declined: 43 over 1,000 births (90 in 1990); 6 million deaths of children (12.7 million in 1990); Fivefold faster reduction of <5y-o mortality in Africa.
Improve Maternal Health	Maternal mortality fell 45% since 2000; 71% births assisted (59% > 1990); Four antenatal visits to 89% of pregnant women (50%) in Africa
Combat HIV-AIDS, Malaria, & other diseases	New HIV infections dropped 40% to 2.1 million (3.5 million in 2000); Malaria incident rate in Africa to 37%; 58% fewer deaths.
Ensure Environmental Sustainability	Ozone-depleting substances eliminated, layer to recover; Protected areas rose 23.4% in Latin America (1990-2014); 58% of world population enjoys drinking water; 2.1 billion people gained improved sanitation; Slums fell to 29.7% of the urban population (39.4% in 2000)
Develop Global Partnership for Development	Official assistance increased to US\$ 135.2 billion (66% over 2000); Five European countries exceeded UN target of 0.7% of their income; External debt of developing countries fell to 3% (12% in 2000); Mobile-cellular tenfold, 7 billion in 2015 (738 million in 2000); Internet reaches 43% of world's population.

Source: Adapted from UN General Assembly 2015.

deprived communities and less-favoured social groups. Indeed, it is clear that “discounting the future, valuing the present above the future, is much easier to do in materially poor societies where survival itself may be at stake for many people” (Redclift 2005, 215).

Given this, a new and more integrated strategy of action has been considered. Under the 2030 Agenda, 17 interconnected new goals with 169 targets were designed for the following 15 years (UN General Assembly, 2015). The intent is to build on the MDGs and complete their promising but narrow and sectoral achievements, in a more integrated, inclusive, and balanced manner. Universally thought to cover all geo-economic contexts, the 2030 Agenda considers different national realities, capacities, and levels of development, as well as national priorities. Moreover, and crucial to sustainability implementation, SDGs are providing a universal, and comparative framework of performance, evaluation, and monitoring, and through them, an expected significant contribution to a more accurate and crosscut sustainable mode of development.

CURRENT FRAMEWORK

Implementing the idea of SD – some authors prefer sustainability since it “carries less political baggage”⁴ – is plainly a challenge. It connects several areas of knowledge: from biology and environmental sciences to governance and social sciences, but it is always associated with societal goals. Such complexity, in which vested human interests (e.g., social, economic, political) are hardly ignored, seems to have prevented an accurate understanding and prolific monitoring of sustainability (Guerra 2011). And this is what SDGs proponents seek to address.

Strengthened by previously achieved experience and results, the SDGs rely on a collective, inclusive, and monitorable endeavour (Swanson 2015, 5). It is a multilevel governance strategy that depends on: (i) the use and improvement of pre-existing sources of information; (ii) the sponsoring and facilitating of new sources; and (iii) the strengthening of statistical capacities, especially in developing countries (UN General Assembly 2015).

In a broader and comprehensive perspective of the 2030 Agenda, the 17 SDGs can be grouped into five “P areas”: People, Planet, Prosperity, Peace, and

4 See Schmidt and Guerra in the first chapter of this volume.

Partnership (Figure 2.3). These spheres can be understood in two groups of instrumental purposes. The first three (at the top of the diagram) somehow replicate the three traditional dimensions of the SD. They have a mutual perspective that is visible when measured, which are a minimum dignifying material basis for the vulnerable population in a healthy environment. Also, they include variables driven by production and consumption factors considering natural resource degradation, as well as climate change (CC) preparedness requirements.

The second group (at the bottom of the diagram) consists of “a collective journey” to ensure the pursuit of values, means, and conditions. It refers to what is usually known as “governance factors”: strong institutions and social capital, and the resulting capacity to co-operate on a win-win basis, and the fostering of just and inclusive societies under the spirit of both intra- and inter-generational solidarity.

Following this structure, the “Inter-Agency Expert Group on SDG Indicators” was established in March 2015 by the UN Statistical Commission to develop and implement the global indicator framework. Based on their level of methodological development and acceptance, the set of available indicators has thus been separated into three tiers: (i) conceptually clear,

Figure 2.3

The five ‘P’ areas of action on SDGs

Source: Authors' own elaboration based upon the 2030 Agenda (UN General Assembly 2015).

established methodology and standards, regularly produced by countries; (ii) conceptually clear, established methodology and standards, not regularly produced by countries; (iii) no established methodology or standards available, which must be developed or tested.

There was no preconceived differentiation of the indicators, but the mere aim to achieve a gradual improvement on strategies. Under this classification, amongst the total of 244 indicators, about 65% fall into tiers 1 or 2, and the remaining 35% are in tier 3, needing more work to grant them applicability (UN-ESC/Statistical Commission 2017). After all, it is expected that global data availability, as well as methodologies of reliability, will improve over time since a mechanism for updating is foreseen from an early stage of the 2030 Agenda.

The list in Table 2.2 displays the reformulation of a previous version of 2015, presented by Statistical Commission on March 2017 (Ibid.). With this set of intervention areas, goals, and indicators, we should be facing “an unprecedented step to advance and strengthen a novel type of governance that will guide and ‘orchestrate’ public policies and private efforts” (Biermann and Kanie 2017, 295). It was expected that this new stage of global sustainability endeavour would provide more effective integration of the various dimensions of SD, along with the inclusion of different communities, and the inclusion of diverse levels of development. From the poorest to the most affluent, from the privileged to the least favoured, all are called upon to take part in the joint endeavour.

In sum, SDGs are an ambitious initiative still to gain traction at global governance. Since 2015 countries have been invited to submit voluntary national reviews of their progress to the United Nations High-level Political Forum on Sustainable Development. But many of them still struggle with implementing the full range of official SDG indicators (Sachs et al. 2017), to judge from the unavailability of required data.

Lack of quality and opportunity, shortage of human and financial capacity, methodological difficulties in data standardisation and comparability, all are impediments to managing a comprehensive tracking of the 2030 Agenda. Those mainly happen in some Southern countries where the monitoring installed capacity is nonexistent or residual (e.g., poorest and least-developed countries, small island developing states, failed or near-failed states). Furthermore, “the process of bringing on board a wide range of actors, each using different methodologies and approaches to produce, analyse, curate and disseminate data, will be messy and [even more] challenging” (Espey 2017, 4).

Table 2.2 *Sustainable Development Goals and numbers of target and indicators*

FULL DISCRIMINATED SDGS	TARGETS	INDICATORS
End poverty in all its forms everywhere	7	14
End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	8	13
Ensure healthy lives and promote well-being for all at all ages	13	27
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	10	11
Achieve gender equality and empower all women and girls	9	14
Ensure availability and sustainable management of water and sanitation for all	8	11
Ensure access to affordable, reliable, sustainable, and modern energy for all	5	6
Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all	13	17
Build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation	9	12
Reduce inequality within and among countries	10	11
Make cities and human settlements inclusive, safe, resilient, and sustainable	10	15
Ensure sustainable consumption and production patterns	10	13
Take urgent action to combat climate change and its impacts	5	8
Conserve and sustainably use the oceans, seas, and marine resources for sustainable development	10	10
Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt biodiversity loss	12	14
Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels	14	23
Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development	19	25
<i>Totals</i>	<i>172</i>	<i>244</i>

Source: Adapted from UN-ESC/Statistical Commission, 2017.

There are thus plenty of partial, sectoral, national, and regional reports (e. g., Eurostat, OECD, World Bank, National Statistics, Corporations, Universities, NGOs), but they globally fail to show the current worldwide picture. Even the UN report (UN 2017) limits the analysis to specific areas within the 17 goals, without presenting up to date global comparative values.

A GLOBAL COMPARATIVE AND UP TO DATE ANALYSIS

If the follow-up of the pursuing process of SDGs is the proposed enormous task of the 2030 Agenda, a few years after the take-off, the available data surely do not fit for a diachronic analysis. Instead, this initial phase and the non-stabilisation of data suggest a global approach of the still-to-unfold situation and its emerging dynamics. Therefore, the next pages allow only a partial, if not negligible, understanding of reality.

Our choice was to get an overall picture ultimately based on data prepared by a task force of independent experts on sustainability. Based whenever possible on the official SDG indicators – prescribed for the voluntary country-led follow-up and review process – the Sustainable Development Goal Index as well as the 17 sub-indexes – one for each SDG – have been thought and calculated considering the quality, the representativeness, and the comparability of the available set of indicators.⁵ The result is reliable and comparable information for 157 countries, which allows us to compare the performance of countries and regions and, above all, to assess the present global situation by crossing these indexes with other data. It is thus a useful tool for interested researchers and stakeholders on sustainability, who can carry out specific and diversified analysis.

Taking the 17 goals in a single composite index (SDGI, $\alpha=0.851$), what factors then promote sustainable development.⁶ According to Figure 2.4, human development seems to be a *sine qua non*. As the R^2 value makes clear

5 The SDG Index and Dashboards comprise 99 indicators, of which 83 are included in the global SDG, jointly developed by a team of independent experts of Bertelsmann Stiftung (Germany) and Sustainable Development Solutions Network (SDSN). The report (Sachs et al., 2017), as well as the SDG Index and Dashboards database can be downloaded in Excel and Stata formats at www.sdgindex.org. For a better and complete appraisal of methodological issues, both must be consulted.

6 The results obtained and the conclusions achieved may not reflect positions of SDSN, or of Bertelsmann Stiftung.

Figure 2.4 *Crossed global averages of SDGI and HDI in the World*

Source: Authors' own elaboration. Data retrieved from SDGI and Dashboard 2017 (www.sdindex.org).

(0.859) to guarantee the best performances in sustainability measured by SDGI, countries need human development and, indeed, this is not new. As underlined in the Brundtland Report, “a world in which poverty and inequity are endemic will always be prone to ecological and other crises. Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life” (WCED 1987, 54). That is why both concepts – Sustainable Development and Human Development – have been increasingly interacting over the last decades (Guerra 2011).

Worth mentioning is the also meaningful relationship between the SDGI and the income of countries. After all, the poorest would have the least capacity to promote necessary change, although they are the most susceptible to the effects of environmental degradation such as climate change (see, for example, Guerra and Schmidt 2016). This is clear by looking at either the income level of countries or at the most extreme points of the interception line: sub-Saharan Africa in the lower left, Scandinavian countries in the upper right corner, corresponding to the lowest and highest performances, respectively.⁷

⁷ Following a similar pattern, the Portuguese score follows the EU average, while Brazil is in-between other BRICS, like China and Russia.

Let us then begin with a glance at the 17 goals in a more disaggregated way, complementing the *SDG and Dashboard Index* data with specific MDGs evolution indicators (2000-2015) for highlighted areas, by either above-average scores or below-average scores. According to Figure 2.5, the world performances are very differentiated from area to area, and from goal to goal. The data also show the field of social issues (“People”) as the globally best scored, with three of the five goals presenting a score higher than 70. In turn, the economics (“Prosperity”) obtains only one goal that stands out: “sustainable cities and communities” with a score of 73.6. Finally, in the environmental area

Figure 2.5 Average score on the 17 SDGs

Source: Authors' own elaboration. Data retrieved from SDGI and Dashboard 2017 (www.sdgindex.org).

(“Planet”), “life below water” and “life on land” show some of the worst scores: 45.55 and 59.86 respectively, which probably result from their apparent lack of correlation to human well-being or immediate human interests.

Such results partially confirm those reported so far by states to the *UN High-Level Political Forum on Sustainable Development*. Despite the problems of comparability mentioned above, a first review of those reports found a best performance on socioeconomic SDGs (Bizikova and Pinter 2017). For now, taking advantage of such data availability and its potential for breakdown, we will investigate the questions in depth, more detailed analysis of each of the “P” areas and their goals, to uncover and trace the dynamics initiated with the MDGs at the beginning of this century.

PEOPLE (GOALS 1, 2, 3, 4, AND 5)

In the present age, common sense sees the eradication of poverty and hunger as utopian, but at the same time considers immoral and unsustainable the abyss between opulence and privation. This bears a resemblance to the abolitionist movements in the 19th century, including its similar benefit to the expansion of markets, here again, from fear to hope. Successful attempts are already achieved (e.g., global poverty halved since 2000; the adoption of measures to prevent malnutrition and food insecurity), although the numbers of Figure 2.6 suggest that continued effort is required.

Furthermore, despite the high Cronbach’s alpha for this first group of five SDGs ($\alpha = 0.899$), there is one goal that stands out for the better: No poverty;

Source: Authors’ own elaboration. Data retrieved from SDGI and Dashboard 2017 (www.sdgindex.org).

and two relatively more complex social endeavours that stand out for the worse: Gender equality; Zero hunger. To allow a more concrete view of the on-going dynamics of change, and given the impossibility of carrying out a complete analysis of indicators and objectives, let us focus on a “*flag indicator*” of each of these three SDGs.

Goal 1 – End poverty in all its forms everywhere – Being out of poverty is the very essence of sustainable development (UN 2017). However, according to statistics, an estimated 767 million people lived below the extreme poverty line in 2013. Compared with 1.7 billion people in 1999, the rate of poverty dropped from 28.6% to 10.7% in 2013.

Hence, despite its relatively positive score, compared to the remaining goals of this area, much remains to be done. Figure 2.7 is only an example, a *flag indicator* that should be complemented by many other indicators showing equally worrying signs. If the progress made is undeniable, there are sure signs that poverty is becoming increasingly concentrated in specific countries, which means that an unequal distribution pattern remains. Here, as in other areas of DS, the so-called “business as usual approach” proved insufficient to solve the problem. As an example, the continuing wave of refugees crossing the Mediterranean toward Europe is a clear signal that much must be done.

Figure 2.7 Poverty headcount ratio at \$1.90 a day (2011 PPP) (% of the population)

Source: Authors' own elaboration. Data retrieved from World Bank National Accounts Data – <https://data.worldbank.org/indicator>.

Goal 2 – End hunger, achieve food security and improved nutrition, and promote sustainable agriculture – It is recognised that individual food consumption is currently measured with precision in only a few countries and for relatively limited samples. Nevertheless, the idea of environmental scarcity is becoming consensual (Schnaiberg 1980), as signs of ecological degradation become evident, jeopardising the Earth’s food production capacity. A profound change in this area is thus needed to nourish the world’s growing population.

The available data show a decrease from 14.8% to 10.7% of undernourished people between 2000 and 2015 (Figure 2.8), a continuous problem located in low-income countries of the South. Without neglecting problematic cases of localised hunger in affluent contexts, at this level of analysis, the problem is almost residual in that it never surpasses 0.6% of the total population. Indeed, “at the current rate of progress, the world will not meet the zero-hunger target by 2030” (UN 2017). The high population growth rate contributes likewise to bad performances, but plant and animal genetic resources are getting scarce, and investments in sustainable agriculture are considered lagged.

Figure 2.8 *Prevalence of undernourishment population (%)*

Source: Authors’ own elaboration. Data retrieved from World Bank National Accounts Data – <https://data.worldbank.org/indicator>.

Goal 5 – Achieve gender equality and empower all women and girls –

Another of the imbalanced goal scores is “gender equality”. Despite some advances in this area, “one hundred fifty countries still have, at least, one law that treats women and men differently, and 63 countries have five or more” (World Bank 2017, 26). Moreover, physical or sexual violence against women and girls are still common in all regions of the planet, depriving victims of their basic rights and opportunities.

However, the most comparable data (our chosen “flag indicator”) refer to the proportion of seats held by women in national parliaments (Figure 2.9). In this, also considered as a “milestone” of gender equality’s challenges, we can find at the bottom not the usual low-income countries group, but the lower middle-income countries. A different pattern that can be explained by broad institutional biases and adverse social norms that still undermine women’s empowerment around the world (the maximum here achieved is 26.7% within high-income countries). Nevertheless, from the data, overall improvement is quite explicit.

Figure 2.9 *Proportion of seats held by women in national parliaments (%)*

Source: Authors’ own elaboration. Data retrieved from World Bank National Accounts Data – <https://data.worldbank.org/indicator>.

PLANET (GOALS 6, 12, 13, 14, AND 15)

This “P area” is the place to plot all prospects for the planet. Ecological limits and the stressed ecosystemic balances advise an already uncontested decrease of the “looting” of nature, which makes environmental issues central in today’s societies. Since the the 1970s, it has been claimed that the ecological limits have been exceeded (Schmidt and Guerra in the first chapter of this volume). This has led to some social action, mainly within the environmental goals related to social causes (e. g., Goal 6 – Clean Water & Sanitation; Goal 13 – Climate Action). Below the average of this group of SDGs, perhaps because the relationship with day to day life is less visible, we find the more strictly environmental goals, and above all the Goal 14 – Life Below Water (Figure 2.10).

Following this “anthropocentric bias”, which implied the lowest alpha ($\alpha = 0.332$) and, therefore, a less reliable sub-index, we will focus the analysis on the evolution of the four *flag indicators* of goals whose score stands out from the average.

Figure 2.10 Average score on the five goals of “Planet’s area”

Source: Authors’ own elaboration. Data retrieved from SDGI and Dashboard 2017 (www.sdgindex.org).

Goal 6 – Ensure availability and sustainable management of water and sanitation for all – Safe freshwater ecosystems are essential to life and environmental sustainability, but remain very unequal, whereas its indicators are critical for child survival, maternal health, children’s health, family well-being, and of course economic prosperity.

Being simultaneously an environmental and a social indicator it attests to qualities of both natural ecosystems and human life. In 2015, at the beginning of the 2030 Agenda, no more than 6.6 billion persons had access to improved drinking water sources and 4.9 billion to sanitation facilities. According to Figure 2.11, “improved water source” is by no means a problem of high-income countries. There, the percentages of population covered are invariably around 100%. In turn, the situation is far from satisfactory in low-income countries, despite the improvements achieved in the period analysed by the MDGs (52.3% to 65.6%). Indeed, the percentages of population covered in those countries lowered the global average to 91% but did not determine a sharp drop of Goal 6, which reached 78.32, one of the highest scores in Planet’s area.

Figure 2.11 *Access to improved water sources (% of the population)*

Source: Authors’ own elaboration. Data retrieved from World Bank National Accounts Data - <https://data.worldbank.org/indicator>.

Goal 13 – Take urgent action to combat climate change and its impacts

– More acutely than ever, Climate Change, and its socioeconomic impacts, recall the hypothesised “Limits to Growth” by Meadows et al. in 1972. The question is thus how to reconcile long-term environmental goals with short-term economic logic, often shot through with national egotisms that seem to be even more difficult to overcome? (Guerra and Schmidt 2016).

Climate risk is the outcome of the interaction between the risks associated with climate conditions and the various degrees of vulnerability and exposure to natural and human systems (IPCC 2015, 13). To address it, thus building a bridge between SDGs, the Paris Agreement, and the Sendai Framework are probably the answer. To adequately measure such process a complex set of indicators is needed, but due to the scarcity of space, we are limited to one flag indicator: CO₂ emissions.

The climate change mitigation undertaken by reducing CO₂ emissions had results, mainly among high-income countries, but not enough to counterbalance the growth of emissions within upper-middle-income countries. This confirms the importance of SDGs transversality. In any case, the second-highest score achieved amongst the 17 SDGs, and the highest within “Planet” area, is apparently insufficient, as confirmed in the trend shown in Figure 2.12.

Figure 2.12 *CO₂ emissions (metric tons per capita)*

Source: Authors’ own elaboration. Data retrieved from World Bank National Accounts Data – <https://data.worldbank.org/indicator>.

Goal 14 – Conserve and sustainably use the oceans, seas, and marine resources for sustainable development; and Goal 15 – Protect, restore, and promote sustainable use of terrestrial ecosystems... – The loss of biodiversity and the ever-diminishing capacity of ecosystems (whether maritime or terrestrial) is increasingly evident (Carson 1962; IPCC 2015). Life below water, *i.e.* the largest ecosystem on Earth, is suffering permanent severe damages in our days. Ocean acidification changes ocean chemistry, as evidenced by buoys, wave gliders, and scientific projects. In turn, although it fulfils vital functions for humanity (as habitat for biodiversity, carbon sequestration, coastal protection in mangroves, and soil and water conservation), the forestland and the global terrestrial ecosystems are being hit by a similar degree of destruction.

The problem gains even more importance because it is mostly invisible to the lay citizen, who still does not link ecosystems damage to resources availability, and the quality of life of present and future generations. An accurate measurement of those areas is thus crucial to give visibility of such problems and to plan a more sustainable future. Since there is a common indicator, we decided to introduce a single “flag indicator” for both Goals, showing terrestrial and marine protected areas by the level of countries’ income (Figure 2.13).

The in-part invisibility, and in-part misunderstanding of environmental degradation, which depends above all on the consumerism that nowadays spreads to the whole world, indeed explain the disappointing scores achieved,

Figure 2.13 *Terrestrial and marine protected areas (% of total territorial area)*

Source: Authors' own elaboration. Data retrieved from World Bank National Accounts Data – <https://data.worldbank.org/indicator>.

despite the increase in marine and terrestrial ecosystems protection. This yet improving trend is mainly found among high-income countries, where the protected areas increased from 9.8% to 16.4% between 2000 and 2014. In turn, the two middle categories of countries (upper-middle and lower-middle income) show the most modest results. After all, those are contexts in which the pressure of growth is high, without the counterpoint of organised and demanding citizenship to foster environmental protection (Schmidt, Nave and Guerra 2010).

PROSPERITY (GOALS FROM 7 TO 11)

Given the current ecological scarcity and the overall scope of the environmental, economic, political, and social crisis, no one seriously denies the need for sustainable economic practices. Nevertheless, the partial and short-term corrections, which have been implemented all over the world, do not seem sufficient (Guerra and Schmidt 2016). Since the overall environmental quality continues to fall, a coherent notion of prosperity is needed in a global and transversal effort. “One in which it is possible for human beings to flourish, to achieve greater social cohesion, to find higher levels of well-being and yet still to reduce their material impact on the environment” (Jackson 2009, 35).

This utopian sounding endeavour (although not new), requires a deep commitment by all countries. It depends on the availability of funds and the countries’ performances and, no less important, the renewed monitoring capacity proposed in the 2030 Agenda. Therefore, the idea of sustainability

Figure 2.14 *Average score on the five goals of “Prosperity’s area”*

Source: Authors’ own elaboration. Data retrieved from SDGI and Dashboard 2017 (www.sdindex.org).

is embedded in the evaluation of economic goals present in Figure 2.14. This is a less positively evaluated area, which globally does not exceed 59.1, while the overall average is 65.4. This seems to be a kind of “Achilles’ heel” of sustainability where, in any case, there exists a diversity of performances. Two indicators stand out from the average: “Goal 11 – Sustainable Cities and Communities,” with the highest score (73.6); and “Goal 9 – Industry, Innovation, and Infrastructures” with the lowest (33.46). Let us then see, as above, one “flag indicator” for each of those two “outlier” goals.

Goal 9 – Build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation – The socio-geographical imbalances of economic growth increase the pressure on ecosystems and social vulnerabilities. We are therefore faced with a critical factor of modernity and sustainability when we look to it. Indeed, this kind of “endemic” imbalance of modernity spreads to every economic activity, but perhaps for a “flag indicator” of goal 9, the annual growth of manufacturing value added (Figure 2.15) well fulfils the function. It is closely linked to industrial production and, consequently, to consumption stimulus; and disaggregated data availability for every year of the period under review enable a better illustration of circumstantial effects.

Therefore, to better mirror these data, the chart of Figure 2.15 does not sufficiently respect the standards of previous ones. With more-disaggregated

Figure 2.15 *Manufacturing, value added (annual % growth 2000-2015)*

Source: Authors’ own elaboration. Data retrieved from World Bank National Accounts Data – <https://data.worldbank.org/indicator>.

synchronic information, it indicates that high-income countries have had a weak performance following the crisis of 2008. It shows a marked vulnerability to economic crisis, and a quasi-full determination to the world economy. Meanwhile, the “outsider status” of the most low-income countries provides an apparent resistance to setbacks and upsets imposed by business cycles, as evidenced in 2009.

Goal 11 – Make cities and human settlements inclusive, safe, resilient, and sustainable – In 2014 much of the world population (54%) lived in urban areas. This global urbanisation shows growth rates never seen before, and by 2050 the percentage is expected to reach 66%. The cities and the people who live in them are thus determining factors for sustainability.

As part of previous MDGs, Goal 11 calls for sound urban planning to promote the quality of life of almost 800 million residents in slums, informal settlements, or inadequate housing (spatial limitations, limited water supply, and subject to arbitrary evictions). But as seen before for other indicators, these difficulties are not felt the same way all over the world. If for high-income countries numbers are not even worth recording, at other levels the situation is disparate. While all groups show declining trends of slums inhabitants, among low-income countries – those with a more fragile position with 65.2% of their urban population living in slums – improvements seem more challenging

Figure 2.16 *Proportion of urban population living in slums*

Source: Authors’ own elaboration. Data retrieved from World Bank National Accounts Data – <https://data.worldbank.org/indicator>.

to obtain. Here, the decrease of slum population reached 6.1%, compared to 13.2% in lower-middle income countries, and 9.6% in upper-middle income countries. As in other areas of social prosperity, national performances are not immune to the installed capacity and national affluence.

PEACE AND PARTNERSHIP, LAST BUT NOT LEAST AREAS

Governance and sustainable development are often seen as interconnected concepts, with common characteristics and interdependent potentials (Guerra 2011). Sustainability is thus an arena in which initiatives and instruments of public participation (authority exercise and power sharing; capacity to implement sound policies; respect for institutions) have been gaining increased visibility and public acquiescence, at least since the Earth Summit in 1992 (Guerra 2011).

In the end, this convergence is the driver of the whole project of SDGs, forming a hub with radial connections with the other three facets of the diagram previously presented in Figure 2.3. Goals of peace and partnership derive from the eighth MDG (“Global Partnership Development”), in which peace means order and no violence, while partnership implies commitments and aid, and both are linked by strong institutions: the *sine qua non* conditions for nations’ prosperity, and thus for sustainability (UNECE 1998).

Figure 2.17

*Average score
on Peace (Goal 16) and
Partnership (Goal 17)
areas*

Source: Authors’ own elaboration. Data retrieved from SDGI and Dashboard 2017 (www.sdginindex.org).

As the collection and comparability of data are leading obstacles to the construction of composite indicators like SDGI, the relatively good performance of those two drivers of sustainability (Figure 2.17) can be due to the absence in the index of some of the more problematic countries in those areas. Indeed, whether because they are too small – with no installed capacity to produce such information – or because those countries are going through periods when political power tends to collapse, a considerable number of countries have been excluded from the index. Examples include many of the island developing states, and other

States such as Equatorial Guinea, Eritrea, Guinea-Bissau, Libya, North Korea, Papua New Guinea, South Sudan, etc. With some of these countries included, the achieved score would certainly be lower.

Goal 16 – Peace, justice, and strong institutions – The fulfilment of this goal was thought as promoting participatory governance to:

- foster public acquiescence to sustainability measures;
- prevent all forms of abuse, exploitation, trafficking, torture, and violence, inside and outside national borders;
- enhance global cooperation through the UN Security Council and other UN institutions;
- retard the spread of wars and extreme violence as is now afflicting many countries of the world (SDSN 2015).

To better measure this complex area of intervention on which depends the success of the 2030 Agenda, we hereinafter refer to the WGI – World Governance Indicators (www.govindicators.org). This database consists of six composite indicators of broad dimensions of governance covering over 200 countries since 1996.⁸ The set of composite indicators is based on several hundred variables obtained from 31 different data sources, capturing governance perceptions as reported by survey respondents, nongovernmental organisations, commercial business information providers, and public-sector organisations worldwide (Kaufmann, Kraay and Mastruzzi 2010, 2).

Additionally, to present enough succinct data, we crossed each of the six indicators by the average income of the countries, according to the UN classification.

8 Control of Corruption is an index that captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption; next, Government Effectiveness captures perceptions of the quality of public services, its independence from political pressures, and the credibility of the government's commitment to such policies; third, Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism; then, Regulatory Quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations for the private sector; fifth, Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society (e.g., contract enforcement, property rights, the police); finally, Voice and Accountability captures perceptions of political participation, freedom of expression, freedom of association, and a free media.

Table 2.3 shows that there is a positive relationship between the countries' level of income and the governance dimensions evaluation (total values: $r = 0.699$, $p = 0.000$), meaning that it is the poorest countries that most need to invest in this area. Moreover, it should be noted that the evolution between 2000 and 2015 shows a general erosion in all dimensions. This trend is especially felt in "political stability and absence of violence", among the "high-income countries". In turn, registered improvements are much rarer but surely occur, as in the case of "upper-middle-income countries" in which "government effectiveness" is at stake. Since the current situation is not brilliant, maybe this is a sign of hope for the 2030 Agenda.

Table 2.3 Governance score by income level of countries (2000 to 2015)

GOVERNANCE DIMENTION		2000				2000-2015			
		LOW INCOME	LOWER MIDDLE INCOME	UPPER MIDDLE INCOME	HIGH INCOME	LOW INCOME	LOWER MIDDLE INCOME	UPPER MIDDLE INCOME	HIGH INCOME
Control of corruption	2000	26,17	28,29	40,25	82,84	-1,23	0,82	0,35	-1,76
	2015	24,94	29,10	40,60	81,08				
Government effectiveness	2000	23,43	33,37	42,18	83,07	-4,56	-2,78	6,63	0,54
	2015	18,87	30,59	48,81	83,60				
Political stability and absence of violence	2000	26,07	32,33	38,30	78,63	-1,20	-3,99	1,80	-7,74
	2015	24,88	28,34	40,11	70,89				
Regulatory quality	2000	26,93	34,17	42,61	82,74	-1,32	-2,76	3,10	0,22
	2015	25,62	31,40	45,72	82,96				
Rule of law	2000	23,52	30,51	37,18	82,43	1,42	-0,77	3,75	0,51
	2015	24,94	29,74	40,93	82,94				
Voice and accountability	2000	28,16	29,66	42,99	76,60	1,22	1,97	-1,55	-0,80
	2015	29,38	31,62	41,44	75,80				
Total	2000	25,71	31,38	40,58	81,05	-0,94	-1,25	2,35	-1,51
	2015	24,77	30,13	42,93	79,54				

Source: Authors' own elaboration. Data retrieved from wgi – World Governance Indicators (www.govindicators.org).

Goal 17 – Partnerships for the goals – Seeking to strengthen the means of implementation and revitalise the global partnership for SD, the Goal 17 prioritises funding, capacity building, knowledge sharing, international outreach, debt sustainability, trade facilitation, domestic resource mobilisation, effective public-private partnerships, and access to tools and technologies. It thus remains, like the 16th, in the “governance for sustainability” area, giving priority to resources (financial, human, technological) in addressing the SDGs’ challenge.

Given the apparent imbalance between countries that remains mostly untouched, an “Official Development Aid” (ODA), funded by OECD members is currently in force. But if we look into its global distribution between 2000 and 2015, in spite of a growth trend in the first years of MDGs, since 2011 it has flattened, if not decayed (Figure 2.18). The implementation of the 2030 Agenda depends on collaborative partnerships of all kinds, without dismissing substantive investments in development and monitoring. This retraction is thus not good news for sustainability, and the coming egotist political events - “America first” or “Euroskepticism” - may exacerbate the situation. Even the advocated global partnership should be based on a spirit of strengthened worldwide solidarity.

Figure 2.18 *Distribution of net official development assistance (2000-2015)*

Source: Authors’ own elaboration. Data retrieved from OECD Detailed Aid Statistics: ODA Official Development Assistance (<https://data.oecd.org/oda/distribution-of-net-oda.htm>).

CONCLUSIONS

At least since “The Limits to Growth”, many proposals to measure and evaluate SD have arisen. Although not always consensual in methods and indicators, they invariably reveal similar trends, as the slippage of its principles. Also, the declared will to implement SD is not new. Agenda 21 (UNCED 1992) covered, from social dimensions to ecological values, from the role of the major groups to the means of implementation, all deep-rooted concerns, as SDG does now. Taking advantage of the fear and hope mix that characterises our age and, consequently, the changing momentum it entails, the core endeavour of the 2030 Agenda is thus to overcome this persistent inertia that until now has condemned SD to “wishful thinking”.

First, SDGs may foster a different assessment of the human experience on earth, no more exclusively, or above all, guided by the classical monetary measurement of GDP.⁹ In a broad scope, SDGs rescue the anthropogenic ecological damage and its repercussions on environmental and socioeconomic quality, as well as a set of agreed contemporary values increasingly related to them: no poverty, zero hunger, health and wellbeing, quality education, gender equality, etc. Second, this embracing scope of SDGs includes at once social and environmental well-being for present and future generations, and every corner of the socioeconomic status and the planet, thereby allowing the implicit, but not always practiced, holistic approach of DS. Third, SDGs developed a monitoring process under on-going adaptation. Although looking for a uniform and comparable model of evaluation, it grants leeway to national choices and references and allows a progressive framework improvement and reliability, which is scientifically and openly built to be refined in negotiations to follow.

Accordingly, the 2030 Agenda may represent a dynamic governance tool, to locally and worldwide empower citizens to evaluate governments’ actions and surpass the oversimplifying installed fear that mixes, in a single construct, economic growth, employment, and well-being. In the end, at least partially responding to the more intense criticisms of the current model of development, SDGs can contribute to the recovery of collective confidence in humanity’s capacity to shape a more sustainable future. Of course, the full assessment

9 If space and indicators were available, the present analysis would certainly have benefited from the cross-checking of other variables beyond the average income of the countries.

of SDGs is far too early. For their success, additional pressure on national governments is expected from the visibility of administration performances given by SDGs' gradual implementation. Whether the promised monitoring capacity will "guide and 'orchestrate' public policies and private efforts over the next 15 years" (Biermann and Kanie 2017, 295) is the very question that surely depends on the following points:

- The foreseen global partnership will rely on additional funding from public sources. In a time of scarcity that tends to overwhelm national egoisms, this is perhaps the most significant threat. In this view, the recent signs of disengagement should at least concern defenders of this path and make the global process very risky.
- The increasing formalisation of commitments and the establishment of measurable local, national, and global benchmarks must be anchored on clear and available information, reviews, sharing of best practices, and online platforms, considering that much remains to be done to provide data effective comparability and reliability.
- The need for flexible governance arrangements might better adapt to national/community's specificities. SDGs must not repeat the mistakes of the past (vagueness, ambiguity, wishful thinking), and require effectiveness of the emerging network of implementation mechanisms and partnerships to implement them into concrete progress by 2030. If now it seems more a promise than achievement, hopefully the results will show action beyond both will and speech.

In sum, putting the world on a sustainable and resilient development path demands bold and transformative steps underpinned by new tools and ways of working, and more data and resources to accomplish the set of SDGs purposes for the next 15 years. Composite measurement or indices will be possible and need to be created depending upon objectives. A selected set of indicators will allow a more credible and reliable global assessment of the present situation and the emerging trends. In addition, the continuity of 244 indicators covering different aspects of sustainability must also be guaranteed. Such single measures underline the importance of sustainability by exposing low and high performances on any front.

In conclusion, the data here analysed provide a glimpse of trends of change based on a fleeting portrait of the current situation and the legacy left by

the MDGs between 2000 and 2015. The objective of this chapter was thus to highlight the just-initiated track of the 2030 Agenda and reflect on its unique coverage and approach. The empowerment of SDGs is a long-range mission to surpass constraints of the human fate, as the difficulties identified in collecting and comparing reliable indicators suggest. The promised accuracy of data, and soon both its reachable adherence and transparency, are expected to format multilevel synergies, if international funding for statistical systems is achieved to harness data regarding sustainability in an unbalanced and unequal world, even if it is in transition to a new kind of development.

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CITE THIS CHAPTER AS:

GUERRA, J., L. B. Lourenço. 2018. “The 2030 Agenda: trends of transition toward sustainability”. In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 55-87.
<https://doi.org/10.31447/ics9789726715054.02>

3.

Framing the alternative: socio-political dynamics toward sustainability

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INTRODUCTION

With the arrival of the XXI century the relationship between humans and nature is reaching a critical stage. At stake are the planetary liveability patterns of both human and most non-human life forms. Despite the sometimes conflicting data on the urgency of the need to rethink this relationship, there is a growing consensus that we face an unsustainable *status quo* (Capra 2004; Ehrlich and Ehrlich 2013). As a result of this socio-ecological crisis and overall public inability to address it globally, there has been a substantial increase, over the past decades, in the number and variety of social movements favouring sustainability, commonly self-referred to as *alternatives* (Barry and Quilley 2009; Alexander and Rutherford 2014). In this chapter we propose a framework of inquiry into these emergent *alternatives*.

We first contextualize the socio-political *alternatives* toward sustainability debate by briefly examining why these emerge in the “Root of the Alternative” section. In the “Frameworks, dynamics and dimensions of change” section, we inquire into what *ethos* underpins them, and what their potential role in the wider transition to sustainability debate is. From a conceptual standpoint, we advance an interpretation matrix (Figure 3.3) to help the reader navigate the different and often overlapping dynamics of change that socio-political movements toward sustainability embody. Third, in the section “Socio-political mobilization” we explore the theoretical origins of the *Deep Green Alternatives*, the highly committed green ethics-based set of social movements that sits at the forefront of the implementation of transition toward sustainability practices. We systematize (Table 3.1) the main constituent trends within the *Deep Green Alternatives*, their proposals, and desired futures. Thus, the main contribution of this chapter is to serve as a “one-stop shop” for both students and scholars who are interested in navigating the troubled waters of *alternatives* debates within the context of transitions to sustainability.

ROOT OF THE ALTERNATIVE: CRISES AND THE PERCEPTION OF FUTURES

There is a growing consensus that we face an unsustainable socio-ecological *status quo* (Capra 2004; Ehrlich and Ehrlich 2013). This scenario underpins the conceptual birth of the Anthropocene (Crutzen 2002; Barry and Maslin 2016;

Steffen et al. 2007), Earth's newest epoch, in which humankind has turned into a (to different extents, cf. Biermann et al. 2015) collective geological force able to irreversibly influence the Planet's future. The Anthropocene sets a new context for social innovation and transformations to sustainability (Rickards 2015; Olsson et al. 2017) in the sense that social and political perceptions surrounding the aforementioned ecological crisis fuel the emergence of multiple catastrophist discourses of a potential global collapse that directly challenge our modern vision of progress and economic development (Diamond 2006; Servigne and Cochet 2015). As a result, there is a growing call for *alternatives* aiming at radically changing our present actions in order to attain different, more sustainable, futures (Barry and Quilley 2009; Alexander and Rutherford 2014).

The redefinition of a collective idea of future is at the centre of the Anthropocenic sustainability debate. As Gaston Berger (1957) once outlined: "the future is the *raison d'être* of the present", in the sense that our actions today are explained and justified by the images of the future we wish to achieve. This begs the question: what ends (Futures) are steering our present actions? This is a crucial query with deep rooted implications. François Hartog explores it through the concept of society's "regimes of historicity" (2014), the way we relate to the Past, Present, and Future. He argues that we tend to experience a heterogenous *presentist* present depending on our societal role. This *presentism* reflects the planetary globalization and its accelerated flows, in which we struggle to relate to the past, radically different, and the future, strongly uncertain and out of reach. According to Hartog (2014), "The present is therefore experienced as emancipation or enclosure, and the perspective of the future is no longer reassuring, since it is perceived not as a promise, but as a threat". This notion of threat, of an eschatological foresight, a possible end, an undesirable future, is the epicentre of the *alternatives* debate and the booming revival of a future's literacy (ISSC and UNESCO 2013), in which people are prompted to directly define their desired future while breaking away from their *presentist* present.

CHANGE AS A SUPER WICKED PROBLEM

In the face of the aforementioned future framing challenges, the promotion of socio-ecological sustainability is an issue of extreme complexity that tests contemporary decision-making and policy design processes. Given the specific challenges of a large-scale transition toward sustainability, and climate change management in particular, many authors have come to christen it as

a *super wicked* problem (Lazarus 2008). A super wicked problem has four key defining features (Levin et al. 2012): time is running out; those who cause the problem also seek to provide a solution (i.e. governments perpetuate a dual behaviour promoting to some extent policy pathways toward sustainability while allowing its very causes to persist, for example, by encouraging fossil fuels exploitation); the central authority needed to address it is weak or non-existent (i.e. there are no global executive authorities); and, partly as a result, policy responses discount the future incautiously (i.e. impossibility to secure a relevant degree of policy coherence over time). These four problems combined crystalize the transitional policy processes in the sense that existing decision-making and governance solutions, available data, and institutional capacity all fall short of providing the brick walls for game-changing solutions. To make matters worse, the prevailing policy design focuses primarily on short-term objective achievement, which is insufficient to leverage long-term structural changes toward sustainability.

In the face of this dynamic, Levin et al. (2012) argue that the way forward is to rethink the idea of path-dependency. Traditionally, this concept is used from a retrospective standpoint to expand on the negative impacts of policy and institutional performance and interpret limitations to policy delivery (Berkhout 2002; Mahoney 2000). Thus, the authors propose to look into path-dependency in a prospective way. In other words, they advocate for “the generation of path-dependent policy interventions that can constrain our future collective selves” (Levin et al. 2012, 123). By this they mean that today’s policy interventions should trigger incremental transition trajectories toward desired future policy outcomes that, ideally, would gather support and be reached over time. As Levin et al. (2012, 124) put it:

[...] Interventions might not only focus on achieving immediate ‘stickiness’ but also how they gain durability, expand the populations they cover, and change behaviors through largely unexplored progressive incremental forces whereby a number of small policy changes can have significant transformative effects if they trigger path-dependent processes.

The abovementioned rationale refers to policy initiatives, although similar reasoning can be applied to infer the future of environmental social movements. How do these movements gain durability over time, how do they scale-up their impact and to what degree, and how does a social movements-led path-dependency toward sustainability materialize?

FRAMEWORKS, DYNAMICS, AND DIMENSIONS OF CHANGE

The idea of triggering a prospective path-dependency toward sustainability has had multiple echos in the literature, such as *socio-ecological technical transitions* (Geels and Schot 2007), *transition management* (Kemp et al. 2007; Rotmans and Loorbach 2009), *sustainability transitions* (Markard et al. 2012; Smith et al. 2005) and *transformative social innovation theory* (Haxeltine et al., 2017). These are considerably overlapping intertwined bodies of literature that dissect how the creation of a path-dependency toward sustainability may be put into place. An iconic depiction of the necessary systemic multilevel interplay between different societal subsystems across space and time is Geels' (2011) *Multilevel Perspective (MLP)* (Figure 3.1). This aspatial and apolitical framework seeks to illustrate the multiple upward and downward causalities of influence behind large system change processes (Geels 2011).

Figure 3.1 *The MLP on Social System Transformation*

Source: Geels (2011, 28).

In detail, and at first sight, Geels’ MLP diagram provides a useful systematization of the dynamics underpinning social transformation toward sustainability. However, there is a *quasi* linear assumption of decision-making processes and ideas streamlining, with a remarkable absence of the words *politics* and *conflict*. These are, however, symbolic indicators of the complexity that characterizes any scale-up dynamic in a process of social transformation. As for the catalyst level steering transitions, there is no consensus. Göpel (2016, 22), for one, argues that societal change originates mostly on the “niche or micro level where small units or ‘situated groups’ experiment easily with alternative solutions, as long as the degree of interdependencies with overarching or neighbouring systems is not too strong”. She goes on to propose her own interpretation of how path-dependencies form and inform possible futures (Figure 3.2), by emphasizing the role of ideas and how these materialize through social relations and networks. Göpel claims that one must look beyond the role of crises in structural changes, and explore in detail the origin of the ideas humans resort to when searching for strategies to deal with those very crises. In Göpel’s words (2016, 44): “humans are both subject and object

Figure 3.2 *Materiality of ideas*

Source: Göpel (2016, 44).

of making history, how reality today shapes the imaginary of how reality could be in the future”.

Prevailing paradigms condition humans via processes and systems that shape their individual mindsets and limit their scope of individual and collective action, insinuating a *tragic determinism* standpoint questioning the possibility of structural change. In reality, however, civilizational development occurred on the shoulders of a large-enough number of humans thinking differently from the *status quo* at some point in time, often starting as alternative and radical socio-political movements that over time manage to gain momentum, win popular support, and convince a critical mass.¹ As Göpel (2016, 45) summarizes, “history becomes an open-ended process—the status quo determined not by any human or social laws but created by sense-making and purposefully acting humans”.

VALUES AND CHANGE

Crisscrossing Geels’ (2011) *Multi Level Perspective* with her materiality of ideas’ framework, Göpel (2016) illustrates the interconnectedness between *actors* and *structures*, at multiple levels, that underpins the circulation of ideas and ultimately leads to a structural paradigm shift. This plays directly into one of the objectives of this chapter: the exploration of how social movements toward sustainability form, evolve, and interact with mainstream systems, and how they position themselves as *alternatives*.

Following Göpel’s argument, we bring additional systematization to the way in which *values* and *ideas* sit at the core of the transitions toward sustainability debates. Building on multiple interpretations of the dimensions and processes of social and institutional change (Retolaza Eguren 2011), we aim to illustrate how these influence, and are influenced by predominant development models, governance solutions, politics, and social movements. The former two (development models, governance solutions) are explored elsewhere (Mourato et al. *forthcoming*). The latter (politics and social movements) are addressed in the following section.

1 Let us think, for instance, of the African-American civil rights movement in the us, the suffragettes and abortion rights movement in Western Europe, the indigenous movement in Bolivia, or the anti-nuclear-power movement in Germany.

We must begin by clarifying that in our understanding there is no overall sequential, linear process of change. Catalysts for value change often emerge in unplanned contexts and have unexpected rhythms and mechanisms of propagation. As a proposal to help tackle, research-wise, its complexity, Figure 3.3 portrays an interpretation matrix to help the reader navigate the different and often overlapping dynamics of change that socio-political movements toward sustainability embody.

On the one hand, we must ponder the subjective process of individual change in terms of mind-set, self-awareness, and identity that substantiates a wider objective transformation of relational interactions, habits, and practices. These are not clear-cut sequential dynamics. They may be self-reinforcing or divergent when in the face of external *stimuli* for change. The cornerstone of change in this context derives from the structural interconnectedness between the dialogic interaction of the individual with its surrounding political and social environment and how this interaction emulates the individual's current pattern of self-development whilst influencing its very change. On the

Figure 3.3 *Framing the alternative*

Source: Adapted from Retolaza Eguren (2011, 7).

other hand, change that either leads to, or is triggered by, collective action is influenced by an interplay of intersubjective and interobjective dynamics. The latter embodies, to a large extent, what we can refer to as the institutionalization of change, when this influences state action via both its constitutional and legal frameworks and subsequent policies and polity. The intersubjective dimension concerns *inter alia* the value change brewed within social movements, and how it influences the definition of a collective identity and subsequent patterns of action. In this chapter, we focus on social movements as sense-making actors (Göpel 2016) that may play a pivotal role in the redefinition of the current unsustainability path-dependency (Levin et al. 2012) toward more desirable and *alternative* futures (Alexander and Rutherford 2014).

SOCIO-POLITICAL MOBILIZATION TOWARD SUSTAINABILITY

But it is our conviction that the first wave of sustainability activity, in progress since the Earth Summit of 1992, is insufficient to alter alarming global developments. A new wave must begin to transcend the palliatives and reforms that until now may have muted the symptoms of unsustainability, but cannot cure the disease (Raskin et al. 2002, x).

This statement is as accurate today as it was more than 15 years ago. In light of the loss of meaning that the term *sustainability* has suffered over the last decades, more and more international activists, academics, and thinkers are calling for “a *new sustainability paradigm*” to “challenge both the viability and desirability of conventional values, economic structures and social arrangements” (Raskin et al. 2002, x). The underlying assumption here is that the present socio-economic paradigm, with its inherent values, structure, and logic, is the root-cause – the *disease* – of current unsustainability. This section seeks to shed some light on the socio-political movements that have emerged, directly and indirectly, out of this (un)sustainability debate. Here, we unpack the *Deep Green Alternatives*, systematizing (Table 3.1) its theoretical underpinnings, main constituent trends, proposals, and desired futures.

POLITICS OF SUSTAINABILITY

The shift toward a real (deep) green way of living on our planet without destroying the intertwined, interdependent living systems that represent the

life support for both humans and non-humans, but rather finding our “place” in the ecosystem, is certainly not going to be a self-starting process. Elsewhere (Mourato et al. 2018), we already engaged in describing how multiple barriers can hinder transformative processes and how these could be overcome in theory (Moore et al. 2014; Fazey et al. 2016). It has been repeatedly argued that politics and policies play an important role in determining whether a shift toward sustainability will ultimately be triggered and to what extent the latter will happen (Prugh et al. 2000).

Yet, according to Swyngedouw (2010; 2011), we are able to observe that sustainability has turned into a global de-politicized “environmental consensus” impossible to disagree with. This loss of meaning of the concept of sustainability in international politics goes hand in hand with a denial of the plurality, complexity, and unpredictability of Nature, artificially creating an urge to go for a set of *status quo* (market-based, technocratic) policy solutions that side-step fundamental political debates (Swyngedouw 2010; 2011).

Disagreement is allowed, but only with respect to the choice of technologies, the mix of organisational fixes, the details of the managerial adjustments, and the urgency of the timing and implementation, *not with respect to the socio-political framing of present and future natures* (Swyngedouw 2011, 6; italics added).

In fact, as recently acknowledged by the Secretary General of the Club of Rome, Graeme Maxton, one of the reasons behind the latter is that there are simply no immediate political gains from taking the first transformative actions toward more sustainability, since climate change and its repercussions will continue to worsen throughout the coming decades (IPCC 2007), even if we ceased emitting GHG² emissions from today on (Maxton 2018).³ This sense of political apathy translates into rather short-sighted electoral agendas with a continuation of mainstream political responses. The latter avoids engaging in much-needed actions to prevent further environmental degradation from happening and setting the foundations for a sustainable relationship between humans and the planet.

2 GHG refers to as greenhouse-gases.

3 For a discussion on this subject see <https://theconversation.com/what-would-happen-to-the-climate-if-we-stopped-emitting-greenhouse-gases-today-35011> (accessed on February 17th 2018).

Nevertheless, the increasing number of international conferences and agreements, such as the Sustainable Development Goals and COP23, suggests a growing international awareness for the urge to take the first steps now, even if this will not generate any immediate profits or seeming improvements, although they certainly will in the long run. Here we mention the need to set up a global unified agenda in order to implement sustainability via government action, such as regulations, restrictions, taxation, or incentives. Yet, with our current socio-economic systems remaining trapped in a capitalist, neoliberal, free-market and growth-oriented paradigm, policy interventions have often proven to be too vague, too hesitant, and minimal, thus resulting in ineffective “symbolic eco-politics” (Blühdorn 2007). To give an example, policy tools such as emission trading fail to send the right message, since they allow pollution to continue, but only up to certain levels; yet, the real urge is to drastically *reduce or even end* emissions (Rogelj et al. 2016). The imagined outcome of such policy instruments is highly influenced by the ethos of politics and politicians in power. According to Maxton (2018), the transition toward sustainability, for instance by abandoning fossil fuels and turning to renewable energies, depends ultimately on political willingness and on the determination of legislators to attack the problems at their roots.

On the other hand, the politics of sustainability face an underlying risk: the rising influence of post-truth politics in public discourse (Lubchenco 2017; Lewandowsky et al. 2017). The latter refers to a shift in public opinion that sees the influence of ever-increasing scientific knowledge and evidence concerning CC losing weight in the information of public debate and overall community perceptions. The most extreme example can be found in the United States of America, where an extreme politicization of CC and subsequent polarization of public opinion (McCright et al. 2011) are currently diverting precious resources and attention, not only from urgent adaptation actions, but also from engaging in a deeper discussion about possible socio-ecological futures. As if that were not bad enough, some of the fundamental practices that led to the current socio-ecological crisis are perpetuated as new ways of fossil fuel exploitation are planned or are already under way (Friedman 2017).

SOCIO-POLITICAL ALTERNATIVES

Against the backdrop of the seeming inability of governments and international institutions to currently tackle the multiple crises referred to above, a growing

number of critical theorists, thinkers, and activists has been calling for what one could name a *deep green alternative* to the current growth and industrial paradigm (Alexander and Rutherford 2014). The latter can be interpreted as the embodiment of the idea of *sustainability* in the form of social movements with a well-defined agenda on how the future could look and what steps have to be taken in order to reach it. As a starting point, instead of one discourse, we rather have to think of various alternative proposals that can be united under the umbrella of the *deep green alternative*. Some of them have a rather idealistic and utopian approach, others a rather pragmatic and hands-on one. However, all of them have a quite settled, yet diverging, definition of what the future should look like in their eyes.

In the following subsections, we systematize a set of diverse contemporary *alternatives*, by first delving into a more theoretical discussion of the *deep green thinking* tradition and second by analysing the different *alternatives'* strategies to achieve their prescribed necessary change.

THEORETICAL ORIGINS

In the field of ecocentric (literally, *Earth-centred*) ethics, one can find many of the path-paving thoughts underlying the ontological tradition of *deep green thinking* that have led to the emergence of more recent advocates of the *deep green alternative*. First of all, ecocentrism must, according to Curry (2011), be understood as a holistic approach in which both animated and non-animated nature are seen as a single, integrated whole, whose rights and values must be recognized and thus defended ethically, while no individual part has to be seen as superior to another. This being given, an ecocentric approach can be named *deep green*. To be more specific, we can find some determinant theoretical foundation in the approaches of the Deep Ecology, Deep Green Theory (DGT), Earth Manifesto, Earth Charter, and radical simplicity⁴.

The moral philosophy approach, **Deep Ecology**, mainly developed by the Norwegian philosopher Arne Naess (1973), which significantly inspired social and cultural movements over the last decades, can be seen as the most influential ecological discourse (Curry 2011). Its theoretical foundations lie on eight platform principles for ecological activism, which can be summarized

4 For a much more in-depth theoretical systematization of the “ecological ethics”, see Curry (2011).

with the need to: (a) recognize and defend nature's intrinsic value, such as diversity or richness, (b) diminish humans' interference, impact, and destruction of it, (c) by changing policies, institutions, and paradigms and finally, (d) by not keeping silent but implementing the principles oneself (Nelson 2008). Although Naess has been heavily criticized more recently for the conceptual additions of *self-realization* and *biocentric egalitarianism* (Curry 2011), the Deep Ecology approach could be seen as a cornerstone for the conceptual building of the *deep green alternative*.

Developed by Richard Sylvan (Sylvan and Bennett 1994) throughout the 1970s to 1990s, the **Deep Green Theory (DGT)** is a holistic ecocentric ethics approach that, ecologically speaking, rejects all established traditional ethics for promoting human chauvinism, as well as prevailing technocentric approaches of the industrial society to the environment (Callicott and Frodeman 2009). While condemning "too much use and use of too much" (Sylvan and Bennett 1994, 147), the DGT does not rule out human use of the environment, but proposes that the distinction human/non-human does not entail a justification for special ethical treatment, and further that humans' interests ought not to outweigh others' (eco-impartiality) (Curry 2011). Last but not least, the DGT emphasizes that profound value changes must combine individual with institutional changes, thus making it a "top-down and bottom-up and inside out issue" (Sylvan and Bennett 1994, 180).

Deep green ethics has experienced various conceptual refinements, such as the **Earth Manifesto** (Mosquin and Rowe 2004), reemphasizing the criticism of human chauvinism, the need to restore ecological diversity and live in harmony by, for instance, promoting *ecocentric governance*. Eventually *deep green principles* have managed to gain a foothold on an international level with the publication of the **Earth Charter**⁵ in 2001, a result of the Rio 92 Earth Summit formally recognized by thousands of international organizations including the UNESCO and the IUCN/World Conservation Union. The insistence on engaging in fundamental changes of institutions, values, and ways of living through global partnerships is the backbone of the Earth Charter. Its principles converge around four core areas: (1) Respect and Care for the Community of Life, (2) Ecological Integrity, (3) Social and Economic Justice, and (4) Democracy, Nonviolence, and Peace.

5 The full text of The Earth Charter can be retrieved on the website www.earthcharter.org (accessed on February 16th 2018).

We can find further theoretical grounds of the *deep green alternative* in the evolution of the concept of *sufficiency*, which is inspired by the concept of **radical simplicity** advanced by Henry Thoreau (Thoreau [1854] 1965). Banking on the romantic idealism of a life in close contact with nature, liberated from all excessive consumption and material needs, the *deep green alternative* seems to propose that a sustainable way of living on a finite planet must be found in material sufficiency, more precisely, frugality, instead of affluence (Alexander 2013). Here it might also be worthwhile referring to futures and utopian approaches that attempt to influence concrete decision making toward a future sustainable society by leveraging the process of establishing visions of diverse futures (Garforth 2005; De Geus 2002; or Barry 2007).

MAKING SENSE OF THE DEEP GREEN ALTERNATIVE

In order to be able to classify and discuss the proposals that can be pooled together as the *deep green alternative*, we first need to delve deeper into the underlying concept of this notion. Although constituting a highly heterogeneous tradition, one can easily notice that the *deep green alternative's* diverse currents all seem to build upon the common perception that the systems we currently live in are highly unsustainable, significantly coinciding with the features of the “end-state” envisaged in the *alternative* (Alexander and Rutherford 2014). To this effect, the concept *deep green alternative* comprises first and foremost the recognition of arguments about the finiteness of planet, resources, and growth, while simultaneously advocating for an active process of deliberative change (Geels and Schot 2007; Moore et al. 2014) toward a radically alternative way of living on the planet (Alexander and Rutherford 2014).

Following Alexander and Rutherford's (2014) attempt to systematize the *deep green alternative*, the common agenda⁶ underlying this tradition can be outlined as follows:

- Overcome the “(green) growth trap” and consumption paradigm and move toward “material sufficiency” as a consequence of sheer physical necessity: first de-growth of resources- and energy-consumption, then

6 Some of the following points are shared by all proponents that fall into the categorization of “deep green” alternatives, and some are exclusive to one or more proponents. For a detailed review see Alexander and Rutherford (2014).

stabilize in a zero-growth economic system (Lawn 2011; Turner 2012; Trainer 2012)

- The problem of worldwide poverty has not yet been alleviated substantially and cannot be solved with ever more (even sustainable) growth (Daly 1996)
- Reimagine the notion of a “good life” overcoming consumerism by redefining the underlying values and aims of the notions of “progress” and “prosperity”.
- Make a rapid shift to exclusive reliance on renewable energies implying a downscaling in energy availability, and thus, consumption and production (Trainer 2012), implying the abandonment of fossil fuel dependency, a reduction in “redundant” industrial production, and an increase in the “useful” ones, such as renewables (Bailey et al. 2010; Alexander and Rutherford 2014).
- Shift back to local production, especially local organic agriculture (also urban), in order to increase resilience and self-reliance (Hopkins 2008).
- The transition to the *deep green alternative* state can only be attained on the basis of a renewal of institutions, systems, and structures:
 - The neo-liberal capitalist system banking on the market-forces is seemingly not able to solve the various overlapping problems faced by humanity today (Lawn and Clarke 2010)
 - Move toward decentralized local and democratic planning with a major involvement of grassroots, activism, and higher levels of direct democratic participation (Trainer 2012; Sarkar 1999).

THE DEEP GREEN ALTERNATIVE: STRATEGIES FOR CHANGE

Up until this point, much has been theorized about why and how socio-ecological change occurs. This has been done in academia and elsewhere under strong influence of different ideological backgrounds and with different visions of the future. The field of transition studies has focused mainly on transitions from a systemic perspective shedding light upon the complexity of the socio-technical processes of change. Nevertheless, we argue (Mourato et al. 2018) that this focus has been over-proportionally technical and abstract, failing to bring the actual outcomes after transition, problems arising throughout the way, and possible negative spin-offs into discussion. Here, we

will try to bring clarification to the missing part of the puzzle, by engaging in a functional classification of the different existing social movements and their proposals about how a deliberative change toward a greener, more sustainable, way of living can ultimately occur in practice (see Table 3.1).

In the vast amount of literature and discourses about the *deep green alternative*, we can identify four main strands of thought that overlap and diverge to certain extents in their proposals. Here we are looking into the currents of *Radical Reformism*, *Eco-Socialism*, *Eco-Anarchism*, and *Deep Green Resistance (DGR)*. For the sake of clarity, Table 3.1 systematizes them on the basis of six categories: Idea, strategy (short- and long-term), end-state, agency, criticism, and manifestations.

First of all, it is clearly noticeable that the four *deep green alternatives* diverge concerning the details of the desired end-state, with a strong opposition between the Radical Reformists seeing updated capitalism and polity as able to provide deep green sustainability and the Eco-anarchists, which imagine a self-governing participatory governance system without markets and nation states. With respect to the idea, or rationale, underlying the different movements, one can observe a rather great diversity, from believing in the market forces (Radical Reformism), to the socialist revolution beyond capitalism (Eco-Socialism), to radical militant activism in light of the time-pressure to save our planet (DGR).

What they have in common is a significant overlap in the short-term strategies, including returning to small-scale local economies, simplicity, and grassroots, with the exception of the DGR activists, who somehow can be situated in a more marginal and ultra-radical position. Concerning the long-term strategies, we can still find a certain degree of overlap in the perception of a need for value change (except DGR), as well as in the proposed government interventions by Eco-Socialism and Radical Reformism. With respect to agency, we can see a common belief in the force of grassroots and bottom-up activism, while Eco-Anarchists deny the importance of the state and Radical Reformists build on the latter in order to reach the *alternative*.

In the last row we classify a selection of the present-day most familiar on-the-ground practices of the *deep green alternative*, into four different categories (Eco-Socialism, Radical Reformism, DGR, Eco-Anarchism). Although diverging in size, shape, and reach, these practices are winning ground in alternative ways of production, consumption, and social organization, such as food (e.g. short food supply chains, local and organic foods, food sharing,

Table 3.1 *Classification scheme: Deep Green Alternatives.*

	RADICAL REFORMISM	ECO-SOCIALISM	ECO-ANARCHISM	DEEP GREEN RESISTANCE STRATEGY
IDEA	Deep green change can happen from inside the institutions in place (Fotopoulos 1997); absence of violent overthrow but fundamental 'cultural revolution' (Latouche 2009)	Capitalism and sustainability are irreconcilable; re-conceived socialism integrating the deep green vision (Smith 2010; Sarkar 1999)	Beyond market capitalism and nation-state: they cannot cope with sustainability; prefigure new society (satellites) on the old one instead of waiting for the revolution (Fotopoulos 1997)	Socio-ecological militant activism; confront the established 'system of power'; overthrow capitalism and consumer; radicalism instead of liberalism society (Jensen et al. 2011)
SHORT TERM STRATEGY:	create and spread small-scale local initiatives, transition to simpler lifestyle, informal economy (e.g. sharing circles, community gardens, co-housing etc.) (Jackson 2009)	create readiness in society to accept and embrace simpler lifestyles (Sarkar 1999)	engage sufficient number of people in learning new skills (cooperation, self-governance, sharing, simple live...); decentralized local economies; gain on-the-ground support to enforce change in laws and regulations	above ground: support local alternative initiatives underground: 'decisive ecological warfare' (Jensen et al. 2011); illegal industrial sabotage; usage of internet as platform, open information, recruitment and campaigning
LONG TERM STRATEGY:	Value change (community, altruism, frugality) triggers cultural and political shift (Latouche 2009), i.e. de-growth, government intervention (regulation, investments, taxation) (Daly 2013; Alcott 2008)	Radical value shift (simplicity, frugality, local, solidarity etc.); increased state control: prices, ownership, rationing, planning; radical policy shifts (Magdoff and Foster 2010) and socialist revolution	Value change: Create parallel institutions and shift away resources from market economy; gradual replacement of system (Fotopoulos 1997); control over political power only as a consequence of grassroots process	No time and no will for grassroots movements to gain momentum; stop extinctions and pollutions now, forcibly
DESIRED END-STATE	Capitalism, but a different one: zero-growth (steady-state) economy (Jackson 2009) embracing fundamental value change	Markets exist only for trade and exchange, under strict regulation and local planning (Smith 2010; Sarkar 1999)	Radical directly self-governing society; end political hierarchy and representative democracy; inclusive and participatory democracy (Trainer 2012)	See eco-anarchism
AGENCY	All members of society including political elite, industries etc.	No political power until momentum reached; "those who care" will lead, independently from societal level; international movement	Engage outsiders (old, unemployed); engage in and try to take over local political power	Grassroots ecological activists, international movement; strictly bottom-up strategy
CRITICISM	Proposed radical changes touch upon current power and wealth distribution and elite interests —> opposition guaranteed (Leahey 2018)	Can a non-market, planned economy exist under a democratic state (Friedman 1982)?	ImpRACTICABILITY and unworkability of direct self-government in complex societies; too much radicalism might scare away people (Davey 2009); underestimation of state's power in transition	Unforeseeable harms caused by sabotage; questionable: violence as means for a noble end; destruction does not forcibly convert the majority of people but may foster opposition and rejection
MANIFESTATIONS	Transition Town network (Hopkins 2008)		Local currencies, labor-credit schemes	Large-scale worldwide fossil fuel and big-enterprise industry sabotage (https://deepgreenresistance.net)

Cf. Alexander and Rutherford (2014); Lawn (2011); Turner (2012); Barry and Quilley (2009); Göpel (2017).

food waste reduction initiatives, meat curtailment practices), energy (e.g. energy cooperatives), transportation (e.g. car sharing, free public transport), social organization (e.g. Transition Towns), as well as alternative economic concepts and planning for a post-growth economy (e.g. circular Economy, gift Economy, local currencies, labour-credit schemes, “REconomy” projects) (Maschkowski et al. 2017).

CONCLUSIONS

That, I believe, is our basic function: to develop alternatives to existing policies, to keep them alive and available until the politically impossible becomes the politically inevitable (Friedman 2002 [1982], xiv).

Sustainability has turned into an overused and often misused term in global politics. Concurrently, it has not mobilized enough social support and commitment to force decisive political action in the face of the current ecological crisis. This being said, there is mounting evidence of an ever growing societal mobilization and change in the values, identity, and practices of a growing number of individuals who strive toward the promotion of a worldwide transition to sustainability. These individuals fuel a set of social movements that evolve in the face of an overwhelming socio-economic totalitarianism as a result of the strengthening of their alternative ideas, beliefs, and practices.

These emergent social movements have arguably a rather unique transversal feature. In hindsight, social movements prior to and throughout the xx and xxi centuries have largely mobilized around issues of inequality. Whether it be in terms of access to power, basic human rights, economic and labour conditions, ethnic background, gender or sexual-orientation prejudice, and so forth, the core of the underlying narrative is the fixing of an existing and persistent inequality. The social movements reviewed in this chapter add a very substantial layer to this mix. They do incorporate some of the abovementioned inequality issues, even adding a further dimension of inequality to the latter. In fact, from an environmental ethics standpoint, these movements question the predominant Human chauvinism and subsequent inequality between nature and humans in terms of the right to inhabit Earth. However, the core driving force behind these social movements resides elsewhere. The movements feed on the imminent end of our collective planetary life and what actions must be taken to prevent that, in order to inform their mobilization dynamic.

In this vein, they are more framed around issues of limits and scarcity, than inequality only, and this may offer a distinctive specificity that hinders political action from being fully implemented. For the generations that have grown in affluence since the Second World War, the belief that resources are illimited is very hard to change.

In this chapter we were also able to show that these social movements are far from being a homogenous, harmonious universe. As we illustrate, the diversity in terms of scope, organization model, and members' make-up varies considerably. We may interpret this wide array of social movements under the *deep green alternative* banner to represent the lack of consensus that exists on what the alternative to the predominant development model should be. The final portrait is a fragmented landscape of intersubjective collective practices that fail to successfully bring about interobjective structural change.

Regardless of their heterogeneity, and despite their numbers being still insufficient to turn the tide, contemporary social movements toward a transition to sustainability allow us to challenge historical determinism narratives that make structural changes seem all but impossible. Alternative ideas play, after all, a fundamental role. According to Friedman (2002) and Göpel (2016; 2017), alternative ideas and policies must be protected and fostered, as they provide the new imaginary and binding narratives necessary to ignite change and galvanize support for it. However, as we explored earlier (Figure 3.3), societal change is a complex adaptive system that evolves in non-linear ways when confronted with a wide range of catalysts, some purposefully induced, others simply random. As Göpel (2017, 140) puts it: "Psychology, sociology, neurosciences show that shifting mind-sets implies not only a change in thinking but a change in being, feeling, engaging, relating, and acting in the world".

The reconfiguration of societal sense-making and the questioning of predominant path-dependencies strikes at the core of a widespread and deeply entrenched system of beliefs. These are lengthy, slow, spatially uneven processes. This helps explain the persistent difficulties of these social movements in the scaling-up of the change they wish to promote. The deficit of incrementality does not nullify the added value that these social movements hold as policy learning laboratories. As Levin et al. (2012, 124) said, "a number of small policy changes can have significant transformative effects if they trigger path-dependent processes". This thus begs the question of why do traditional policy frameworks not make better use of the potential input of these social movements?

The answer may lie in the very gap that emerges from the analysis of existing social movements toward a transition to sustainability. And here we refer to their political voice and impact. As argued above, there is still no worldwide full-on politicization of the socioecological *alternatives*. The politics and governmentality of the *alternatives* are to an overwhelming degree absent from the current development debate. The future ahead for the ethos and objectives of these social movements, whatever it may be, will surely be defined by their capacity to network, mobilize, and become visible players in global, national, and local political arenas. This begs for further research about the socio-political *alternatives* that are currently being put into practice, with preferably cross-country comparative analyses in order to isolate facilitators and inhibitors of their expansion and allow us to develop a better sense of how far the *alternative* has truly gone.

» ACKNOWLEDGEMENTS

This chapter was developed under the project Transe-AC funded by FCT and Campus France in a partnership Programa Pessoa (Proc.º 441.00 – 2016/2017).

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CITE THIS CHAPTER AS:

MOURATO, J. et al. 2018. "Framing the alternative: socio-political Dynamics toward sustainability". In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 89-112.
<https://doi.org/10.31447/ics9789726715054.03>

PART II

Emerging agendas

4.

The circular economy: historical grounds

José Luís Cardoso

INTRODUCTION

The circular economy has come to stay. There can be no doubt about this: all one has to do is visit the webpages that the European Commission devotes to this theme, and that show the action plan of the circular economy package for the current year, 2018, as well as the initiatives in place for promoting the circular economy among a wide range of stakeholders.¹ And this is how it will be in the years to come. Through its ambitious plan for monitoring innovation policies and processes in various economic sectors and in all of the Member States, the European Commission reveals its regulatory talent and its ability to incorporate ideas that, because of the public impact that gave rise to them, need to be duly framed and protected. The environment and the climate may be subject to the risk of catastrophes, but the circular economy has already earned the status of a powerful antidote for preventing them, or at least for lessening their effects.

In the standardized language of the European Commission, “a circular economy is explained as an economy where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimised”. This concept fits in well with both the European Union and the United Nations’ agendas for sustainable development, having been established as a strategic objective that allows for the preservation and regeneration of natural resources at a global level. In this way, the concept has definitively entered into the jargon of economists, engineers, architects, industrial designers, scientists, entrepreneurs, and public decision-makers, challenging the conceptual operationality of the more generic term of sustainability, whose broad scope and not always easy definition (Portney 2015) do not allow us to isolate the specificity of the scientific and political agenda associated with the circular economy.

By turning this issue into a priority programme, involving the various European decision-making bodies and binding the Member States to the screening of established guidelines and directives, there is no doubt that the European Commission is making a decisive contribution to strengthening a cause that it has borrowed from civil society organizations, the enlightened public sphere, and autonomous social, political, and business movements.

1 The European recommendations and directives are especially important in regard to mitigating and eliminating plastic waste in the oceans. Cf. http://ec.europa.eu/environment/circular-economy/index_en.htm; and <http://circulareconomy.europa.eu/platform/>.

However, the definition presented above does not seem to do sufficient justice to the meaning that is transmitted to us by those ideologues who are most committed to defending the cause of the circular economy.

Walter Stahel, a Swiss architect, who co-founded the Product-Life Institute in Geneva, was one of the leading promoters of the idea of the circular economy in the early 1980s.² In a more recent text, in which he revisits and synthesizes his contributions in this field, he defines the circular economy as follows:

A circular economy would turn goods that are at the end of their service life into resources for others, closing loops in industrial ecosystems and minimizing waste. It would change economic logic because it replaces production with sufficiency: reuse what you can, recycle what cannot be reused, repair what is broken, remanufacture what cannot be repaired (Stahel 2016, 435).

Or, in other words, the concept of a circular economy suggests a criticism of the functioning of a linear economy viewed in terms of the final consumption of finished products that are non-recyclable and generate rubbish and waste. By searching for a credible alternative to the growth models based on an intensive use of the traditional factors of production (land, labour, and capital), the supporters of the circular economy bring to the political agenda of reflection on the future of human societies an ambitious programme of innovation and renewal in the creation of new manufacturing processes and new products. In this way, the circular economy:

(...) refers to an industrial economy that is restorative by intention; aims to rely on renewable energy; minimizes, tracks, and hopefully eliminates the use of toxic chemicals; and eradicates waste through careful design. The term goes beyond the mechanics of production and consumption of goods and services, in the areas that it seeks to redefine. The concept of the circular economy is grounded in the study of non-linear, particularly living systems (Webster 2017, 46).

It was also Walter Stahel who pioneered the term “cradle to cradle” (made popular through the work with the same title by Braungart and McDonough,

² The concept was sketched in 1976 by Walter Stahel in his research report to the European Commission “The Potential for Substituting Manpower for Energy”, co-authored with Geneviève Reday-Mulvey (Stahel and Reday-Mulvey 1981).

2009), which expresses one of the key ideas of the circular economy, namely that everything that is born and lives can be born again and gain new life. In this way, agents and businesses engaged in the work of industrial design, recycling, information technologies, and genetic engineering cooperate in an increasingly convergent fashion to increase the life cycle of products and to enrich their value chain. This process also generates an extension of the labour market, with job opportunities open in new sequences of the course of production, thus helping to reduce unemployment.

The implementation of the circular economy cannot be limited to simple procedures of reduction, reuse, and recycling. The aim is not just to obtain gains in eco-efficiency, but instead to promote eco-effectiveness through the development of new products with a long life-cycle (Braungart and McDonough 2009). The aim is to produce goods that, when they reach the end of their useful life, are not turned into useless waste, but can instead be decomposed and turned into nutrients for plants and animals, or used as raw material for the manufacture of new products in a new industrial cycle. The intention is that in the cities of the future the buildings that are constructed will produce more energy than they consume. It is no longer considered important to discuss the problem of the shortage of fossil fuel reserves, since such reserves are rendered obsolete through the increasing recourse to alternative energies. It is even admitted that the effluents produced by factories may enter into the distribution circuits of our drinking water (Kiser 2016).

These examples suggest that our technological imagination may sometimes become confused with futurist illusions. The aims of the circular economy are frequently the fruit of some proactive excesses, the work of well-meaning visionaries who are generously committed to building a brave new world. However, the growing number of organizations, businesses, civic groups, university departments, research & development centres, and think tanks that are dedicated to promoting and implementing the strategic goals of the circular economy clearly demonstrates that the concept has indeed come to stay.³

3 Among those institutions that are most active in promoting the circular economy are the Ellen MacArthur Foundation (<https://www.ellenmacarthurfoundation.org/>), the Product-Life Institute, in Geneva (<http://www.product-life.org/>), and the John T. Lyle Center for Regenerative Studies (<http://env.c.pp.edu/rs/rs>). Updated information about good practices in the circular economy can be found on the *European circular economy stakeholder platform* (<https://circulareconomy.europa.eu/platform>) and in the e-book *Why circular economy? 20 reasons to switch to the circular economy*, Spark News, 2017 (<http://issuu.com/sparknews/docs/>). See also <https://www.eea.europa.eu/publications/circular-economy> »

But does this mean that everything is new in this enticing programme of sustainable economic and social development that obliges us to think of the world in a different way? This is the question that I shall now try to answer, already anticipating the direction that this response will take: the ingredients that were used to form the concept of the circular economy already had antecedents that were deeply rooted in the history of economic ideas. For this reason, it is worth looking at these historical grounds that confer an unexpected perennality upon the circular economy.

The notions of circularity in the economy, the shortage and perishable nature of resources, the stationarity of growth rates, the rejection of consumerist abuses, the criticism of the society of abundance, the appeal for sharing and reciprocity, the preservation of the environment, are all questions that have accompanied the formation of economic science over the last 250 years. The brief outline that is presented here examines some of these historical grounds of the circular economy. In taking this disciplinary incursion into the history of economic science as our frame of reference, it should be stressed that the interdisciplinary nature of the concept of the circular economy does not overlook other perspectives for the study of the question, namely taking into account the sciences of engineering and environmental studies, biology, and the ecosystems. Accordingly, this chapter amounts to only a partial examination of some of the grounds underlying the configuration of the circular economy within the contemporary scientific debate.

HISTORICAL ORIGINS OF THE CONCEPT OF THE CIRCULAR ECONOMY

The idea of circularity in the way that the economy functions dates back to the very beginning of the emergence of political economy as a scientific device for explaining the relationship between economic agents who produce and consume. The concept of circular flow was clearly present in the economic literature written in the mid-eighteenth century, most notably in the works by

► my-in-europe for a global approach highlighting the expected progress resulting from the implementation of the circular economy. These publications and websites provide multiple examples and experiences promoted and encouraged by both public and private agencies in different countries. As regards the case of Portugal, it is worth referring to the official initiative endorsed by the Ministry of Environment (<http://eco.nomia.pt/>), which includes funding opportunities and fiscal incentives. The number and diversity of initiatives is increasing quickly, as illustrated in <https://www.circulareconomy.pt/>.

John Law, Richard Cantillon, and the French physiocrats (Schumpeter 1954, 223-243; and Murphy 1993). The description made by François Quesnay in *Tableau économique* (1759), which focused on the flows of expenditure between the classes sharing the space of economic relations in an agricultural kingdom, demonstrates how the product created in a certain year is consumed and, simultaneously, how it guarantees the reproduction of the same circuit in the following year, and so on in each subsequent year.

It is a scheme of economic reproduction that does not generate growth or an accumulation of the initially invested capital, since the aim is to create an analytical tool to explain the way in which wealth circulates, and not the way in which capital is accumulated. Through the development of a simple explanatory scheme, a basic idea began to take shape for understanding the circular flow of income, which is used to illustrate any introductory economics textbook: the households that provide factors of production (land, labour, and capital) to the firms that produce goods and services, and that create the income (rents, wages, profits, and interest) that makes expenditure possible (consumption and investment). It was also this interpretive model, whose conception was pioneered by John Law (*Money and Trade Considered*, 1720) and Richard Cantillon (*Essai sur la nature du commerce en général*, 1755), that served as the inspiration for the development of analytical tools and concepts that were of great importance in the formation of modern economic theory, namely input-output tables, national accounts tables, and general equilibrium approaches.

The concept of a circular economy recovers this simple notion of the circular flow of income, but also adds some other fundamental ingredients. One of these ingredients is the one that refers to the context of the shortage associated with the use of natural resources and production factors. In this particular area, the main historical source of inspiration was the work of Thomas R. Malthus, who, in his famous *Essay on the Principle of Population* (1798), outlined the risks inherent in demographic growth, whose geometrically progressive rate of increase threatened to exhaust available resources that grew only arithmetically. Regardless of the validity or not of the catastrophic projections made by Malthus (which overestimated the demographic trends that were to be noted in the more developed countries and underestimated the effects of technological progress on the exploration of natural resources), there is no doubt that his message functioned as a kind of warning about the imminent depletion of resources, the imbalances in the natural world caused

by humankind, and the destabilizing effects of demographic growth, especially in urban areas.

This pessimistic view was to be shared by many other nineteenth-century authors, disillusioned with the nefarious consequences of the industrial revolution and the economic progress that had given rise to social inequalities, and which, above all, had resulted in such negative disturbances to the environment. The emergence of an ecological and environmental awareness occurred within the context of the scientific imagination and the discoveries that centred on the observation and knowledge of the natural world, as Alexander von Humboldt demonstrated so clearly in his masterpiece *Cosmos* (1845). But it also happened at the level of the philosophical imagination and the ethical and civic resistance of Ralph Waldo Emerson, the author of *Nature* (1836) and Henry David Thoreau, the author of *Walden* (1854). The examples of these authors, writing toward the end of the first half of the nineteenth century, were undoubtedly important for the gradual development and strengthening of an attitude of vigilance in relation to the loss of the circular balance and harmony of the natural world. This, in turn, led to a growing concern for the preservation of the environment that today finds fervent backing among the militant supporters of ecological causes (Wulf 2015).

Another source of influences that are implicit in the approach to the circular economy is the one relating to the criticism of the aim of achieving constant and continuous growth. In fact, by questioning the virtues of growth for growth's sake, the circular economy recovers a tradition in the history of economic thought that had one of its best examples in the work of John Stuart Mill. In one of his most famous books, *Principles of Political Economy: With Some of Their Applications to Social Philosophy* (1848), Mill differs from the classical economists of his generation by stating that the possibility of capitalist economies attaining the stationary state – in other words, a moment in their progressive evolution when the accumulation of capital and the further growth of the product would cease to be possible – should not be regarded as a negative inevitability or as a threatening spectre. According to Mill, it would even be desirable if such a situation were to occur, insofar as it would make it possible for priority to be given to the problems of the distribution of wealth and property, instead of to the constant growth of annual production. This would be an opportunity for people to devote themselves to their own moral and cultural development and to improving their quality of life, including

their relationship with their surroundings. And this beneficial stationary state was regarded by John Stuart Mill as an ideal model of society that could be drawn closer to, or even made possible, through political reforms that would gradually transform capitalism into a fairer and more humane economic system. It is worth taking a close look at his words:

I cannot, therefore, regard the stationary state of capital and wealth with the unaffected aversion so generally manifested towards it by political economists of the old school. I am inclined to believe that it would be, on the whole, a very considerable improvement on our present condition. I confess I am not charmed with the ideal of life held out by those who think that the normal state of human beings is that of struggling to get on; that the trampling, crushing, elbowing, and treading on each other's heels, which form the existing type of social life, are the most desirable lot of human kind, or anything but the disagreeable symptoms of one of the phases of industrial progress (Mill 1848, Book IV, vi, §2, 753-754).

The criticism of economic growth without any human limits was a constant feature in the writings of economic thinkers and worldly philosophers that ran counter to the predominant vision of an economic science based upon the principles of the supposed rationality of producers and consumers who are satisfying unlimited needs. This condemnation of the acquisitive spirit and the wasteful squandering of wealth was the main concern in the approach that Thorstein Veblen adopted to the phenomenon of conspicuous consumption in his famous *Theory of the Leisure Class* (1899). Among the various authors representative of the institutionalist school in economics, it was John Kenneth Galbraith who best interpreted and developed Veblen's legacy in dismantling the factors that interfere in the motivations and propensities of individuals for consumption, whether it be in the form of exhibitionism or mimicry, in their search for a desired social status, or due to exogenous determinations and impositions that induce behaviour that does not correspond to free individual choices.

As a society becomes increasingly affluent, wants are increasingly created by the process by which they are satisfied. This may operate passively. Increases in consumption, the counterpart of increases in production, act by suggestion or emulation, to create wants. Or producers may proceed actively to create wants through advertising and salesmanship (Galbraith 1958, 158).

This does away with the myth of the sovereign consumer, the holder of freedom of choice in the market. Such a consumer is nothing more than a passive economic agent, a victim of artificially created needs, who is subject to the interests of an economy of ill-shared abundance.

Why grow, why produce and consume when such actions bring with them waste and the depletion of natural resources? Expressed in this way, this is also the question that the defenders of the circular economy challenge us to answer. They have inherited a long tradition of critical thought about the possibility of the collapse of the systems of natural equilibrium caused by human action, about the shortage and unsuitability of available resources, about the submission of the natural world to the business power, and about the incapacity of consumers to assert their own will.

THE METAPHOR OF “SPACESHIP EARTH”

The remote origins of the notion of the circular economy were made real and tangible in an essay that, although it is not expressly claimed or recognized as being a foundational text, cannot avoid being remembered as a pioneering contribution to the development that the circular economy has enjoyed over the last two decades. I am referring to the text of Kenneth Boulding with the suggestive title of “The economics of the coming Spaceship Earth” (Boulding 1966; Spash 2013).

In keeping with his unorthodox and militant criticism of mainstream neoclassical economics, in this short essay Boulding presents us with a warning about the deterioration of the environment as a result of human activity and the social structures that serve as its support. The terms of his presentation are essentially very close to the characteristic language of the circular economy, even though at no point in his text does Boulding actually use such terminology.

The period in which Boulding published “Spaceship Earth” corresponded to the moment when the first signs were beginning to be shown of a reflection that was concerned with the risks of environmental deterioration caused by the rhythm of economic growth in the postwar period. The worsening of pollution, the wastage of natural resources in capitalist and socialist economies sustained by growing levels of consumption of fossil fuels, were themes that appeared with ever greater impact on a political agenda in which the

consequences of economic growth and the need for imposing limits on this same growth were discussed in a scientifically grounded fashion. The earlier optimistic view about the possibility of achieving social well-being through a growth in individual and mass consumption was now superseded by an ever greater awareness of the risk arising from the deterioration and depletion of the resources that needed to be mobilized in order to achieve such an aim (Ropke 2004).

Kenneth Boulding uses the concept of entropy, applied to the understanding of the open systems of the material world, of energy, and communication, to explain that the world economy functions through the combination, interaction, and exchange of inputs and outputs that shape the processes of production and consumption. Using a language that is not always exempt from imprecision, Boulding defends a vision of the economic system that counters the model that he classifies as the “cowboy economy”, an exploitative, maverick economy constantly consuming resources that are considered to be unlimited. He opposes this model with the spaceship earth economy, or, in other words, an economy that is self-contained, demanding an efficient use of limited resources, capable of guaranteeing the reproduction of a given capital stock that one wishes to keep stable. In his own words:

The closed economy of the future might similarly be called the “spaceman” economy, in which the earth has become a single spaceship, without unlimited reservoirs of anything, either for extraction or for pollution, and in which, therefore, man must find his place in a cyclical ecological system which is capable of continuous reproduction of material form even though it cannot escape having inputs of energy (Boulding 1966, 7-8).

In the spaceship economy, there is no place for either consumption or growth as the prime motivations of human action:

The less consumption we can maintain a given state with, the better off we are. If we had clothes that did not wear out, houses that did not depreciate, and even if we could maintain our bodily condition without eating, we could clearly be much better off (Boulding 1966, 9).

The metaphor of the “Spaceship Earth” proved very useful for his purposes of critically denouncing the technological optimism and the hedonistic cult of consumerism that are the hallmark of the advanced market economies of the

western world. It inspired contemporary reflections on sustainability and the global environmental challenges (Kula 1998, 129-33). It gave the world a timely warning about the way in which humankind thinks about its relationship with the natural world (even if the concepts lack a certain rigorousness and precision in terms of terminology), and it continues to be used as a tool for arguing in defence of environmentally friendly technologies and public policies based on the principles of social responsibility and a commitment to goals of sustainable development that are subject to screening (Barbier and Burgess 2017). And it not only afforded continuity to, but also consistently incorporated the themes of circularity, the shortage of resources and the limits of growth, which have persistently remained on the research agenda revisited by the history of economic ideas.

Spaceship Earth was also an additional pretext for Boulding to continue to pursue his crusade against conventional mainstream neoclassical economics, challenging the definition of key concepts such as production, consumption, and income, and calling for a renewed consideration of the value of capital as a variable flow and as a fixed stock.

The essential measure of the success of the economy is not production and consumption at all, but the nature, extent, quality, and complexity of the total capital stock, including in this the state of the human bodies and minds included in the system. In the spaceman economy, what we are primarily concerned with is stock maintenance, and any technological change which results in the maintenance of a given total stock with a lessened throughput (that is, less production and consumption) is clearly a gain (Boulding 1966, 8).

Finally, it was a demonstration of Boulding's appeal for a fruitful dialogue between economics and other disciplines from the area of the social sciences that are indispensable for understanding human behaviour and its relationship with the surrounding social and natural environment (Fontaine 2010). In this sense, his work made a decisive contribution toward enriching an open vision of the social problems that the concept of the circular economy obliges us to consider and that his metaphor challenges us to face up to:

The spaceship metaphor stresses the earth's smallness, crowdedness, and limited resources; the need for avoiding destructive conflict; and the necessity for a sense of world community with a very heterogeneous crew (Boulding 1993, 311).

CONCLUSIONS

The problems of the contemporary world are obviously different from those that caught the discerning attention of Kenneth Boulding in the mid-1960s and which he revisited once more in the early 1990s. Today, the risks and threats to the environment have an incomparably more urgent status on the political agenda. The impact of economic activity on the natural balances has caused us to pay much greater attention to the conditions that must be safeguarded in order to guarantee the survival of future generations.

It is not enough to trust in the regulatory role that governments, international agencies, and enlightened public opinion can and must play in preventing more serious threats. Greater vigilance has to come from the actors themselves, those who most contribute to the worsening of the symptoms of environmental degradation and the emission of carbon dioxide and greenhouse gases that provoke global warming and medium and long-term climate change; in other words, the economic agents and the private and public business sector. The annual costs of the effects of pollution, the destruction of the ecosystem, and the impacts on our food and health systems, all call for the direct involvement of companies from the agricultural, industrial, and services sectors, which have a share in the responsibility for the occurrence of these phenomena.

For this reason, it is not surprising that the appeals for the assimilation and affirmation of the vitality of the concept of the circular economy increasingly involve the business sector, which seeks to benefit from the effects that the materialization of this new paradigm may give rise to, from what is a doubly profitable perspective: on the one hand, because it lessens exposure to the risks of environmental deterioration; on the other hand, because it obliges the business sector to adopt processes of innovation and creative destruction associated with new processes of industrial engineering and new products of consumption that are harmoniously included in new chains of ecologically sustainable production. And it is on this capacity for adjustment and the incorporation of change that, in the end, our own future depends.

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CITE THIS CHAPTER AS:

CARDOSO, J. L. 2018. "The circular economy: historical grounds". In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 115-127.
<https://doi.org/10.31447/ics9789726715054.04>

5.

Material deprivation and food insecurity: perceived effects on mental health and well-being

Vasco Ramos

Nádia Salgado Pereira

INTRODUCTION

According to the Food and Agriculture Organization FAO (1996), “food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life”. Original conceptualizations, dating from food crises of the 1970s, linked food security with supply, availability, and price stability of foodstuffs at the national or regional scale. Further understandings, namely Sen’s (1982) work, showed that famines and food poverty were not necessarily the result of supply failures, but derived from distribution problems and specifically from a lack of entitlement to food within a given context. Over the last decades, debates about food security broadened what was originally a more restricted concept, centred on food supply, availability, and stability (Borch and Kjærnes 2016). Additionally, researchers have also considered food security as encompassing access to nutritionally balanced and socially acceptable food, aimed at achieving an active and healthy life (Truninger and Díaz-Méndez 2017). Current conceptualizations regard food security as an ideal situation on a continuum. On the other hand, food insecurity occurs when one or more of the aforementioned criteria are lacking. Thus, this phenomenon may differ according to its severity.

A shift of scales also occurred from the aggregate level (global, national, or regional) to the individual/familial level, and current definitions of food (in)security include subjective indicators. Regarding the household level, food security is a proxy of welfare, which exists whenever there is an availability of nutritionally adequate and safe food or the ability to acquire acceptable food in socially acceptable ways (Anderson 1990). Furthermore, food security entails that all members have access to food that satisfies their needs: intra-household distribution of resources may not ensure enough food for all, a facet of food insecurity less frequently assessed (Carletto, Zezza and Banerjee 2013).

By incorporating a forward-looking dimension, reconceptualizations of food security have expanded the range of relatable issues and incorporated notions of sustainability (Redclift 2005; Berry et al. 2015). Additionally, the concept of sustainability as addressing *needs* strongly echoes Sen’s position that food security means *entitlement* to food. Despite efforts to bridge these concepts, the place of sustainability within the food security framework (or vice-versa) is still under debate. Some argue that sustainability is a feature of an enduring global system or process(es), while food security is ultimately a

person-focused concern (Berry et al. 2015). However, both frameworks share similar concerns regarding intergenerational justice and distribution. In fact, intergenerational justice is central to discourses about sustainability, since its initial definition as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland et al. 1987).

Notions of sustainability have been adopted by institutional actors and organizations, paving the way to different, sometimes even competing, discourses and agendas for sustainable development (Redclift 2005). A more comprehensive approach has been taken by the UN with the Sustainable Development Goals, adopted after the 2012 Rio+20 Conference. Poverty eradication (“in all its forms everywhere”) was considered as the foremost priority for sustainable development. Specific objectives were established and agreed upon by national governments, considering a multidimensional approach to poverty that included achieving food security, improving nutrition, and promoting well-being, among others. While many objectives seem to address issues more prevalent in the Global South and to foster changes in the global aid architecture, organizations such as the EU and all of its member-states also made commitments to achieving these goals within their borders.

In fact, food poverty and insecurity in the Global North have emerged as urgent social and moral concerns, increasingly recognized as central issues in the field of health inequalities (Dowler and O'Connor 2012). However,

Figure 5.1 *The interrelationships between food security and sustainability*

Source: Berry et al. (2015).

while food insecurity and poverty are sometimes mentioned interchangeably, differences do exist and these are not necessarily overlapping phenomena. Poor households can be food secure if they self-consume food crops or use reciprocity mechanisms. Conversely, high-income families are not inherently food secure: a large share of their income may be compromised by mortgages or personal debt. Moreover, while poverty is measured on the basis of income over time periods, food insecurity accounts for “periodic food shortages that may reflect transient income shortfalls and/or shock expenses” (Borch and Kjærnes 2016, 137). Thus, food insecurity may be transitory (periodic or seasonal) or permanent, when there is a long-term lack of access to sufficient food (Pinstrup-Andersen 2009). Notwithstanding these caveats, strong evidence shows that poor families are much more likely to be food insecure and resort to emergency help, even in high-income countries (Riches and Silvasti 2014; Pfeiffer, Ritter, and Oestreicher 2015).

POVERTY AND FOOD INSECURITY IN PORTUGAL

Even before the global financial crisis, Portugal ranked amongst the most unequal countries in terms of income distribution within the EU. But austerity measures adopted by the government, in return for a bailout loan from the IMF-ECB-EC troika, had a significant impact. According to Eurostat’s Standard Income and Living Conditions Survey, the Portuguese population at-risk-of-poverty, after social transfers, increased from 17.9 % in 2011, to 19.5 % in 2014, slightly subsiding in 2015 (19.0 %). Severe material deprivation rates, which include eating a meal with meat, chicken, fish, or vegetarian equivalent every second day, increased from 8.3 % in 2011 to a peak of 10.9 % in 2013, falling to 8.4 % in 2015.

Poor households were hit the hardest: income decline was steeper for families and individuals with lower incomes (Farinha Rodrigues, Figueiras and Junqueira 2016, 25-30). The crisis exposed the frailty of standardized measures to assess poverty. Falling family incomes drove the median income down and lowered the poverty line. Many families, once considered as poor, were artificially deemed as non-poor and thus non-eligible for social support, even when their income decreased or remained stable.¹

1 In Portugal, the median equalized income fell 10% between 2009 and 2014, while mean income dropped 12.2% during the same period (Farinha Rodrigues et al. 2016, 23).

Differences in risk of poverty mostly relate with family structure and age. Single parents with dependent children, single individuals, and couples with children are most at risk of poverty. During the economic crisis, families with children suffered a hard blow, with poverty rates increasing considerably (Leitão et al. 2016; Wall et al. 2015). According to Farinha Rodrigues et al. (2016), cuts in social transfers, namely in Family Benefits and Social Insertion Income had a decisive effect in increasing the level of poverty and in worsening the living conditions of poor families.

During the 2008-2012 period there was a surge in the number of individuals applying for emergency food aid across Europe (European Commission, 2012 cited by Davis and Geiger 2017).² According to the Portuguese federation of food banks, 232,754 individuals were provided with food aid in 2007, peaking at 436,418 in 2015.³ Data on food bank usage, however, is at the very best a rough proxy for the severity of food insecurity. Discussions about food aid and specifically food banks are increasingly politicized and ideologically contentious (Williams et al. 2016), a strong reminder that figures from such sources can suffer from double measurement issues and be over-estimated, for a number of reasons (Riches 1996).

As elsewhere in Europe, in Portugal there is a dearth of trend data on food insecurity. A handful of point-in-time surveys have sought to measure food insecurity in the Portuguese context. A recent survey (IAN-AF)⁴ concluded that in 2015-2016, 10.1 % of Portuguese families struggled to obtain sufficient food for all individuals due to low financial resources. Prevalence is higher among households that include minors (11.4 %). As much as 17 % of all families reported fearing running out of money before being able to buy more food. Additionally, 11 % claimed that they could not buy more food, while 15 % said that they could not afford to buy balanced and nutritious ingredients and meals.

2 Among others, emergency food aid initiatives include NGO food banks, canteens, and home-based meal provision, etc.

3 Data retrieved on October, 24, 2017 from <http://bancoalimentar.pt/article/24>.

4 IAN-AF – National Survey on Food Intake and Physical Activity was conducted by the U. Porto and DGS on a representative sample of 5819 individuals. The survey consisted of several modules and included a food security protocol, which adopted the Radimer et al. (1990) proposal. Food insecurity was assessed considering four dimensions: availability, access, use, and stability.

EFFECTS OF MATERIAL DEPRIVATION AND FOOD INSECURITY ON MENTAL HEALTH AND WELL-BEING

It is well established that populations' living conditions are negatively affected by material deprivation resulting from unemployment, low paid work, and job insecurity, with negative effects on both physical and subjective well-being (Marmot et al. 2012; Quinlan and Bohle 2009). Increasing social inequalities also exacerbate health differences between social groups, namely the prevalence of health problems and diseases. Individuals with lower socio-economic status seem to be more vulnerable not only to physical health diseases but also to mental health problems. Material deprivation and poverty have been associated with an increasing risk of common mental disorders that include non-psychotic disorders such as depression and anxiety. This relationship has been observed not only in developing countries but also in high income countries (Fryers et al. 2005; Lund et al. 2010; Weaver and Hadley 2009).

These findings are particularly relevant considering that mental disorders are a leading cause of individuals' disability in both low and middle-income countries (Lund et al. 2010; Whiteford et al. 2013). In fact, suicide and material deprivation appear to be linked to some extent. A study on social and material disadvantage and suicide mortality found a positive association between the two variables, especially for individuals not employed, not married, with low education, and low income (Burrows et al. 2011). In another study, unemployment was positively associated with suicidal ideations and behaviours (Iemmi et al. 2016). This relationship was also studied in the Portuguese population. Results from recent studies (Santana, Costa, Marí-Dell'Olmo, et al. 2015; Santana, Costa, Cardoso, et al. 2015) suggest a positive association between material deprivation and suicide rates during the period of economic crisis in Portugal.

Other negative events that have been associated with material deprivation such as physical health diseases, difficulty in accessing health services, and social stigma may enhance mental health problems (Saraceno, Levav and Kohn 2005). This also seems to be the case of food insecurity. Families' uncertainty in acquiring food in sufficient quantity and quality has been associated with an increased risk of common mental disorders including depression and anxiety as well as alcohol abuse (Jones 2017; Lund et al. 2010). Gender differences point to a higher prevalence of depressive and anxiety disorders in women, and higher alcohol abuse in men (Fryers et al. 2005).

The studied impact of food insecurity on mental health may be related to the psychological distress experienced by families lacking food in adequate quantity and quality. Stress levels related to ordinary tasks, such as preparing family meals on a daily basis, may be heightened when access to food supplies is scarce, uncertain, or if supplies are plentiful but monotonous. In fact, some studies have revealed that food insecurity positively associates with stressful life events and post-traumatic stress disorder (Weaver and Hadley 2009; Mugisha et al. 2015).

Therefore, it is not surprising that food insecurity seems to negatively influence subjective well-being, defined as the evaluation of life in terms of satisfaction and balance between positive and negative affect (Keyes, Shmotkin and Ryff 2002). In this regard, a recent study revealed that food insecurity explained lower emotional well-being beyond other measures of living conditions (Frongillo et al. 2017).

A possible explanation for the previous findings may relate to the burden of social expectations regarding parental roles such as being able to satisfy children's basic needs, and to provide children with food in sufficient quantity and quality. Caregivers have to deal with the insecurity with respect to future plans as well as with feelings of inability and helplessness regarding their parental roles. Feelings of shame, guilt, exclusion, resignation, and helplessness have been reported by parents experiencing food insecurity which seem to be similar across different cultures leading to severe distress in the house ecology (Bernal, Frongillo and Jaffe 2016). Some of these feelings may also derive from socially unaccepted practices to acquire food such as resorting to food banks or depending on social or family financial support. Individuals may experience distress because they are not eating in a culturally appropriate way even if they eat an adequate amount of nutritious food.

The negative impact of food insecurity on emotional well-being helps to explain why a higher prevalence of common mental disorders was found in families experiencing food insecurity, as stated above. In fact, several studies stress the relationship between food insecurity and depression and anxiety in mothers caused by psychological distress related with feeling unable to provide healthy food to their children (Kruger and Lourens 2016; Hadley and Patil 2006). Although a greater number of studies were conducted with women on account of being seen as families' primary caregivers, the same psychological effects were also found in men (Jones 2017; Althoff, Ametti and Bertmann 2016).

A less explored topic is the relationship between mental health and physical problems in individuals experiencing food insecurity. Some findings include

reports of physical symptoms associated with negative emotional experiences such as sleep disorders, headaches, and nausea (Weaver and Hadley 2009). This suggests that some physical problems may refer to somatizations of psychological nature. However, this connection would need further analysis.

In this chapter we address the relationship between food poverty and mental well-being of low-income parents in Portugal, drawing on interviews carried out with individuals in areas of the Lisbon Metropolitan Area experiencing food insecurity.

THE PRESENT RESEARCH

This chapter stems from the *Families and Food Poverty (FFP)* project, an ERC-funded research project, coordinated by Rebecca O'Connell (Thomas Coram Research Unit – UCL-IOE).⁵ The *FFP* project examines the extent and experience of food poverty among low-income households in Portugal, the UK, and Norway in an era of austerity.

This study drew upon a subsample of the Portuguese participants. The key aims were to explore the lived experiences of food insecure parents, and also to assess how these experiences relate with emotional well-being. First of all, we aimed at understanding how parents frame the issue of food insecurity in their life story, and which dimensions of food insecurity impact individuals the most (availability, access, utilization, stability). Another aim was to apprehend the extent to which the experience of food insecurity affects parents' emotional well-being, and how this may relate with their perceptions about their parental roles.

METHOD AND PARTICIPANTS

Fieldwork took place in three areas within the Lisbon Metropolitan Area. While the research project does not seek representativeness at the national level, we sought a “contrast of contexts” and diversity in choosing study areas. Several criteria were taken into account considering their link with food insecurity,

5 The research is funded by the European Research Council under the European Union's Seventh Framework Programme (FP7/2007-2013) / ERC grant agreement 337977. The project is coordinated in Portugal by Monica Truninger and Karin Wall.

namely levels of social deprivation, ethnic diversity, population density, and degree of urbanization. Amadora (municipality, suburb of Lisbon) was chosen for its ethnically diverse population and middle to high level of poverty; Marvila (borough of Lisbon) was chosen for its high level of social deprivation; São João das Lampas and Terrugem (rural parish council of Sintra) was chosen for its lower level of population density and middle to low level of social deprivation.

Participants were recruited using surveys sent to schools and through NGO's Screening information from surveys and NGOs enabled a purposive selection of parents facing hardship and food insecurity.⁶ A total sample of 45 cases was obtained, split equally between the three areas. A level of emotional distress was present in the interviews of most cases, sometimes expressed through facial expression, and other non-verbal communication (e.g., crying). However, the lack of emotional well-being was seldom verbalized explicitly and directly by the participants. Since the main objective of the present chapter was to assess and explore possible implications of food insecurity on parents' emotional well-being, a subsample of four cases was selected to portray this relationship. Thus, emblematic case-examples in which adults (parents, all mothers) directly expressed and verbalized being emotionally affected were purposely chosen by researchers. Fictional names were attributed to the participants in order to ensure confidentiality. Table 5.1 contains a brief sociodemographic description of the subsample.

Table 5.1 *Participants' sociodemographic description*

CASE IDENTIFICATION	GENDER	AGE	FAMILY STRUCTURE	EMPLOYMENT STATUS	LOCATION
Sara	Female	29	Mother, father, children: 11(f), 2(f)	Part-time store operator	Favela outside Lisbon
Carla	Female	39	Mother, children: 15(m), 5(f)	Unemployed	Flat in urban area (rented)
Eva	Female	46	Mother, father, children: 12(f), 10(m), 2(f)	Bakery assistant	Detached house in rural area (mortgage)
Ana	Female	42	Mother, father, grandmother, children: 13(f), 10(m), 2(f)	Unemployed	Flat in urban area (mortgage)

6 All individuals were contacted after giving consent. Participants were compensated with a €50 voucher for their participation.

MATERIALS AND PROCEDURE

In-depth interviews were carried out with food insecure parents who are responsible for providing food to the family. Out of 45 cases, 41 mothers were the main caregivers. Interviews were set up by phone and took place in locations agreed with the participants. The interview script included six major themes: current family circumstances; life history; eating patterns and food preparation; food shopping; income and expenses; food and wellbeing. Responses were recorded and fully transcribed. Interviews lasted between one and a half and three hours.

Interviews were analysed by researchers using a model of thematic analysis derived from a narrative analysis approach (Earthy and Cronin 2008; Riessman 2008). According to this view, the main unit of analysis resided in each individual case and focused on content. Interviews were read in their entirety, in order to produce a rich 15-20 page account/summary of each parent's narrative. Summaries were re-organized thematically, considering the following categories: (a) life story and current living conditions; (b) work and living standards; (c) food (in)security; (d) physical problems and diseases; (e) emotional well-being; and (f) depressive and anxiety symptoms.

This is an exploratory study, with no aims of generalization. The approach taken in this chapter was not envisaged from the outset and is not the main tool in the *FFP* project. Nevertheless, the interview script includes many typical narrative questions (i.e., family circumstances growing up; life events leading to current food insecurity), which allowed creating a link between the categories described above. Thus, the purposes of the analysis were to apprehend not only the story telling components of each individual's account, but also to establish a relationship between food insecurity and emotional well-being emerging throughout the interviews. However, this does not imply that individual accounts were held as fictional. Instead, the analysis intended to capture the possible reasons for interviewees to describe their distress in a specific manner according to their life story and events. Likewise, even though both manifest and latent contents were contemplated, the analysis withholds from diagnosing individuals or any pathologization of their behaviour.

RESULTS

CASE 1 – “FEELING THE SQUEEZE”

Sara and partner recently moved in with her father, who lives in a makeshift house. A few months back, Sara was living with her mother. Although the neighbourhood is being demolished and families relocated, she is not entitled to a new home.⁷ Children are staying at their grandmother's because of poor housing conditions and work hours. Sara's partner is unemployed and she works part-time at a clothing retailer. With their current income they cannot afford childcare, and thus Sara takes care of the children during the day. One year ago, when her parental leave ended, she resumed a full-time job and was barely making ends meet. She was entitled to two hours for breastfeeding. When it ended, she opted for the late graveyard shift (5am-10am) working part-time, as work and childcare were irreconcilable.

Sara reported negative feelings in relation to her current living conditions as well as her role as a caregiver. Feeling unable to create the proper environment to live with her children is emotionally affecting her. Feelings of helplessness derived from not being able to fulfill her daughters' needs, and to conform to the social expectations as a mother.

Psychologically bad, really really bad, because it is very difficult for me to be away from my daughters because I cannot keep them there, this is something that psychologically affects me, really, and this situation is not doing me any good.

(...) right now I am not well psychologically, and that also takes a toll, it does, people don't have any notion but its really, really bad, we are working and I have always worked and don't have any savings, don't have any money to take a trip, to buy a gift for my daughters, or, even to buy everyday essentials, which I really, really struggle to afford...

Sara expressed feelings of worry in regard to her teenage daughter. She feels a lack of control and inability as a mother to be present when her daughter needs. Sara attributed this to her working conditions, and seems to blame herself for not being enough time at home to help her daughter and guide her.

7 Rules grant access to a second home only if eight or more people share the same household.

I'm worried because she is alone, she is alone for a long time (...) so I worry, why, because I need to work (...) but it worries me, it worries me because she is growing up and I don't have much control there (...) I can't, I can't.

After starting “to feel a squeeze”, Sara planned to migrate to the UK. She quit her job and was moving in with her brother, who promised to help in getting a job. However, when the Brexit vote happened, she was advised not to go. Sara was hyper-reflexive and very self-critical concerning this event, and blamed herself for not weighing her options.

But I didn't think twice, I should have possibly considered things more and not taking a parachute jump, isn't it? I was a little bit irresponsible in this sense.

As she is still considered to be living in her mother's household, Sara is not entitled to social insertion income and her request for help from the food bank was denied. Sara relies on the help in kind from parents and in-laws. Buying food is her utmost priority, but the food budget is very tight. Consumption of fish, meat, fruits, and vegetables has been reduced. Pork, pasta, eggs, and rice are the staples. Sara also stopped buying snacks, treats, and soft drinks. Nevertheless, she was proud of making the most of whatever money she has.

I can't and referring to food, yes, buying meat, I started to buy less, in everything, I reduced in everything, really.

I did it and I arrived with my shopping bag full, that is to say, it allowed to eat yesterday and today, obviously now, then I will have to find another way, isn't it, it won't be enough, but I did it.

As a caregiver, Sara pointed out that she tries to do the best to protect her daughters from knowing and experiencing the needs and the difficulties they are really going through. She also valued their access to appropriate food even if this involves being apart from her children.

I do everything for my daughters so they won't realize, I know what is going on but they don't, they don't, they don't really know, and I know how they are, I also know that they are having the diet that is more appropriate to them, I'm absolutely sure, yes.

Sara seems to be experiencing anxiety and depressive symptoms. Besides feeling guilty for choices made in the past which affected her children, she also reported pessimism when looking to both the past and to the future. She mentioned feeling anxious on a daily basis, almost as an embodied experience, described as a constant feeling of “start”.

I usually say that this year was the (exhales) I’m not going to say the worst year, but it was a really hard year, it was since the beginning and it seems like it is going to be like this until the end, always with this, always with a start, so I’m getting a little tired of this situation, yes.

CASE 2 – “A LOT OF THINGS FELL APART”

Originally raised just outside of Lisbon, 13 years ago Carla moved 40 kms west, in order to live close to her then in-laws. She had many jobs over the years (house-cleaner, cook, etc.). Currently she is unemployed. Her last full-time job was as a geriatric assistant. Carla has a history of physical and mental health problems. Besides severe back problems, she recently suffered from depression and attempted suicide. It is difficult to determine if she had previous physical and psychological problems or if they were triggered by the worsening of her life conditions. These issues are attributed to being fired for taking too many sick leaves as well as to the difficulty in finding a job.

Carla is not entitled to unemployment benefits, as she was working undeclared. Her sources of income are the Social Insertion Income (sii) and child benefits (total averaging €560). Carla receives alimony in kind from her ex-partner every week (i.e., foodstuffs). Additionally, she and her former partner are jointly liable for a bank loan. As Carla cannot pay, the case is in court. Furthermore, she has not paid rent for the last four months and will most likely be evicted soon.

Carla needs to take care of her 5-year-old and there are no affordable daycare facilities nearby. She has no network support to rely on: she became physically and emotionally estranged from her parents, and does not receive any support from them. Her older daughter was institutionalized in the past due to anger management issues and substance abuse. Carla mentioned that her children need to be confronted with life’s difficulties, which she believes to be caused by external motives, out of her control.

Life costs, life hurts, life... you have to do something to get something. (...) I don't believe that we should protect children from knowing everything, to not knowing, no, sooner or later they will know and they will rebel, that's why I have got my oldest daughter outraged, so it's no use.

Most of what Carla cooks comes from what she gets in her monthly visit to the local food bank, located in a nearby village not directly connected by public transportation. Getting there is complicated and expensive, and Carla needs to call in favours from neighbours to get there. As food banks provide a limited range of products and, in order to add variety, Carla decided to stop paying rent.

Hence the months in arrears, most of the times, although I have a food bank, in S*, it isn't that good (...)

According to Carla, her family cannot afford to have a satisfactory diet because something always fails in managing the budget. As a consequence, her children eat less than what they would like when ingredients are missing.

I know that for a "correct" diet one should often serve soup, for example. (...) Because in order to pay rent, I don't consider food and then something is missing.

Because of the prices, because of the situation I have fallen into, therefore, a lot of things fell apart.

On the one hand, Carla feels anguish in being unable to give her children what she believes other parents with better living conditions are able to provide. On the other hand, she feels proud of being able to prepare quality food for her children despite their difficulties. This duality in the way Carla views her life seems to help her to cope with their daily problems, probably preventing her from feeling depressed considering her past psychological problems.

It's like this, it's so difficult, it's such an anguish having children and not being able to provide them with what so many can provide (...) And that's what I have told my son, today, deep, deep down, I, there it is, I am proud to live like I do because we keep on fighting [for it] day by day.

Sometimes, I feel sadness, sometimes I feel proud, because many are not able to survive with the amount of money that I have.

CASE 3 – “MONEY ISN’T ENOUGH”

Eva lives in a small village about 45 km northwest of Lisbon. She and her partner work low paying jobs, both making just above minimum income. Eva’s mother is retired and currently undergoing cancer treatment. Considering all sources (salaries, pensions, and child allowance), the total income of the household is slightly less than €1600. Were it not for the loan the family took to remodel the old rural house where they live, which eats up over a quarter of it, this modest income would suffice.

A narrative of sacrifice and personal tragedy shrouds this family. Eva’s father died immediately after she was born. Her mother struggled to raise Eva and her older brother with the help of a sister (aunt). Eva’s brother died at age 33 and her mother became sick afterwards. All these life events seem to contribute to additional stress in the family’s dynamic. Eva does not receive any material, economic, or emotional support from her extended family. When things get tighter, she resorts to friends for help, or asks for an advance on her salary.

It’s not enough, Money is not enough. Sometimes we get to the middle of the month and I ran out of money, I have to... Sometimes I ask for an advance from my boss, sometimes, it’s like it is – I ask for help. I have asked for help from many friends.

Eva’s aunt lives in the neighbourhood but some untold familial issue seems to have happened since Eva never mentioned any support coming from her. She is distrustful of everyone living nearby, claiming they have bad intentions. Her lack of trust in other people may be blocking additional external support, especially from neighbours and the local community. Eva tries to convey to her children the need to make efforts in life and to rely mainly on themselves.

No, people around here are false to each other. They just want to harm each other, do bad things to others, that is why I tell my children we should live our lives and let others alone. And know how to choose your friends, that is very important. It costs me a lot, going without help from anyone is really hard but you can do it.

Eva gets most of her groceries from local shops because they are farther away and transportation to the bigger and cheaper supermarkets is expensive. Additionally, she is allowed to run tabs on these shops. Usually, Eva buys less

fresh produce and fruit than what she needs. The family is also consuming less fish than before. Eva urges her children to have fish at school, but is worried because she feels that they do not have a good diet.

And so I buy, for example, if I am shopping for meat, fish... (...) and fruit, then I can't buy fruit. I will only buy meat, fish, potatoes, rice.

I try, but sometimes I know I can't. Sometimes fish is missing, and that is something they miss but sometimes fish is missing because it is too expensive and we don't buy fish.

Eva compares herself with her mother in making the choice to starve so that her children can have enough food. She seems to believe that being a good mother implies making sacrifices for her children. She also expressed feelings of incapacity in providing a better life to her children.

I didn't even go hungry...that would be better my mother was hungry many times, many times I ate bread with butter or bread with cheese. She wouldn't eat to have something for us. (...) I also didn't... well... If I realize that I don't have enough to feed my children I will go without food to give them.

(...) I would like to give them a better life, but no... well, maybe one day I can. Now I still can't give them what I want to. I give them what I can.

CASE 4 – “IF I HAD MY JOB, I’D FEEL HAPPIER”

Ana lives in a nicely decorated house in a lower middleclass Lisbon neighbourhood. Ana and her husband are unemployed since the companies they worked at went bankrupt due to the economic crisis. Before that both were making reasonable wages. The right to unemployment benefit ended, thus, their lone sources of income are *SIU* and child allowance (about €680). Both have worked undeclared jobs to supplement their meagre income (housecleaning, construction, etc.). These changes meant an abrupt change in the family's lifestyle (e.g., children moved to public schools; inability to pay mortgage). Periods in between social benefits are especially difficult and lead Ana to feelings of despair.

There is a very harrowing week, sometimes quite desperate... I can tell you sometimes I don't even have half a euro in my purse. Which is terrible! And very little in the fridge.

Ana also experiences feelings of incapacity concerning her unemployment condition, which seems to have negatively affected the emotional well-being of the couple. As a coping mechanism, she acknowledges attempting to keep an aesthetic “façade” for both her children and outsiders, for example by preserving the cared-for physical appearance she had before losing her job.

I feel that if I had my job, I'd feel happier, would feel more capable... because I always enjoyed working a lot!

“[...] because who looks at me, won't say that in between pay checks I'm strapped... that my freezer is empty or full.

Currently the family food budget is extremely tight, and the quality of foodstuffs diminished over the last few years. Ana claims not affording to buy enough fresh food and to diversify meals. The family applied for food support but withdrew because she felt ashamed and guilty, believing that other people are more worthy of receiving help.

(...) I can tell you that sometimes I can't even look at chicken. [...] I open the refrigerator many times, at that most harrowing time of the month in terms of food! And I take anything out and can manage. And perhaps it's not the ideal meal, we should make.

I didn't insist, I sometimes feel ashamed, I'll be honest [...] I think I need it, although I have... There are people who really have nothing, right?! Hum, hum... but I feel I'm stealing someone's spot.

Ana seems to be emotionally unstable due to her current situation and cried several times during the interview, in particular with regard to being able to provide food for her children. Ana always gives priority to her children's well-being regarding food needs.

(...) when he have... get money and go shopping, the first thing we do, to fill the empty spot... their joy seeing the shopping bags is funny (crying). It's funny! I'm sorry!

(...) I'd never allow that... if I had to go without eating... so they [children] could eat.

Ana also expressed concerns regarding the effects of the family's current situation upon her marriage. Not knowing what the future will bring, especially regarding the need to fulfil their children's basic needs seems to be undermining the couple's relationship.

The marriage, it's not money that brings happiness, but it helps. It helps if the couple doesn't argue, because there is a light bill to pay, we can't go without light because we have children. There is water to pay, there is gas to pay, how are we going to cook, there are all those things! We can lose our house, what would we do with three children? Where would we live?!

DISCUSSION

FOOD INSECURITY AND EMOTIONAL WELL-BEING

This chapter highlights how food insecurity impacts parents' emotional well-being, and how economic hardship hampers parents' management of everyday life, making it hard to accomplish social expectations related to parental roles. While several studies show that food insecurity is associated with psychological distress, and may lead to common mental disorders, such as anxiety and depression (Jones 2017; Kruger and Lourens 2016), less is known about its effects on satisfaction with life. Beyond what is known to be a consequence of poverty and material deprivation, some issues seem specific to food insecurity, in the context of emotional well-being. By taking into account the perceptions of parents, a link was established between families' food insecurity and the prevalence of negative emotions derived from the burden of parental roles.

The narratives we presented share similar features concerning the experience of negative feelings by the caregivers due to material deprivation, and the consequent difficulty in fulfilling their children's basic needs. The main feelings reported by mothers include sadness, guilt, inability, helplessness, despair, and shame, which seem to affect their emotional well-being on a daily basis. Providing children with nutritious and enough food is their main priority, ahead of other needs and concerns. Thus, being a good mother seems to rely foremost on being able to appropriately feed their children. When this is not possible, mothers see it as a failure in fulfilling their social roles as caregivers.

Parental food-work, which includes procuring, preparing, and serving food, cleaning up, and thinking of what to feed the family, has deep symbolic meanings and entails much more than providing nutrition (O'Connell and Brannen 2016). These meanings are evoked by the strong metaphor of "food as love" (Goody 1998). As Douglas (1972) observed, availability of food and

the very structure of family meals also convey powerful messages of inclusion or exclusion from the social fabric. Along this line of reasoning we can frame coping strategies adopted by these food insecure families, for example those that involve parental sacrifice (skipping meals, eating less in order to have food for others, etc.) or those that prioritize variety and child's enjoyment of food.

In the long run, parental food-work, and more broadly childcare, not only inform on how individuals address their children's present needs but also how they project their children's future trajectories. Challenges to feeding the family in the present derives in a sense of injustice and helplessness that inhibits individuals from projecting themselves into the future. Even though the notion of sustainability encompasses societal-systemic concerns, here resides a powerful analogy between sustainability and food security at the family level.

INDIVIDUAL AND COLLECTIVE NARRATIVES

While it is unequivocal that individuals' current ordeal of food insecurity and economic hardship is draining, establishing a direct correspondence between narratives of individual crisis and the narrative of collective crisis is rather complex. This seems further complicated by pre-existing issues. In fact, individual narratives ponder experiences of poverty and hardship that are recursive, and that were heightened over the last years. Long histories of material deprivation seem to result in lower expectations toward the future and to perpetuate the cycle of poverty. By contrast, those for whom austerity and economic crisis meant a radical change to their living conditions seem to be more responsive and resilient, although fluctuating between sadness and revolt in regard to their current situation.

A similar logic may be applied to the relationship between material deprivation, food insecurity, and mental health. On the one hand, material deprivation leading to food insecurity may exacerbate previously existing mental health problems and disorders. On the other hand, individuals without preexisting problems may become mentally unhealthy due to the psychological distress and lack of emotional well-being that may derive from material deprivation and food insecurity.

These collective and individual narratives are present in the four cases presented. Case 1 describes a family living in a poor neighbourhood for several generations. Recently, during the economic crisis, the family's working

and living conditions worsened, leading to a split in the nuclear family with negative effects on the mother's emotional well-being. Case 2 also refers to a family that has long struggled with material deprivation. However, the mother's pre-existing physical and psychological problems seem to have contributed to the family's current gloomy situation. In Case 3, the family always struggled and their economic difficulties were intensified by changes in work conditions and consequent difficulties in paying the house loan. Preexisting family problems and lack of support networks seem to weigh on the family and limit their future possibilities. In Case 4, the main impact of family's household was the economic crisis, which led to drastic change in the family lifestyle. A long unemployment spell led to feelings of inability and despair and also seems to affect the couple's relationship. Even though causal relationships between material deprivation, food insecurity, and mental health are difficult to determine (Jones 2017), the interrelatedness between individual and collective crisis is an analytical possibility worth reassessing in future studies, preferably including a larger number of cases.

CONCLUSIONS

While our work does not aim at representativeness, the cases presented may be regarded as just the tip of the iceberg. The high level of food insecurity in Portugal is an extremely worrying scenario in several terms, including its impact on the well-being and mental health of vast swathes of the population. If issues of access to food need to be urgently addressed by public policies, namely through employment and income policies, populations' well-being and mental health cannot be the weakest link in this chain. In recent years there were significant cuts in investment in this area in Portugal as well as other Southern European countries due to the economic recession, leading to major risks in public health, namely the deterioration of mental health, especially among socially vulnerable individuals (Antunes et al. 2017). Even without the enhancing effect of food insecurity, mental health disorders have long-term consequences, not only for those who suffer, their caretakers, close relatives, and friends, but also on the labour market (e.g., work-time loss), and health system (e.g., financial costs of treatment). In fact, mental disorders are one of the main factors contributing to populations' disability in contemporary societies (Lund et al. 2010, Whiteford et al. 2013). Therefore,

investing in primary healthcare and specialized mental health services should also be observed as a priority in the field of sustainability. In other words, satisfying the needs of the present without undermining future generations (Brundtland et al. 1987) should entail equal means of access to public services by the population as well as an adequate quality in healthcare and treatment.

LIMITATIONS AND FUTURE DEVELOPMENTS

Attempts to explore mental health and well-being were cautious, but the interview script and the aims of the interviews did not specify this as a subject. Undoubtedly, that is a limitation. Even though framed in a non-judgmental manner, questions confronted interviewees with normative discourses around food and parenting. While interviewers refrained from being intrusive, parents ultimately revealed emotional unrest. Additionally, interviews had biographical overtones, allowing interviewees to verbalize and articulate some feelings, in some cases, probably for the first time, which may have had a cathartic effect. Regardless of focusing on confrontation or emotional catharsis, there is a risk of worsening individuals' psychological state, in the case of pre-existing mental health problems, or triggering psychological problems in apparently healthy individuals. In the future, it will be worth involving mental health specialists in research teams working on projects concerning food (in)security, not only for benefiting from interdisciplinarity but also to fine-tune research materials and to minimize negative emotional impacts on individuals.

» ACKNOWLEDGMENTS

The research leading to these results has received funding from the European Research Council under the European Union's Seventh Framework Programme (FP7/2007-2013) / ERC grant agreement n.º 337977. We are also grateful for the valuable time kindly given by our participants in the interviews. The international research team comprises Rebecca O'Connell, Julia Brannen, Abigail Knight, Laura Hamilton, Charlie Owen, and Antonia Simon (UK); Silje Skuland and Anine Frykholm (Norway), and Monica Truninger, Karin Wall, Vasco Ramos, Sonia Cardoso, Fábio Augusto, and Manuel Abrantes (Portugal). This research reflects only the authors' views and the European Union is not liable for any use that may be made of the information contained therein.

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CITE THIS CHAPTER AS:

RAMOS, V., N. S. Pereira, 2018. "Material deprivation and food insecurity: perceived effects on mental health and well-being". In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 129-152.

<https://doi.org/10.31447/ics9789726715054.05>

6.

Reframing adaptation to climate change in Portugal: the case of ClimAdaPT.Local

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INTRODUCTION

CRITICAL JUNCTURE

As the 21st century settles in, an array of tightly intertwined migratory, social, economic, financial, political, and ecological unrest has brought to the fore the restrictive adaptability of contemporary political arenas, institutions, development models, and policy instruments, inviting us to interpret and to address the causes underlying these upheavals (Ferrão 2016; Kolb 2010; Castles 2004; Smith and Wiest 2012) and attempt to mitigate their negative impacts (Akyüz 2014). Beyond that looms an unpredictable regime of climate change that may permanently undermine the Planet's habitability (O'Brien 2014).

We appear to have reached what is today conceptually identified as the *Anthropocene* (Crutzen 2002; Barry and Maslin 2016; Steffen et al. 2011), interpreted as Earth's newest epoch in which humankind has turned into a collective geochemical force profoundly altering the planet's natural cycles (Biermann et al. 2015). Rickards (2015) and Ferrão (2017) argue that the Anthropocene provides an opportunity, however, not only to produce new thinking, but also to bring about new actions in the field of sustainability. In line with the latter, a rising call for structural change that catalyzes societal transformations toward sustainability has appeared concurrently with – or seemingly as a result of – the predominant neo-liberal capitalist, productivity- and growth-led hegemonic worldview (McMichael 2010). Among the reasons underlying this call are that continued and distributed economic growth can no longer be taken for granted (Krugman 2014), that growth endangers socio-ecological sustainability, and that there exists increasing awareness and wariness of its limits (Rydin 2013; Eastin et al. 2011). Alarming, the mainstream understanding of sustainability underpinning contemporary development politics and policies is still to openly embrace and exploit the discussion and experimentation of non-growth-dependent development solutions (Bina 2013; Martinez Alier 2009).

Alongside global reactions to the aforementioned crises, such as the Paris Climate Change Conference (COP21) or the 2030 Sustainable Development Agenda with its 17 Sustainable Development Goals (SDGs) (UNESCAP 2015), in Portugal a pioneering climate change¹ adaptation action-research project

1 Hereinafter, Climate Change will be referred to with the acronym “cc”.

was launched: ClimAdaPT.Local² (2015-2017). This was a jointly funded research project, EEA Grants and Portuguese Government (*Fundo Português do Carbono*), aimed at enabling and providing Portuguese municipalities with climate change adaptation strategies at the local level. Its approach, scale, and nature, as explored here, characterizes ClimAdaPT.Local as a groundbreaking initiative within the Portuguese CC adaptation research and policy landscape. ICS ULisboa was a member of the research consortium that planned and carried out ClimAdaPT.Local.

In light of the wide recognition that CC is already happening and threatens the habitability of the planet (Thomas et al. 2004; Cahill et al. 2012), ClimAdaPT.Local addressed head on the key intertwined dimensions of the current debate about how to address this pressing issue: fostering and embedding sustainable development, engaging and learning in adaptation and mitigation to CC, and raising the performance of on-the-ground adaptation research and practice.

SCOPE AND OBJECTIVES

This chapter examines the conceptualization of adaptation to CC research and practices found in the literature, and from a social sciences perspective, revisits the imprint of ClimAdaPT.Local, emphasizing its conceptual and transformational strengths and shortcomings. It is structured in three sections.

Section 1 engages an analysis of the concept of *adaptation*, followed by a deeper look into adaptation research and practice. Our analysis builds on the fact that there is no homogenous adaptation research tradition (Wise et al. 2014; Pelling 2011). Therefore, we review current adaptation research lines seeking to reveal their respective emphases and limitations. From a first-order perspective, adaptation tends to be perceived as the management of coping with CC impacts through solutions to minimize them. This chapter adds to the literature by illustrating how adaptation research could play a much larger role in advancing the sustainable development/sustainability agenda (O'Brien 2012; Pelling 2011; Irwin 2010).

Section 2 introduces ClimAdaPT.Local and frames it against the backdrop of contemporary adaptation research and practices, illustrating the ethos underpinning the project's research focus and methodological approach. In addition, this section revisits ClimAdaPT.Local to assess its potential for

2 The project can be visited on the following webpage: <http://climadapt-local.pt/en/>.

transformative adaptation, the extent to which it was met, and how it can be taken further.

Section 3 concludes that the outreach of ClimAdaPT.Local is not limited to the completion of the research project, since a number of communicative platforms and decision-maker/community-engagement instruments have subsequently been put into place, and several related initiatives are beginning.

THE EVOLVING FRAMING OF ADAPTATION TO CLIMATE CHANGE

THE FRAGMENTED LANDSCAPE OF ADAPTATION RESEARCH

In the last decade, adaptation to CC has gained increasing political and policy importance. In fact, “priorities have moved from estimating impacts and vulnerabilities in order to make the case for mitigation, to adaptation planning and action in a world that is looking less and less likely to stay within 2°C of global warming” (Wise et al. 2014, 326). It is thus no wonder that over the last two decades adaptation research has surfaced and boomed (O’Brien 2012), and eventually has led to the appearance of first adaptation practices. However, there are growing calls (Bassett and Fogelman 2013; O’Brien et al. 2015; Bennett et al. 2015) for adaptation research to: (i) encourage a broader analysis of how underlying structural factors (i. e. societal or political systems and practices) directly or indirectly cause CC; and (ii) critically examine the current development paradigm and the moral and ethical aspects of the kind of *sustainability* it promotes. In sum, present-day research on adaptation does not reveal a homogenous pattern. Its variation depends largely on the specific object of analysis, adaptation context, and especially the different scientific epistemological approaches applied by climate social scientists.

Wise et al. (2014) provide us with a brief but concise review of adaptation research that outlines its conceptual evolution. Two main lines of adaptation research seem to be followed. One explores a more instrumental approach aiming at vulnerability and impact diagnoses, as well as the corresponding intervention toolkits. The other examines a more socio-political approach focusing on the governance and politics of adaptation.

Researchers from the first group mainly concentrate on quantifying climate change (Hansen et al. 2006) and examine the biophysical, social, and economic consequences of climate hazards (Stern 2006; Tol 2010). Others engage in the development and implementation of methods and tools to

assess the vulnerability of communities and ecosystems to CC (Turner et al. 2003; Eakin and Luers 2006; Adger et al. 2007; Füssel 2007). From a more general stance, Fankhauser et al. (1999) and Hallegatte (2009) work on the provision of universal principles and broad strategies of adaptation. Adding to this, scholars like Burch (2010) inquire into the identification of both opportunities and barriers to adaptation.

The second group of adaptation researchers show a growing interest in the topics of governance, decision-making, stakeholder-networks, and the politics of CC adaptation. This might be triggered by a “growing intensity of calls for more decision-oriented research [...]”, as Wise et al. (2014, 326) put it. More precisely, researchers belonging to this group increasingly focus on how to efficiently enable decision makers to engage in the “difficult and urgent choices between a range of *alternative policy and management options* in interconnected social and natural systems (Sarewitz et al. 2003; Pielke 2007; Eakin and Patt 2011)” (Wise et al. 2014, 326; italics added). The nature of these *alternative policy and management options* has been only marginally debated to date.

Why this increasing emphasis on decision-making processes? On the one hand, Hinkel (2011) and Downing (2012) highlight the risk of decision-makers’ *paralysis by analysis* due to the overload of information resulting from assessments of impact, vulnerability, and adaptive capacity. The challenge is how to better manage information by taking in viewpoints from various related and affected sources, and organize evidence to inform policy-making. On the other hand, adaptation strategies seem to translate into little implementation, largely due to the contingency of human behaviour and ill-fitting governance solutions, especially if they involve the recognition of value changes (O’Brien and Wolf 2010). Participation and democratic deficits are also pressing issues (Bennett et al. 2015). The challenge here is to examine the ethos currently underpinning adaptation decision-making.

Debating the politics of adaptation is of paramount importance in order to handle the following complex issues: (i) the uncertain future consequences of changing and unpredictable values; (ii) the management of preferences and vulnerabilities of at-risk populations (Fazey et al. 2010; O’Brien and Wolf 2010, in Wise et al. 2014); and (iii) the challenge of accommodating many confounding issues, such as cross-scale effects over space and time and multiple forms of uncertainty (Stafford Smith et al. 2011, in Wise et al. 2014). Hence, analysing the political dimension of adaptation to CC is crucial to fully

understand the spatial and environmental justice implications of predominant adaptation actions. Even so, we witness a predominant behaviour of crystallizing incremental adaptation practices focused on similar causes. These include such things as the transformation of production systems or infrastructure planning in light of changing external environmental factors, with limited debate on alternative options or transitional/transformational changes (Park et al. 2012). In other words, a significant amount of CC adaptation research and action have been rather technical, non-political, and essentially response-driven (Pelling 2011).

Regardless of these limitations, there is a consensus about the impact – albeit modest – that adaptation research has had in influencing decision-makers into putting adaptation solutions into practice, and including them into planning or policy (Tompkins et al. 2010; Ford et al. 2011).

REFRAMING ADAPTATION RESEARCH

In light of the sustainable development and sustainability debate, these multiple shortcomings and obstacles hinder the potential that adaptation, and the framing of adaptation, could promote transformative, paradigm shifting policy practices. Hints about this potential can be found scattered in the literature, but two authors have brought this issue to the centre stage of their research. Mark Pelling (2011; Pelling et al. 2014) and Karen O'Brien (O'Brien and Wolf 2010; O'Brien and Leichenko 2003; O'Brien 2012) provide an in-depth critique of the underlying predominant ethos of adaptation embodied by adaptation research and practice, revealing how its potential could be tapped.

Both authors offer a similar approach to the potential for adaptation. Yet their interpretations seem to vary slightly from a more all-encompassing framing (Pelling 2011), in which transformative adaptation is seen as one of many dimensions of adaptation, to a more explicit emphasis on the need for a paradigm shift toward deliberative transformation (O'Brien 2012).

Nevertheless, one must first clarify the concept of *change* itself to be able to analyse what change adaptation could be promoting. Directly under the spotlight stands the coexistence of diverse discourses that embody the projection of different *desirable futures* (Bina 2013; Sneddon et al. 2006) closely intertwined with different conceptualizations of sustainability. The fundamental choice concerning the future is: what do we, as a society, want

to *change* into (i.e. ends)? And, subsequently, what do we, as a society, need in order to secure such *change* (i.e. means)? These questions refer to a *forward-looking* concept of adaptation, which is able to intervene in the course of policies and practices in favour of sustainability (Pelling 2011, 6-7).

Pelling (2011) highlights how the latter fails to address the meaning of *change* in a comprehensive manner, as well as to propose a framework that encompasses core questions of how *change* can be promoted and implemented in practice. In other words, the fundamental discussion about the values that underpin the change we, as a society, wish to promote are absent from most of the contemporary adaptation debate, at the technical but also the political level.

SYSTEMATIZING THE CRITIQUE OF THE CURRENT FRAMING OF ADAPTATION

Contemporary mainstream and alternative sustainable development and sustainability discourses fall into three main categories: business as usual, reformist, and paradigm shift (Dryzek 2009). These are mirrored in Mark Pelling's triple tier classification of adaptation as *resilience*, *transition*, or *transformation* (Pelling 2011):

- **Resilience** – This is the most common approach of adaptation so far. It seeks to secure the survival and functioning of existing systems³ and practices (similar to the business as usual discourse) into the future in the face of changing external parameters, such as intensifying climate hazards due to cc. However, by focusing solely on solutions (tools) instead of causes, *resilience* fails to scrutinize the behaviours, economics, and politics that justify the need for adaptation in the first place. In other words, it seeks *functional integrity*, in which parameters *in* the system are incrementally altered so that the integrity *of* the system remains unchanged, aiming for greater efficiency without asking if what is being done is actually worth doing (Orr 2009, 15). As the system's ethos is not subjected to examination, the survival of unsustainable or unjust systems may prevail (Jerneck and Olsson 2008).

3 By systems we refer to “a set of things – people, cells, molecules, or whatever – interconnected in such a way that they produce their own pattern of behaviour over time” (Meadows 2008).

- **Transition** – *Transitional adaptation* promotes innovations to social, economic, political, or cultural relations in a system but does not *a priori* intend to lead to regime change (Pelling 2011). In other words, this does not mean that regime changes will not happen – only that these are not normative from the outset, but can result from governance dynamics triggered by research projects or policy process. By regime changes Pelling refers to an irreversible disruption of existing systems, paradigms, and structural constraints. Transitional adaptation could potentially lead to regime change as a result of the governance and learning dynamics during the process. “Transition implies a reflection on development goals and how problems are framed (priorities, include new aspects, change boundaries of system analysis) and assumptions of how goals can be achieved”, as Pelling argues (2012, 53).

In a nutshell, *transitional adaptation* differs from *resilient adaptation* in its *leitmotif*. When transitional adaptation strategies incrementally seek to include social justice dimensions and intervene in the course of development, this can lead to *progressive transition* within existing governance systems (Pelling 2011). Even if it aims beyond *functional integrity* (e.g. greater focus on governance solutions), it falls short of any transformative mindset, since it lacks the capability to envisage the underlying value changes and outcomes of structural system changes. *Transitional adaptation* has mainly honed in on the pathways from one socio-technical regime to another, focusing on how these shifts occur and how new regimes can be set in place (Geels and Schot 2007; Wise et al. 2014; Burch et al. 2014; Moore et al. 2014).

Current socio-political regimes represent a persistent and complex limitation to the literature on transitions to more sustainable futures (Campos 2016, 14). In our opinion, transition research has focused over-proportionally on technical and abstract conceptualizations of transition pathways, failing to bring the actual outcomes after transition, problems arising along the way, and possible negative spin-offs including the uncertainty of change. To this effect, it has been articulated that its core weaknesses seem to lie in the lack of: (i) planning for the structural changes needed in order to reorder existing regimes, (ii) examining how these regime changes can be achieved in practice, and (iii) exploring the implications of such changes for existing power relations and the affected humans in general (Shove and Walker 2007; Pelling 2011; O’Brien 2012; 2015).

- **Transformation** prescribes the most complete level of adaptation to CC, according to Pelling (2011). It aims to bridge the existing deficit of adaptation

research by touching upon inequalities in the suffering from causation of CC impacts, and by challenging the *status quo* of systems and paradigms (Biermann et al. 2015). Nelson et al. (2007, 397) define *transformation* as: “a fundamental alteration of the nature of a system⁴ once the current ecological, social or economic conditions become untenable or are undesirable”, that is, when a certain *tipping point* is reached.

Transformation embodies the paradigm shift (Dryzek 2009; Bina 2013; Pelling et al. 2014) identified earlier in this section, as it implies an in-depth examination and consequent shift of wider, less easily visible current unsustainable system structures, which brought about vulnerabilities in the first place. Pelling (2011, 8) calls transformation “[...] an extreme case where profound change alters the distribution of rights and responsibilities and visions of development across society”. It has already found its way into international scale debates and forums, as Pelling, O’Brien, and Matyas (2014, 4) highlight:

Within the academic community transformative adaptation has gained visibility through the Intergovernmental Panel on Climate Change (IPCC) which first discussed transformation in its Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX) (IPCC-2012). [...] In this context, transformation was presented as one of six interacting elements that make up the solution space for managing risks and adapting to climate extremes.

Yet adaptation efforts may not be sufficient to defy environmental change (O’Brien 2012). Some changes will simply be too drastic for adaptation to encompass⁵ (Kates et al. 2012), while an uncomfortable question always seems to be left aside: Do we actually have the possibility for *inducing change* instead of only *adapting*?

To summarize, *resilience* and *transition* are understood as incomplete strategies of adaptation to CC, since their respective framings imply that the core underlying structures driving CC and vulnerabilities in the first place are not addressed (Pelling 2011; O’Brien 2012). Still, *transition* can set in place pathways for transformational change. On the contrary, *transformation* as an

4 At this stage, an important clarification is in order: systems and regimes, as concepts, are often used interchangeably in the literature.

5 Such as ocean acidification, extreme aridification, ground and surface water disappearance. Some islands have already disappeared under the rising sea-levels and more will.

alternative adaptation approach is said to have the power to substantially shift current unsustainable systems toward new desirable states in which the values and morality underlying development are brought back into the centre stage of discussion (Pelling et al. 2014).

WHAT IS TRANSFORMATIVE ADAPTATION?

From a philosophical standpoint, any debate on transformation begs at least three questions: *why* do we, as a society, need to transform? *What* do we need to transform? And *how* can we transform it? In light of the wider CC context, the *why* is clear. It is now necessary to shift our attention to the *what*.

In light of the socio-spatial justice issues associated with vulnerabilities to CC, Pelling (2011) highlights the need to revisit Rousseau's social contract, as the values of human rights and equality must be included in a redefinition of our moral frameworks. The underlying claim is that humanity and ecosystems have to be viewed anew as a connected system in which each element is co-evolving. Indeed, our transformative adaptation capacity (O'Brien et al. 2009) will be determined by our ability to inscribe in this *new social contract* the recognition of societal divisions (i. e. geographical, gender, class, developed versus developing world, etc.) and the needs of future generations and non-human entities.

To explore transformative capacity-building processes and solutions, the value-systems underlying current patterns of social organization must be questioned, aiming at debating *how* these could be transformed. One should look beyond more visible exposures to CC by examining its more invisible vulnerabilities and their underlying causes (Heald 2017). Indeed there already exist historical empirical examples of observed transformative adaptation⁶ and political regime shifts. A common feature among them is that *change* itself was not intended, but rather emerged out of the contextual circumstances and often following severe natural disasters or crises (Pelling 2011).

Transformation has been defined in many different ways, including physical or qualitative changes to existing forms, structures or predominant belief systems, as well as targeting psycho-social patterns in order for actual transformation to take place (Folke et al. 2010; Nelson et al. 2007; Pelling 2011; Sharma 2007;

6 See for empirical examples the conclusion of Section II, chapter 5 of Pelling (2011).

in O'Brien 2012). It can take place in many spheres, such as politics, gender relations, production and consumption patterns, worldviews, values, or personal lifestyles (O'Brien 2012). This being said, the uncertainty about possible costs of change seems to still be so frightening that both poor and powerful apparently prefer the known to the unknown, even if the former triggers vulnerabilities and risk (Pelling 2011). It therefore comes as no surprise that transformation is conceptually "vague or ambiguous and [that] there is a need for a more rigorous approach to its application" (Feola 2015, in Fazey et al. 2018).

PRECONDITIONS FOR TRANSFORMATION

Transformation being until now a notion that means "different things to different people or groups" (O'Brien 2012, 670), it is necessary that transformation research raises a number of substantial questions if it is to become a scientific alternative of adaptation research, concretely relating to the foregoing issue of the *how*: What are the driving forces behind intended change, and how does the change become mainstreamed? How does the process of establishing transformation goals work? Is it democratic, inclusive, participatory, and deliberative? Who is involved in the debate, and to what extent and in which way(s) can the participants actively influence the direction and scope of the discussion and the decision-making processes? These are a few of the fundamental aspects that will determine the ethicality and social sustainability of transformation itself.

The ultimate goal is the mapping of the politics of transformation into a comprehensive framework. We need to identify the parameters and the scale of change necessary to actually make a difference, which also will enable analyses of the progress of change (Bennett et al. 2015). This is followed by the need to define the aims of transformation itself. If, as it has emerged in the common understanding about CC responses, "sustainable development" is the ultimate goal toward which our actions are directed, then the very same term must again be filled with sense (i. e. Mourato et al. *forthcoming*). Like Pelling (2011), O'Brien urges for an inclusion of ethical aspects such as solidarity and equality into the redefinition of *sustainable*. In this connection, both potentials and dangers of transformation need to be given more attention, including a broader discussion about the ultimate meaning of progress, development and wellbeing (Jackson 2009).

Regardless of its conceptualization, we still need to analyse how transformation can actually be reached. In its way *invisible* barriers often stand, such as cultural, institutional, or cognitive ones, which in turn are expressed through policies or social practices (Kegan and Lahey 2009; Moser and Ekstrom 2010; Pelling 2011; Shove et al. 1998). All of these must be unified and fitted into the big picture. However, as Moser and Ekstrom (2010, 22027) claim, these barriers can be overcome “with concerted effort, creative management, change of thinking, prioritization, and related shifts in resources, land uses, institutions, etc.”, thus emphasizing the usefulness of developing a systematic diagnostic framework. Such a framework is largely enabled via processes of transformational learning (Tschakert and Dietrich 2010) and leadership (Heifetz et al. 2009). However, we still have to address how transformation actually occurs, that is, how to move forward from purely abstract and theoretical constructs of change, often found in pathways literature (Wise et al. 2014; Moore et al. 2014), toward more practical and empirical work on deliberate transformation (see for instance Burch et al. 2014; Fazey et al. 2016).

TRANSFORMATIVE STAKEHOLDERS

A fundamental precondition for transformation is the value-change within the network of stakeholders that will promote it. To begin with, we must focus on the knowledge production underpinning the transformation debate. Transformation may occur at many different scales and across different settings and contexts. Research informing it should hail from a variety of scientific fields, such as psychology, sociology, cultural studies, geography, history, geology, economics, and philosophy, etc. However, so far we face numerous partial theories, frameworks, or approaches to transformative adaptation (O'Brien 2012), but a consolidated holistic and interdisciplinary theoretical transformation framework is still missing.

Although views on the desired outcome of transformation might not be shared by all scholars of these fields, they do have in common viewing transformation as a deliberate or intended process in which ethics and sustainability are major priorities (Irwin 2010). This means that among them exists *a priori* an intention of thinking about how to bring about a profound alteration to current practices and systems when engaging in the elaboration of these theories.

Yet, O'Brien (2012, 672) challenges whether this is “sufficient to inform strategies and actions for deliberate, ethical and sustainable transformation”, insinuating that we might need to engage in innovative transdisciplinary approaches. Concurrently, some (i.e. Wickson et al. 2006) call for a transformation of scientific ontology and strategies of conducting and communicating science, taking in multiple viewpoints (Mezirow 2000), as well as recognizing objective and subjective realities and including different knowledge types into analyses (O'Brien 2012), for example knowledge from local professionals (e.g. forest or coastal agents). Furthermore, local community actors can inform about their “experience [in facing] a broad array of multi-scalar and multi-temporal, social, political, economic and environmental changes” (Bennett et al. 2015, 907), which is valuable for pre-transformation analysis.

In practice, *deliberate transformative action* often takes place in so-called niches (sometimes shadow networks) (Geels and Schot 2007; Burch et al. 2014) and is promoted by small committed groups with worldviews built on challenges to the rooted systems (Pelling et al. 2008). Therefore, not only should civil society actors' viewpoints be considered, but those actors themselves should be actively included in the deliberative transformation process, since they are connected to grass-roots movements and provide access to valuable networks and spheres of influence hard to reach for actors on higher levels. This becomes especially important in the context of social learning and social organization. The challenge is therefore to analyse how niche transformation can become mainstreamed in political and practical terms, complementary to numerous theoretical approaches to this issue (Burch et al. 2014; Geels and Schot 2007; Park et al. 2012; Moore et al. 2014).

In the first part of this chapter we have extensively reviewed, from a comparative stance, the features of different types of adaptation conceptualization and practices. We now examine a specific CC adaptation action-research project, ClimAdaPT.Local, in the context of our review.

CLIMADAPT.LOCAL: SCALING-UP ADAPTATION IN PORTUGAL

PORTUGAL'S CC CONTEXT

Portugal is one of the European countries most vulnerable to the impacts of CC (Carvalho et al. 2014). Widespread throughout the country, CC's adverse impacts include: sea level rise (coastal areas); desertification and drought

(southern areas and hinterland); temperature increase, heat and cold waves, frequent and intense extreme weather events, and fires. Coupled with this, as the European Spatial Planning Observatory Network (ESPON) research revealed, Portugal's adaptation capacity is regarded as inadequate (Greiving et al. 2013). The urgency to swiftly engage in a nation-wide capacity-building process prompted the development of multiple adaptation action-research proposals.

ClimAdaPT.Local resulted from a successful bid for European Economic Area Grants (EEA) and Portuguese Government funding (*Fundo Português do Carbono*) to develop 26 Municipal CC Adaptation strategies in Portugal and incorporate adaptation measures and guidelines in local planning instruments. In other words, the pre-defined objective was to promote resilience through policy innovation, enhancing the reach and impact of existing policy instruments (i. e. planning) in promoting adaptation to CC. These objectives were clearly stated in the funding bid. It was at the methodological level, namely in *how* to achieve the objectives, that room for innovation truly resided.

In this sense, a few key decisions proved instrumental in securing ClimAdaPT.Local's innovative nature. To begin with, the project's implementation design sought to ensure the political and institutional commitment of local decision makers, as well as to raise awareness and engage a wide and diverse group of local stakeholders in view of the elaboration and future implementation of each EMAAC (*Estratégia Municipal de Adaptação às Alterações Climáticas* – Municipal CC Adaptation Strategy).

Partner-municipalities were chosen strategically (Figure 6.1), one per intermunicipal community – Portugal's subregional territorial units according to the NUTS III classification. ClimAdaPT.Local's underlying ambition was to develop and promote a holistic strategy for CC adaptation in one municipality of each of these territorial units, in the hope that neighbouring municipalities would engage a copycat process. Furthermore, the heterogeneity of the 26 municipalities selected allowed for a wide geographic, socioeconomic, and cultural diversity, enabling the project's results to be regarded as representative.

ClimAdaPT.Local's research approach was both holistic and interdisciplinary. The project's consortium was composed of a team of academics of different universities, encompassing climatologists, biologists, engineers, planners, and a wide array of social scientists, as well as environmental NGOs and private sector partners. In addition, the only three local authorities that already had CC adaptation strategies in place in Portugal (i. e. Almada, Cascais, and

Figure 6.1

ClimAdaPT.Local
Partner-municipalities

Sintra), were made project partners. The underlying goal was to bank on these municipalities' knowledge and experience to further inform the design of the cc Adaptation strategies to be implemented in all other partner-municipalities. In this sense, the project sought to maximize the input of the institutional learning processes that had brought forward cc Adaptation in Portugal up to that date.

In its work plan, the project took stock of a thoroughly tested solution (UKCIP 2009): (i) to begin by developing a present and future vulnerabilities scenario, specific for each municipality; (ii) to perform a risk and priority assessment concerning climate change scenarios for each municipality and their impacts; and (iii) to develop a set of adaptation options. These three steps were carried out in close consultation with local decision-makers, local technical municipal officials, and, to some extent, the local communities.

GOVERNANCE INNOVATION THROUGH RESEARCH DESIGN?

There are many ways to analyse and interpret ClimAdaPT.Local's innovation potential and achievements. We will focus on the impact ClimAdaPT.Local has had on stakeholders (i.e. decision-makers, municipal officials, and civil society), their interactions, and networking dynamics. We explore ClimAdaPT.Local's potential impact by examining the nature of the governance solutions used during its completion and those left in place for its post-project implementation.

Good governance principles were instrumental in the development of ClimAdaPT.Local's methodological framework. In a nutshell, the idea of good governance is that effective participation of all stakeholders in a policy design process, especially at local levels of government, is a fundamental feature, in order to promote both equity and efficiency in public action. Participation holds both an intrinsic and instrumental value. For instance, policy-makers often do not have access to the details of local-level information, preferences, and perceptions that may be necessary for the proper design and implementation of projects and public responses. Furthermore, participation plays an often-neglected role that protects against moral hazards, through the development of a sense of ownership and peer monitoring of public action by local communities. This promotes greater accountability in public action and the likelihood of more equitable policy impacts, allowing community stakeholders who are usually silent to be heard (Osmani 2008).

ENGAGING COMMUNITIES IN CC ADAPTATION

ClimAdaPT.Local's workshop-based participatory framework engaged over 1400 stakeholders nationwide. These were a highly diversified group hailing from different activity sectors (economy, agriculture, tourism, energy, forests), to public administration (central, regional, and local), local technical officers, NGOs, and church and charity members, always in accordance with the issues worked upon in each municipality.

The workshop-framework aimed at: (i) increasing local adaptation knowledge levels; (ii) helping to identify adaptation priorities; (iii) promoting transparency in the decision-making processes; (iv) promoting the basis

of common understanding and encouraging the sharing of adaptation responsibilities; and (v) creating synergies and ensuring a good coordination of answers and resources - in other words, adaptation efficiency.

Lasting from six to seven hours, the workshops were structured into two separate parts. The first and more descriptive part included a general scientific presentation on the impact of CC at a global and national level, focusing on the region of each specific workshop. This was followed by municipal technicians of each municipality exposing local vulnerabilities, both present and future (projected), and identifying a set of strategic measures of adaptation. During the second part of the workshop the stakeholders were encouraged to debate, even if to a limited extent. The process was organized across different thematic tables in which a moderator steered the discussion with a focus-group style script, and a recording secretary organized and wrote down the key debate facts.

The script was based on three fundamental levels (Schmidt et al., 2018): (i) perceptions of the CC impacts already felt, or not, in the municipality; (ii) assessment of the viability of the proposals included in the strategy designed by municipal officials, as well as obstacles, responsibilities, suggestions, and recommendations for the strategy; (iii) visions of the future: how CC and local identity will be articulated in the near future. The information gathered in the workshops also allowed obtaining an overall reference framework on the sensitivity and the perceptions of CC at a local level, according to the geographic, professional, and social diversity of the stakeholders engaged in this process.

UNPACKING THE INNOVATIVE POTENTIAL OF CLIMADAPT.LOCAL

ClimAdaPT.Local stands as a groundbreaking adaptation action-research project in Portugal. The sheer geographic scope and range of engaged decision-makers, local municipal technical staff, central and regional public administrative staff, private and third sector representatives, and civil society in general, went largely beyond anything previously attempted. Notwithstanding the scale of this endeavour and the added value it created, a critical self-assessment is of paramount importance if we are to fully understand the impact that projects like this can have and what exactly we are trying to achieve by pursuing them.

In retrospect, ClimAdaPT.Local:

- introduced and reinforced a local participatory culture and enhanced the communication capacity amongst different audiences. In detail, the stakeholder involvement strategy was instrumental in promoting the participation of a wide range of local community representatives, avoiding the perpetuation of top-down public interventions and their fundamental democratic deficit. This participatory dimension moved ClimAdaPT.Local beyond a mere exercise in “functional integrity” toward governance dynamics and politicization of adaptation to CC at the local level.
- helped to decode the complexities of CC knowledge language and themes and strengthened local administrative and institutional confidence. In detail, the project promoted a tool-kit to better manage complex and confounding issues building on the input of the local communities’ risk and vulnerability perceptions.
- fostered the advance in the co-production of knowledge in a more consistent way. ClimAdaPT.Local set out to be a holistic interdisciplinary exercise in which both objective and subjective dimensions of knowledge were taken into account. This was fuelled by the strategy laid out to identify and incorporate local knowledge in terms of climate change detection and adaptation solutions into the projects’ final adaptation measures and recommendations. In this sense, ClimAdaPT.Local did work as an institutional and social-learning platform.

Despite these positive achievements, the information-exchange dynamic established amongst policy makers, academics, and local communities does not necessarily guarantee long-term community support. Stakeholders need not only to understand, debate, and contribute to the development of specific CC adaptation options, they also require a greater sense of ownership of the adaptation process itself.

This outcome may be enhanced by the political and institutional commitment of local decision makers to create a local adaptation strategy monitoring committee in each of the 26 locations. Such bodies would monitor the emerging and future local adaptation efforts in each community. They might also provide a platform for continuous adaptation knowledge exchange and communication. Led by the local mayor, these organizations

would embrace a suitable sample of the stakeholders who previously had participated in the project workshops. This governance innovation was engendered by an unplanned project outcome: the creation of a nation-wide local adaptation network, partnering ClimAdaPT.Local's local authorities with other municipalities, the private sector, NGOs, and academic stakeholders. It is heartening to record the innovative and transformative potential that such well-designed adaptation projects can unleash.

CONCLUSIONS

We set out to place a specific project, ClimAdaPT.Local, within the wider CC adaptation research framework at the municipal governance level. In retrospect, it is not easy normatively to fit this project into a single box, or into the very limited time scale at our disposal. In our view, the research team's interpretation of the original bid and its subsequent implementation of methodological choices altered, to some degree, ClimAdaPT.Local's ultimate scope. While remaining true to its policy innovation goal seeking to enhance local resilience to CC, the project – as a process – proved to be a gateway for broader change.

The evolutionary framing tested the efficacy of the research programme. Tackling 26 municipalities with very different CC threats and experiences, with differing political party configurations in the governing coalitions, and with a very nascent stakeholder commitment to transformative change, was asking a lot of any research programme. There is always the feature of any research, even one as well designed and as politically well-connected as this, that it is seen as essentially peripheral to day-to-day governing and politicking. Furthermore, the structures of resources, budgets, institutional arrangements, and cultural histories of each of these municipalities to climate change, which is still being conceptualized, all make a short, if forensic research process highly vulnerable to other agendas. Given all of this, the outcomes were actually very exciting and encouraging.

Policy change aside, ClimAdaPT.Local's participatory dimension allowed for what Pelling (2011) would call a spark of transitional change. It is true that at its root (i.e. ClimAdaPT.Local's call), this was not set out as a priority; yet, the chosen project implementation design and process brought its governance innovation, participation, and knowledge co-production dimensions to the

centre stage. In this sense, the project arguably raised a previously unseen level of local awareness of current socio-ecological challenges, and brought a much more in-depth debate about sustainable development to local policy agendas through the mobilization of a large array of stakeholders toward cc adaptation. It did so on the shoulders of a process of self-reinforcing social learning, knowledge co-production, and self-organization.

It is hard to say how the different impact dimensions of ClimAdaPT.Local will evolve in the future. Its undisputed achievement of policy reform and awareness-raising is potentially just the tip of the iceberg. The project's domino effect on neighbouring municipalities is slowly gaining traction although it remains to be confirmed whether the same governance innovations are going to be set in place. One spin-off effect, however, must be highlighted. The now flourishing national network of municipalities for local adaptation to cc is incrementally taking on the role of nation-wide platform for knowledge dissemination, political mobilization, funding solutions, and overall awareness-raising for cc adaptation action. Whether it can work as the facilitator for broader movements of transition or transformation is yet to be determined, but as of now, the message and ethos of ClimAdaPT.Local have found a champion.

» ACKNOWLEDGEMENTS

We would like to express our gratitude to Tim O'Riordan (University of East Anglia) and Roberto Falanga (University of Lisbon) for their insightful comments and suggestions to earlier versions of this chapter.

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CITE THIS CHAPTER AS:

MOURATO, J. et al. 2018. “Reframing adaptation to climate change in Portugal: the case of ClimAdaPT. Local”. In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 153-177. <https://doi.org/10.31447/ics9789726715054.06>

7.

Open government and the use of ICT to reduce corruption risks

Luís de Sousa

INTRODUCTION

Over the past three decades, advanced industrial countries have witnessed a decline of citizens' confidence in the core public (Miller 1974; Niemi et al. 1989; Dalton 1999; Nye 1997; Norris 1999; Newton 1999; Newton 2006) and a wide range of private institutions (Lipset and Schneider 1983; Dogan 1994; Listhaug and Wiberg 1995; Dalton 1996). This erosion of confidence in the major institutions of society has been explained as a result of both contextual government ineffectiveness and poor macroeconomic outcomes (Lewis-Beck 1988; Norpoth 1996; Newton 2006; Polavieja 2013; Magalhães 2014, 2016; Quaranta and Martini 2017; Teixeira et al. 2014) and as a consequence of deterioration in the quality of government performance (Aarts and Thomassen 2008; Holmberg and Rothstein 2012; Rothstein 2009, 2011; Rothstein and Teorell 2008; Wagner et al. 2009).

The successive waves of corruption scandals and fraudulent practices affecting both State and market spheres that have taken place in those countries have led people to believe that the public good was being subverted and (ab)used for the benefit of a few. This not only had a negative impact on public support for democratic government (Anderson and Tverdova 2003; Bailey and Paras 2006; Canache and Allison 2005; Fackler and Lin 1995; Morris and Klesner 2010; Seligson 2002), it also hindered policy-making efficiency (Aarts and Thomassen 2008; Rothstein and Teorell 2008; Wagner et al. 2009; Rothstein 2009, 2011; Holmberg and Rothstein 2012; Dahlberg et al. 2015) and economic development (Rose-Ackerman 1978; Mauro 1995, 1997; Cartier-Bresson 1995; Sandholtz and Koetzle 2000; Treisman 2000).

Against this daunting background, governments are under increasing pressure to fight corruption and improve the quality of governance, by opening up the decision-making to public scrutiny and making it more accessible to the people who elected them and more responsive to their problems, needs, and demands. Through the interplay of a series of governmental and non-governmental actors, corruption has moved from being a parochial problem, circumscribed to a particular set of countries or regions, to a global development concern through the adoption of the UN Convention against Corruption in 2005 (also known as "*Mérida Convention*") by the General Assembly on 31 October 2003 (Res. 58/4) and open for signature by all member States from 9 December 2003 until 9 December 2005, in accordance with article 67 (1)

of the Convention (De Sousa et al. 2009). Although there had been other previous regional attempts at setting and harmonizing legal standards and instruments to fight corruption,¹ the Mérida Convention offered, by far, the most comprehensive approach and inclusive platform, due to the mandatory character of many of its provisions and because it was framed and negotiated under the auspices of the UN General Assembly.

Notwithstanding all these multilateral efforts, corruption was surprisingly not included in the eight areas of intervention covered by the 2000 Millennium Development Goals (MDGs) agreed by more than 180 world leaders. Although the MDGs had dealt with a bundle of global concerns that countries ought to mitigate (e.g. from poverty to diseases) and planetary must-haves that they ought to promote (e.g. from climate stability to universal primary education), the (quality of) institutional actors and policy-processes to achieve those goals had not been given sufficient attention as potential determinants. That said, the relevance of using and making available the benefits of new information and communications technologies (ICTs)² was mentioned, for the first time, as a lever of sustainable development under the Global Partnership for Development (MDG8). Accordingly, ICT can play a key role in integrating and accelerating the three core pillars of sustainable development – economic growth (by bringing cost-efficiency to business, allowing organizations to work more efficiently and to maximize productivity); social inclusion (by bringing welfare services such as healthcare and education closer to those who need them, including in the most remote areas, reduce

1 The UNCAC was preceded by a series of multilateral criminal law conventions of a regional scope, such as: the 1995 EU Convention on the Protection of the European Communities' Financial Interests; the 1997 the Convention on the fight against corruption involving officials of the European Communities or officials of Member States of the European Union; the 1997 Inter-American Convention Against Corruption (IACAC); the 1999 Convention on Combating Bribery of Foreign Public Officials in International Business Transactions; 1998 Council of Europe Convention for the Criminalisation of Corruption, the 2003 African Union Convention on Preventing and Combating Corruption, the 1996 Inter-American Convention against Corruption (IACAC); the 2002 Council of Europe's Criminal law Convention on Corruption; the 2003 Council of Europe's Civil law Convention on Corruption; and the 2003 African Union Convention on Preventing and Combating Corruption, to mention the most important.

2 By Information and communications technologies (ICTs), it is meant "a wide range of services (telephony, fax, internet), applications (such as distance education and management information systems), and technologies (anything from 'old technologies' such as television to 'new technologies' such as cellular phones), using various types of equipment and software, often running over telecoms networks" (Martínez-Frías 2003, 10).

their operational costs, and enable people to choose how, when, where, and at what rate to access those services); and environmental sustainability (by optimizing societal activities to make them less resource intense and thus more environmentally friendly, and making people more conscious about the environmental impact of their lifestyle and the alternatives available to steer their conduct and actions toward a more environmentally-friendly direction). ICT is not a panacea. If the right conditions are not met, it can have a reverse effect on sustainable development, for example, by increasing long-term unskilled unemployment, reinforcing social exclusion of individuals with poor digital skills, and adding to environmental problems, such as the disposal of old technology.

Under the MDG framework the focus was to reduce and bridge the digital divide between developed and developing countries and to place ICTs at the service of development for all, through a global multi-stakeholder partnership between governments, businesses, multilateral institutions, academia, and civil organizations, as stated in the mandate of the UN Information and Communication Technologies Task Force, established in 2001 by the UN Secretary-General in response to the request voiced by the United Nations Economic and Social Council (Martínez-Frías 2003). Little had been said about how ICT could improve institutional capacity and governance sustainability.

In 2013 a High Level Panel of Eminent Persons was convened by the United Nations to recommend new goals and targets after 2015, when the original MDGs were set to expire. Sustainable development was no longer regarded solely in terms of economic growth, social inclusion, and environmental sustainability. Wider questions of institutional capacity, equity, governance, and social justice, were brought into play, even if, at times, articulated in a loose and fuzzy manner. Political rhetoric was now refocusing the attention on government capacity, rule of law, accountability mechanisms, and in particular anti-corruption as a precondition for sustainable development. According to this new paradigm, none of the core issues of sustainable development, such as life sustainability, sustainable food security, sustainable water security, universal clean energy, and healthy and productive ecosystems, could be achieved without sound governance and institutions at all levels (Griggs 2013, 306). In this line, a stand-alone goal on good governance and effective institutions, including two targets related to the fight against corruption, were introduced in the final

report³: on the prevention-side, the need to “guarantee the public’s right to information and access to government data”, and on the suppression-side the obligation “to reduce bribery and corruption and ensure officials can be held accountable”.

This strategic document served as a basis for the United Nations General Assembly Resolution adopted on 25 September 2015 (A/RES/70/1) entitled “Transforming our world: the 2030 Agenda for Sustainable Development”. The Resolution came into force on January 1, 2016 and established a set of targets to be adopted by the signatory parties. More specifically, under the *Sustainable Development Goal 16. Promoting Peaceful and Inclusive Societies for Sustainable Development, Provide Access to Justice for All and Build Effective, Accountable and Inclusive Institutions at All Levels* (hereinafter, SDG16), the signatory states have committed themselves to adopt measures aimed at reducing corruption and bribery in all its forms, and to promote public access to information and the development of more participatory, inclusive, representative, and accountable decision-making processes.

Countries have claimed different reasons for fulfilling SDG16 and have opted for different strategies and solutions. ICT regained significance in this new sustainable development paradigm in two interrelated ways: by making the functioning of public (as well as private) organizations more transparent and efficient, (1) it improves citizens’ and other stakeholders’ confidence in development processes and systems and (2) it leads to a more effective use of financial resources, thus resulting in monetary savings that could be redirected to other priorities. Since then a series of ICT solutions to improve government transparency and reduce opportunity structures for rent-seeking behaviour and embezzlement of resources have been put in place with greater or lesser success. As the former UN Secretary-General Kofi Annan mentioned during the formal launch of the Task Force on Information and Communications Technology, the use of ICT can improve the quality of governance in a variety of ways, but it is not a magic bullet (Martínez-Frías 2003, 10). Technology offers, at best, a partial solution to the multifaceted problem of corruption.

This chapter is organized in four parts. First, it begins by addressing the relationship between transparency, and the idea of “open government” more

3 A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development – The Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, New York: UN publications. Available online: https://www.un.org/sg/sites/www.un.org.sg/files/files/HLP_P2015_Report.pdf (accessed 23-2-2018).

broadly, as a necessary condition for the concept of good governance. Second, it discusses how government openness can be implemented through the use of ICT. Then, it looks specifically at the role that ICT can play in preventing and combating corruption in view of the fulfilment of SDG16, through an overview of the type of governmental initiatives that have been implemented in recent years. Finally, it makes some general comments on whether or not the use of ICT can actually make a difference in mitigating corruption risks.

TRANSPARENCY AND GOOD GOVERNANCE

There is an overall normative understanding that transparency and good governance are mutually reinforcing. In the words of the former United Nations Secretary-General, Kofi Annan (1999):

In practice good governance involves promoting the rule of law, tolerance of minority and opposition groups, transparent political processes, an independent judiciary, an impartial police force, a military that is strictly subject to civilian control. A free press and vibrant civil society institutions, as well as meaningful elections. Above all, good governance means respect for human rights.

In the same line, the UN Commission on Human Rights, in its resolution 2000/64, “recognizes that transparent, responsible, accountable and participatory government, responsive to the needs and aspirations of the people, is the foundation on which good governance rests”.⁴ Although it is possible to imagine a government performing unsatisfactorily in spite of transparent institutions, it is hard to conceptualize good governance without including the value of transparency. This normative quagmire raises several problems from the viewpoint of empirical research, which this chapter will not be able to address. We are conscious that a deeper reflection is needed as to what these ethical standards, such as transparency, accountability, impartiality, and legality actually mean to people, how individuals value transparency in relation to other standards, what kind of value trade-offs do they make between competing moral concerns (Dungan et al. 2014), and to

4 <http://www.ohchr.org/EN/Issues/Development/GoodGovernance/Pages/GoodGovernanceIndex.aspx> (accessed on 23-11-2017).

what extent and in what ways such standards are perceived as essential to good governance.

For the time being, let us be content with the overall aphorism that transparency matters to governance. Transparency has been enshrined in several national constitutions and international conventions as a general principle of good governance or, more specifically, as a fundamental freedom: the right to freely seek and access information held by public bodies (Cross 1953). References to the duty to publicize administrative decisions or the right to access administrative documents or even the need to secure transparency over the assets of elective officials or the financing of political parties and electoral campaigns have found their way into constitutional texts.

By transparency it is meant the capacity of the political-administrative system to provide full, timely, easily accessible, and relevant information on the government's actors (and their interests), structure, process, and decisions, so that the process of decision making can be open to (public) scrutiny and decision-makers are held accountable for their decisions (Davis 1998; Wong and Welch 2004; Curtin and Meijer 2006; Piotrowski and Ryzin 2007; Ball 2009; Grimmelikhuijsen 2010; Borry 2012; da Cruz et al. 2016).

This is also the understanding of international governmental and non-governmental organizations. The United Nations (2004) defines transparency, in accordance to Article 19 of the Universal Declaration of Human Rights – i.e. the universal right of all “to seek, receive and impart information” – as the free access to up-to-date and reliable information on the decision-making, management and execution of public policies. The European Union associates transparency with the right of access to information and participation. The Treaty of Lisbon, in force since December 2009, establishes that “[d]ecisions shall be taken as openly and as closely as possible to the citizen” (art 10.3); that both citizens and representatives should be given opportunities to “make known and publicly exchange their views in all areas of Union action” (art. 11.1); and “institutions shall maintain an open, transparent and regular dialogue with representative associations and civil society” (art. 11.2). Citizens have both the right to know how decisions are formulated, adopted and implemented and by whom, and to express their views on all cases and decisions either directly or through their representative bodies. Transparency International (2003) defines transparency as the process of making citizens aware of why, how, what, and by whom political decisions and administrative conditions affecting their lives were made.

The concept of transparency is closely linked to the notion of access to information as a precondition for public scrutiny, participation, and accountability (Piotrowski and Ryzin 2007). In principle, e-government solutions are likely to narrow the information gap between rulers and ruled by granting access to information and services, thereby enabling citizens to become more acquainted with the policy process (Altman 2002). In practice, however, the right of access to information has a purely formal value if the citizen is not able to critically interpret the contents in order to produce knowledge about a particular fact and thus to be sufficiently able to participate and intervene in the public arena (Access → Information → Knowledge → Empowerment → Participation → Accountability). Only by combining proactive information and education policies will citizens be able to develop the cognitive skills needed to understand the functioning of government and participate in public decision-making (Marshall 1950; Sóos 2001, 15). This being said, once the information is out there and citizens have the tools and skills to interpret it, will they seek such information and, more importantly, will it affect the way they interpret politics and vote? Some studies suggest that greater openness of government processes through digital platforms encourages citizen participation (Kenski and Stroud 2006). Others are more cautious in relation to the positive repercussions that increased access to information via e-government might have on specific and diffuse levels of support for democracy (Altman 2002).

Transparency is subsidiary to the broader policy agenda of “open government”. Before proceeding any further, it is useful to clarify what is meant by “open government”. In very simple terms, it means:

- *Transparent government*, all government decisions and actions should be made open to public scrutiny. Making government information available to the public is a requirement for an informed citizenry and an accountable government. Restrictions to information should be made only when the wider public interest clearly demands. Citizens should not have to test their right to access information; it is the State that must justify the need to restrict information;
- *Accessible government* to anyone, anytime, anywhere. A government of the people, by the people, and for the people requires policies that provide maximum information accessibility and maximum inclusion in decision-making processes. Democracy is based upon the principle of

equal opportunities for participation and collaborative problem solving whenever possible; this is at the core of democratic governance.

- *Responsive government*, decision-makers must respond to people's problems, needs, demands, and ideas.
- *Accountable government*, all government decisions and actions must be reported, justified, and explained to the public and decision-makers must be answerable for consequences.

Open government policies are not just a set of measures to increase reporting procedures in the public administration or citizens' access to information, but also a complex and ambitious policy agenda that requires a fundamental change in the way governance is structured and operates, as well as a shift in organizational cultures and leadership.

According to the OECD (2005, 1):

Open government is one where businesses, civil society organisations (csos) and citizens can “know things” – obtain relevant and understandable information; “get things” – obtain services from and undertake transactions with the government; and “create things” – take part in decision-making processes.

Open government enables effective government by improving service provision and a better management of public resources. It also helps to increase economic development in two ways: by promoting smart and innovative public spending and by reducing privileged access to information, thus enabling free and fair market competition.

Aside from helping government efficiency and effectiveness, open government also improves the levels of transparency, participation, and accountability - essential ingredients of good governance. It does so in two ways:

- By enabling access to information, open government policies empower citizens to participate in the decision-making process not merely as recipients but as owners of those decisions, thus improving the legitimacy and accountability of policy-making;
- By serving as a bulwark against the undue accumulation of power and wealth. More recently, the open government agenda has addressed the need to put in place robust anti-corruption policies, mechanisms, and practices, ensuring transparency in the management of public finances

and government procurement, and strengthening the rule of law. Some of these measures rely on the use of ICT.

Two multilateral developments have been central to the definition and dissemination of this policy agenda:

- the establishment of the Open Government Partnership in September 2011, a multilateral initiative that brings together a variety of stakeholders in endorsing and securing concrete commitments to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance; and
- four years later (in September 2015), the adoption of the 2030 Agenda for Sustainable Development by the Heads of State and Governments, under the auspices of the UN General Assembly finally establishing a link between institutional capacity and sustainable development, though in a loose manner. A series of ambitious long-term targets were set forth ranging from the strengthening of the rule of law (16.3), the recovery and return of stolen assets (16.4), the reduction of corruption and bribery in all their forms (16.5), the development of effective, accountable and transparent institutions at all levels (16.6), the safeguarding of responsive, inclusive, participatory, and representative decision-making at all levels (16.7), and public access to information (16.10).

Both initiatives stress the fact that government openness is of the utmost importance in a context where the system of collective decision-making has become increasingly complex and diffuse, characterized by a dense system of policy networks, involving public and private stakeholders interacting and seeking to pursue common objectives without a hierarchical/command structure (Börzel 1997). Decisions and activities affecting people's lives are increasingly carried out by a range of actors with common goals, without a clear structure of authority with vertically enforced legal and formally prescribed responsibilities for each player, in which governmental authorities are sometimes left with a moderating/oversight function. In such a complex and diffuse system of governance, transparency plays a legitimizing role. Not surprisingly, the implementation of the open government agenda is primarily concerned with making information available for public scrutiny to reduce information asymmetries between rulers and ruled and open up the possibility

for dialogue, informed decision-making, and a more frequent and effective monitoring of public management. In doing so, government openness may create better conditions for more effective corruption control and help to improve citizens' trust in public institutions (Cullier and Piotrowski 2009; Grimmelikhuijsen 2010; Bertot et al. 2010; Borry 2012).

THE USE OF ICT AS A WAY OF IMPLEMENTING GOVERNMENT OPENNESS

Some countries have gone to great lengths to implement government openness through the introduction of information and communication technologies (ICT) (UN, 2004). These tools have been praised and widely recommended for their ability to strengthen participatory democracy and open policy processes to citizens' scrutiny. The introduction of ICT has, to a large extent, revolutionized the way public authorities communicate and interact with citizens (Armstrong 2011; Musso et al. 2000; Tolbert and Mossberger 2006; West 2004; Curtin and Meijer 2006; Margetts 2009; Grimmelikhuijsen 2010).

However, there are advantages and disadvantages associated with this. On the one hand, the use of ICT has helped to reduce the information gap between governmental authorities and non-governmental stakeholders and to foster the dialogue between policy-makers and citizens (Bertot et al. 2010; Shim and Eom 2008, 2009; Welch et al. 2005). On the other hand, it has put more pressure on bureaucracies to respond to citizens' needs and demands (Pina et al. 2010).

Governments can enjoy high levels of transparency not necessarily resulting from the introduction of ICT. Likewise, making public information available online is not in itself an act of transparency if the information provided is not of easy-access, reliable, intelligible, and of interest to those who seek it. The fact that such information is available online, free of charge, does not mean that citizens will construct their understanding of the functioning of institutions and the policy processes based on those elements. Moreover, as already said, there are no guarantees that once people are better informed of how decisions are taken on their behalf and how their taxes are spent, they will reward or punish the incumbent accordingly. That said, the introduction of technological and communication solutions has been developed and sought as a means to enhance government transparency, in light of a more

intense and complex interaction between citizens/businesses and their public administration; to improve the quality of public services; and to foster public integrity.

This concern for a more transparent, accessible, and accountable public administration through the use of ICT has been a constant feature of democratic governments, with varying degrees of consistency and achievement over the past two decades. Countries have established innovation and development units and ICT agencies responsible for developing national strategies and action plans on how to establish a unified policy for all ICT issues at all government levels, and implement solutions targeting specific sectors, from industry and product development, through commerce to the management and provision of public services (Schware 2003). In a few words, these governmental agencies have been responsible for developing, implementing, promoting, monitoring, and evaluating the concept of digital government in all its facets. Almost everywhere, new financing programmes have been launched for the development of technological infrastructures, such as the dematerialization of documents; the computerization of public services; the introduction of online service platforms; the implementation and expansion of fibre-optic networks; the adoption of unified standards, protocols, and best practices to address all information operations across the public administration (including the construction of internet portals); the introduction of performance evaluation systems; etc. All of this has had repercussions, although not always positive, on the levels of transparency and government efficiency.

Some studies suggest that the introduction of ICT can have positive repercussions on governance performance at four levels:

- At the input level, by raising public expectations and demands with regard to policy making and public service delivery (Musso et al. 2000; Welch et al. 2005; Curtin and Meijer 2006; Tolbert and Mossberger 2006; Grimmelikhuijsen 2010; Armstrong 2011). On the one hand, ICT generates information flows and a permanent interaction between users/clients (service/policy recipient), agents (responsible for service/policy management and delivery) and the principal (responsible for policy/service decision-making); on the other hand, it allows citizens and businesses to seek information autonomously, according to their own preferences and needs and independently of public service performance (West 2004).

- At the level of political accountability, by enabling citizens to participate, in a more informed and empowered way, in the public management process, ICT solutions can increase the levels of responsiveness of elective officials and, *ultima ratio*, strengthen democratic representation (Kim et al. 2005; Borry 2012).
- At the level of government efficiency and effectiveness by improving the capacity of public services to respond to users' demands (Tolbert and Mossberger 2006);
- At the level of political leadership by demonstrating the principal's commitment toward the idea of open government, thus strengthening public support for democratic governance (Armstrong 2011).

Although there is a worldwide consensus that government openness constitutes, in a Kantian perspective, an ethical imperative of good governance, the relevance of ICT to the pursuit of this goal depends, to a large extent, on the results obtained with the implementation of concrete public policies in this domain.

There are, of course, benefits and costs regarding the introduction of ICT in the framework of open government policies that need to be weighed. Government openness is neither an absolute value, nor desirable at all costs. As David Brin (1999) alerted us in his famous work, *The Transparent Society – Will Technology Force us to Choose between Privacy and Freedom*, the implementation of government openness via technological solutions may lead to the very opacities it claims to obviate at the expense of other values such as trust and privacy ingrained in the nature of the liberal-constitutional nature of our democratic regimes.

USING ICT TO FIGHT CORRUPTION

Does the use of ICT make any difference in the fight against corruption?

Countries have claimed different reasons for pursuing the targets set under SDG16, in particular the adoption of measures aiming to reduce corruption and bribery in all its forms, and have opted for different solutions. Many of these have embraced the use of ICT as a means to increase government transparency and to reduce opportunity structures for corruption (Bertot et al. 2010): from the implementation of online tax declaration forms to online registers of

interests and asset declarations for elective and senior public officials; from e-procurement and geo-referenced land record systems to electronic voting, petitions, and participatory budget platforms; Internet-based innovative techniques have been used to reduce corruption risks.

There are four major functions that ICT can have in helping to reduce corruption risks:

- *Awareness raising function.* First, ICTs have a remarkable value-diffusion capacity and are therefore key to raising awareness about specific governance problems, such as corruption in all its forms. “Web-based technologies and services which include blogs, wikis, social bookmarking, media-sharing services, collaborative editing tools, and social networking services” (Bertot et al. 2010), have been widely used to promote openness in cases in which the government is resistant to transparency or in which the levels of probity of office holders have deteriorated. ICT can also dramatically speed up public awareness of the successes and shortcomings of anti-corruption campaigns and new services and technologies, and as a result the demand and readiness for these, thereby putting pressure on national authorities to scale-up their efforts. The drawback of this function is that it often generates a wide, nontechnical, and sometimes media-inflated debate on corruption control conducive to populism and fig-leaf solutions to complex problems.
- *Reporting function.* Introducing ICT to help mitigating corruption risks is not just about creating public spaces for debate and awareness-raising campaigns; it is also about operating platforms in which corruption, abuse of office, and malpractice can be reported without the fear of censorship, reprisals, or institutional bullying. This is the case of Wikileaks (www.wikileaks.org), a website supported by a transnational not-for-profit community, with the goal of providing a safe online complaints system that protects the identity of individual or collective whistleblowers so that they may anonymously disclose sensitive information that has been censored or deleted from public knowledge and that may substantiate unlawful (or objectionable) practices and conduct by governments, public figures, international organizations, or companies. The public disclosure of these documents with political, economic, and historical relevance makes WikiLeaks a potentially powerful technological tool

in the fight against corruption and related social evils, such as human rights violations, environmental degradation, tax fraud, food insecurity, etc., exposing targeted entities to public condemnation on the global stage. This can work as a powerful tool of accountability (Bertot et al. 2010), but it is also open to arbitrariness, by redaction and selective withholding of information; inefficiency, by releasing to the public documents that may encroach upon on-going undercover investigations; and lack of accountability, by making it difficult, due to the anonymity of whistleblowers, to verify the authenticity of leaked records, thereby increasing the risk of misinformation (Kwoka 2015).

- *Compliance function.* ICT platforms can also be used to enforce ethical standards within an organization. These tools have been primarily developed in the private sector as a means for businesses to monitor, signal, and manage conduct or practices by employees and senior managers that could hinder the organization from reliably achieving its objectives and harm its reputation. More recently, countries have introduced similar “sunlight” digital solutions to increase the overall levels of transparency in public life: online asset declarations and registers of interests applicable to elective and public officials; centralized online platforms to monitor campaign donations and party financial statements; online lobby registers; online governmental platforms to monitor public spending by collecting and displaying spending data, ensuring data reliability, and broadening the deployment of cutting-edge technologies that can identify and prevent the fraudulent use of public funds.
- *Risk-management function.* ICT can markedly reduce corruption risks by providing low-cost online platforms to monitor and promote more inclusive, transparent, and accountable decision-making, thus reducing the cost of collecting, distributing, and accessing government information (Bertot et al. 2010, 52). In other words, by reducing the human-factor in the principal-agent-client equation and the direct contact and familiarity between agents and clients, these technological solutions can help to mitigate rent-seeking behaviour. However, in order for these tools to produce the desired effects, other than improving public access to administrative documents, they must also ensure that the rules and procedures are transparent and easily understood by citizens/businesses and that they are effectively able to track the decisions and

actions of government authorities. This is the case with e-government solutions in risk areas with high economic value or social impact, such as land and soil management, house and business licensing, public procurement, tax filing, passport and driving license issuing, social housing allocation, etc. Chile, Portugal, and the Philippines have been pioneers in this domain through the development of e-procurement platforms that allow citizens and businesses to actively engage in bidding processes, track the progress of their requests/applications, and monitor the awarding of contracts and grants, thus reducing corruption risks.

Does the use of ICT make any difference in the fight against corruption? In general terms, the answer is yes. The emergence of a global era of information, fostered by widespread Internet access, has helped to make citizens, even in remote and developing regions, more aware of the difficulties and inadequacies of traditional political actors, decision-making processes, and representative institutions to deal with their daily needs and problems.

The advantages of ICT solutions for improving the quality of democratic governance (Grönlund et al. 2010; Zinnbauer 2012) have been sufficiently mapped and discussed in the literature. These include:

- Reducing information asymmetries between public agents and citizens and thus improving accountability;
- Increasing overall levels of transparency and thus limiting discretion of public agents;
- Dematerializing procedures and thus reducing red tape and management costs;
- Automating processes and thus cutting out gatekeepers;
- Identifying anomalies, outliers, and underperformance and thus improving efficiency in service delivery;
- Deterring improper conduct by enabling the media and csos to closely monitor public affairs;
- Empowering citizens to report wrongdoing and contest arbitrary treatment;
- Fostering social capital and ethical attitudes through public engagement and online discussions;
- Ensuring accountability and transparency through functionalities such as action/decision-tracking and mechanisms for feedback or complaints.

In terms of reducing corruption risks, however, the achievements are less clear-cut. According to Transparency International, e-government solutions can help to “reduce discretion, thereby curbing some opportunities for arbitrary action. It increases chances of exposure by maintaining detailed data on transactions, making it possible to track and link the corrupt with their wrongful acts. By making rules simpler and more transparent, e-government emboldens citizens and businesses to question unreasonable procedures and their arbitrary application” (GCR 2013). Although these broader claims of the advantages of ICT for implementing government openness are laudable, the academic literature seems inconclusive as to its relevance to corruption control.

A study developed by Mon-Chi Lio et al. (2011) concludes that the effects of Internet adoption on corruption reduction are not too substantial. The authors advance an explanation for this result: “[for a] country to be able to effectively use the new ICT to reform bureaucracy and combat corruption, some important conditions should be met, e.g., minimal democracy, a sense of crisis, a renewed ideology, and the political will”. Along the same line of argument, Heeks (1998) concludes, by examining five case studies regarding the use of ICT to counter public sector corruption, that while ICT often helps detect and remove corruption, it sometimes has no effect, or creates new opportunities for corruption. ICT can lead to an up-skilling of corruption and reduced competition for up-skilled corrupt civil servants.

Other authors (Andersen 2007, 2009; Shim and Eom 2008, 2009; Hopper et al. 2009; Rodriguez et al. 2010; Grönlund et al. 2010; Bertot et al. 2010; Mistry and Jalal 2012) take a more optimistic stance: although the use of ICT is not a panacea in the fight against corruption, it can play an important role when it comes to increasing levels of transparency and accountability and reducing rent-seeking risks. There are effective gains that can be obtained by reducing the human factor in certain bureaucratic/decisional procedures, informatizing certain financial management operations, making administrative procedures more transparent, enabling citizens and business to check and track their requests, etc. ICT has been used with some degree of success as a corruption reporting/mapping tool (e.g. ipaidabribe.com; speakeup.ie); electoral fraud reporting and political financing monitoring tool (e.g. votereportph.org; dineroypolitica.org); conflict of interest/networks of influence mapping (e.g. poderopedia.org); e-procurement tool (e.g. base.gov.pt); service provision monitoring tool (e.g.

de); financial disclosure tool (e.g. openspending.org); and e-mobilization tool (e.g. countable.us).

To conclude, the use of ICT offers a partial solution to the complex and multifaceted problem of corruption. In other words, technology is a complement, not a substitute, for institutional reforms aimed at strengthening ethical standards in public life (Bertot et al. 2010). For example, making asset declarations and registers of interests of both elective and senior public officials available online does not necessarily bring more transparency over their personal financial dealings or the networks of influence to which they may be subject. The deterrent effect of transparency is modest, and it can be, in certain contexts, counterproductive. Heavy declaratory obligations under low supervision may lead these agents to not declare their sensitive assets and interests. Unless proper oversight bodies and sanctions regimes are put in place, to enable the verification and validation of the contents of those declarations, there are little gains that can result from their online publication. Using ICT solutions to reduce corruption risks requires an on-going and sustained commitment from government authorities to invest in the necessary infrastructure as well as to educate people in its use. Moreover, there are a series of significant challenges to the use of ICT as anti-corruption tools that need to be taken into account: levels of digital literacy/exclusion in society; tendencies toward panopticism, especially in societies with recurring problems of power abuse and weak respect for privacy and human rights; legal and constitutional constraints (e.g. in managing personal data, using electronic signatures, etc.); structure and functioning of the telecommunications market; fragmentation of cyberspace through the imposition of firewalls, filters, registration requirements, etc.; interventions restricting social network activity, for example by blocking websites and web domains that give access to politically sensitive contents; confidentiality and privacy risks associated with the online availability and treatment of information; implementation and maintenance costs associated with the introduction of ICT solutions; and other operational limitations.

CONCLUSIONS

Daniel Bell (1967) was one of the first authors to identify two major developments in post-industrial societies that would challenge the basic tenets of contemporary democracies: the upcoming of the information society and

the rise of the Internet. The Internet has undoubtedly revolutionized the way societies communicate and interact, and therefore poses new challenges to its governance.

As Bell (1979) simply put it, “The crucial point about a post-industrial society is that knowledge and information become the strategic and transforming resources of the society, just as capital and labor have been the strategic and transforming resources of industrial society”. These resources can and have been mobilized to improve the living conditions of populations, ensure quality of governance, and secure a more open and just world order; but they have also been used for private-interest ends, more often than not, with negative externalities to citizens and businesses.

The scale on which technological change has taken place has affected governance in a variety of ways, but not always in the expected direction. Technology can increase levels of transparency and integrity in public administration by reducing transaction costs and incentives for rent-seeking behaviour. However, the very same technology can also increase opacity and venality by enabling money to flow on a daily basis to and from offshore accounts with a single click, depriving governments of its most sacred policy ingredient: taxes. Therefore, changes in scale require changes in form (Bell 1967). Contemporary societies need to adapt to changes brought by the use of ICT and to capitalize on them; failure to do so often will put them into a disadvantaged position both in market terms and in relation to the way the State administration operates (Fukuyama 2014).

Information is power. And power can be used in a proper or improper way. The abuse of information, whether in the format of censorship, bias, or propaganda, it is not just a *modus operandi* of autocratic regimes and hybrid regimes, it also haunts advanced democracies. As Régis Debray (1986) reminds us, “[t]he capability of storing, managing, distributing, and creating information” is a transforming agent in society. It must therefore be handled with caution.

Although there is widespread consensus regarding the introduction of ICT and the general effects and changes these are expected to bring about for the quality of governance, differences remain with regard to the conditions in which these strategies/programmes are put in place and the results obtained. Context matters when designing and implementing ICT tools to reduce corruption and bribery in all its forms, promote public access to information, and develop more participatory, inclusive, representative, and accountable decision-making

processes (SDG16): the predisposition of national administrations to the introduction of ICT; the degree of resistance of government administrations to reform; the availability of critical mass in government authorities to implement these programmes in a successful and consistent manner; the availability of financial resources; the level of education and digital literacy of populations; etc. Since corruption is rooted in institutional, political, economic and cultural conditions, a more comprehensive approach is needed that takes into account organizational and contextual factors when designing, formatting, and implementing digital tools to help mitigate corruption risks (Bertot et al. 2010; Kim 2014). Neither the wider use of Internet, nor the expansion of ICT solutions is a sufficient condition for government openness and public integrity. The introduction of ICT is a complement, not a substitute, for legal and institutional reforms in this domain.

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CITE THIS CHAPTER AS:

SOUSA, L. 2018. "Open government and the use of ICT to reduce corruption risks". In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 179–202.
<https://doi.org/10.31447/ics9789726715054.07>

8.

A life of their own: children, animals, and sustainable development

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INTRODUCTION

Where are the animals, when “sustainable development” is considered? As it is an attempt to address the problems of how life is becoming more and more threatened by human action, one might expect that the United Nations Strategy for Sustainable Development (UN n.d.) would consider the place of animals in this major project of reimagining a liveable future for the planet. However, animals are remarkably absent from the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda. None of the 17 SDGs *explicitly* refer to animals, and when they *are* indirectly mentioned as “fishes”, in SDG 14, or endangered “species” in SDG 15, they are perceived as *resources*. Animals are, therefore, absent, as agents that co-inhabit the same planet with humans, sharing a common vital condition and a history of co-evolution. Rather, they are indirectly suggested as means to an end: making a better life and future *for humans*, in (and not *with*) the planet.

Animals’ invisibility in the international agenda for sustainability has its counterpart in the wider landscape of social and scientific representations. It is rooted in the deep anthropocentrism that characterizes Western thought (founded in the elective affinities between cartesianism, Christian traditions, and modern capitalism) and which puts the human at the centre of all ontological and epistemological concerns. This “anthropological machine” (Agamben 2004) permanently reinstalls a primal rupture between human and non-human, man and animal, humanity and nature. Non-human animals tend to be subsumed in debates around reductive dichotomies such as nature/culture, and put on the side of nature – as “instinctive”, “non-rational”, “non-moral” beings, over which humans have exerted their dominion, naturalizing human supremacy over the non-human. Whether they are loved (as pets), consumed (as meat or clothing), feared (as wild animals), or even hated (as rats or snakes), they are “invisible” in their specific beings, and denied lives of their own (Wolch and Emel 1995). Their radical Otherness is kept at a distance, and contact avoided – a contact that, as suggested by Walter Benjamin, brings forward our greatest fear of animals, and that is only overcome through practices of domination (Fudge 2002).

Concomitantly, children are highly visible in the SDGs. Although none of the latter is explicitly dedicated to them, several (such as 1 to 6) are ultimately justified by the fact that children are the vulnerable individuals most affected by the problems that the SDGs aim to solve for a common future.

From extreme poverty, to education and health, children are present in the rhetoric of sustainable development as the ultimate recipients that legitimize the changes needed to reach the SD targets. This difference in visibility of animals and children hides, nevertheless, a shared common condition. Like foals, children are constantly “put on hold”, expected to “bloom” in an uncertain future, and looked at as underdeveloped beings, that have yet to be coached (by adults) toward maturity, in order to complete their (full) human condition. As *young beings*, they appeal to the (adult) human protection and guardianship. For the analytical purpose of our argument, we can recognize that children and animals share a common condition of *vulnerability*, by means of a lack of reason, on the one hand, and of moral capacity, on the other (Faulkner 2011).

In this chapter we explore the theoretical human/non-human dichotomy that conducts to the explicit exclusion of animals in the United Nations SDGs. Moreover, we advance the hypothesis that by studying children’s relationships with animals, we find illustrations of alternative and different patterns of relating to the non-human world. Specific children-animal practices such as relationships with pets and veganism may constitute a gateway to understand the construction of alternative ways to relate to the planet, some with the potential of moving toward the (always) changeable target of sustainability. Furthermore, today’s children represent the future generations toward whom all SDGs are oriented, and whose practices will be decisive for the implementation of a sustainable development strategy.

Our approach is three-fold. First, we argue that challenging the anthropocentric perspective is a necessary theoretical standpoint to unsettle dominant modes of conceptualizing the social order and to produce cutting edge knowledge bringing added value to mainstream science. Instead, we draw on an informed *biocentric* approach (Agamben 2004; Faulkner 2011) that looks at animals, children, and all forms of life as diverse beings in their own right, having *a life of their own*, challenging conceptions that reduce them to human/adult projections (anthropomorphism).

Therefore, and secondly, we argue for a fluidity between nature and culture. In these *naturecultures*, humans (adults and children) and animals share a history of co-habitation, co-evolution, and of embodied sociability between species, as developed by Haraway (2003). Following the author, we argue for an “implosion” of nature and culture as discrete, separate entities, and advocate for a concept of sustainable development that acknowledges

the “historically specific, joint lives” of all forms of life, which are “bonded in significant otherness”, and share the challenge of building a “necessary joint future” (Haraway 2003, 16).

For this, and thirdly, it is crucial to bring animals into the critical discussion of sustainable development. Acknowledging their presence, and proposing an epistemological and praxiological perspective in which we live *with* animals (and not *through* them: using them as resources exclusively for human purposes). In this, we take a “more-than-human approach”, in which we may “join with non-humans as sentient beings engaged in the tasks of carrying on with their lives” (Ingold 2013).

Following Ingold (2013), two main premises are pursued. First, we take every living being (child, adult, animal, or other) as a *going on*, a constant *becoming*; they certainly are *beings in the present*, but this social embeddedness does not imprison them in stable or definite forms or a fixed and predictable destiny. Second, we acknowledge that *becoming* is always *becoming with*, a *relational approach* in which every being is what it is because it is positioned within a community (Lestel 2014) or collective (Latour 2005). It is precisely through their differences that humans and animals connect, in what Lestel (2014) calls *hybrid communities*. In this sense, the *relation* is the smallest unit of analysis possible (Haraway 2003). We propose to untangle the knots of these relational becomings by looking at their shared *practices*. We suggest that the ways in which children relate to, and live *with*, animals, are clues to new understandings of social order and inspiring examples to decision makers, as they may fuel more sustainable ways of inhabiting a multispecies planet.

We begin by addressing the main critical themes in the relationship between animals and sustainability. We then explore the key advances and setbacks in the social construction of children and animals as full distinct beings, holding rights of their own. We proceed to briefly describe how children are socialized by the dominant adult culture, into progressively objectifying animals. Subsequently, we focus on modes of relation which are alternative to this dominant culture, namely through two examples of the “collaborative relatedness” between children and animals: the role of pets in children’s lives; and practices of veganism. We conclude by suggesting that children’s relationships with animals may help us to problematize the concept of sustainability, so as to encompass non-human animals as legitimate companions in their own right.

ANIMALS AND SUSTAINABILITY: CHALLENGES AND CONTRIBUTIONS

Eating animals is symbolically charged in most contemporary societies. It is a symbol of distinction that positions individuals in a particular social class structure (Bourdieu 1979). It is also connected with celebratory occasions such as Christmas and Easter, where turkey and lamb are eaten respectively. Apart from such valorization of meat consumption as a symbol of social distinction in food taste, it is also conveyed as the core ingredient in a dish, where vegetables and legumes are perceived to have a secondary role, oftentimes placed in restaurant menus as side dishes. According to several sociological studies on food, a dish without meat is not considered a proper or complete meal (Murcott 1982). Notions of propriety in food consumption put meat at the centre of eating habits. Moreover, meat consumption is also associated with strength, manhood, wholesomeness, and a feeling of completeness (Fiddes 1991).

CONVENING EMPIRICAL EVIDENCE

Given the symbolic status of meat in most Westernized societies, the importance given to meat consumption, and how children are socialized from a very young age to get a taste for meat, is not surprising. Evidence of such a strong taste for meat (but not fish) is seen in the literature on school meals. For example, a study conducted in eight primary and secondary schools in Portugal concluded that children appreciate more meat based dishes (spaghetti Bolognese, meat balls, beef) rather than vegetarian or fish based dishes (Truninger and Teixeira 2015). In Portugal, animal protein consumption is high and has been increasing over the last decades (apart from the years of the economic crisis, when there was a decrease in meat consumption, particularly red meat). On average, and per year, meat consumption per capita in Portugal is about 108kg (INE 2016), which shows how the Portuguese population is distancing itself from the principles of a Mediterranean Diet, in which animal protein consumption is reduced and pulses, vegetables, legumes, and cereals are considered some of the key ingredients (Truninger and Freire 2014). Meat consumption tends to be higher among men (even among young boys, than among girls), an association that reproduces the link between meat consumption and manhood/strength (Graça et al. 2015). Beyond the production of food, animals are also important for producing clothing, namely through products such as leather, wool, and fur.

According to a FAO report (2006), animal husbandry practices are responsible for 18% of greenhouse gas emissions (more than the combined exhaust gasses from all transportation (13%), as well as for 20%-33% of fresh water consumption in the world. It is worth underlining that to produce 1 pound of beef, one needs 2,500 gallons of water (Beckett and Oltjen 1993). Livestock is also responsible for the destruction of land, and the principal cause of species extinction, ocean dead zones, water pollution, and habitat destruction (Oppenlander 2011). Animal farming is the key cause for other environmental impacts: 91% of Amazon destruction; up to 137 plants, animal, and insect species are lost every day due to rainforest destruction (Oppenlander 2013; Savetheamazon.org) and wildlife is destroyed because of the killing of wild animals to protect livestock (Maughan 2012). Finally, the report of FAO (2011) reveals that worldwide at least 50% of grain is fed to livestock. Alarmingly, 82% of starving children live in countries where food is mainly given to the cattle who will then be eaten in Western countries (FAO 2011).

The detrimental impacts of producing animals either for food or clothing through the intensive industrial complex system have fuelled concerns around animal welfare. Such concerns are gradually persuading consumers to demand a shift in animal husbandry practices. In this vein, and regarding food, new animal welfare regulations are in place in the European Union countries encouraging consumers to be more aware of the way animals are produced in intensive farming. The most recent European survey on animal welfare practices reports that 94% of all Europeans find it to be important to protect the welfare of farmed animals, with Portugal being one of the countries gathering the highest percentages, together with Sweden and Finland (Eurobarometer 2015). Such concerns reflect wider values around sustainability, health, and fairness in the treatment of animals. One place to start making changes regarding animal welfare practices is the market. Indeed, it is important to put labelling mechanisms in place to inform consumers of the conditions and methods used in farmed animals.

Moreover, the dissemination of the idea that certain health problems that affect the rich countries (obesity, heart disease, type II diabetes, cancer) can be related to hectic lifestyles as well as unhealthy diets, has had an impact on the reduction of meat and dairy products consumption in some countries (Twine 2010, 127). As a result, new lifestyles and diets have emerged including the attention to compose more varied menus or, at an extreme, to reduce or remove animal protein from food diets by following vegetarianism or veganism.

CONSTRUCTING ANIMALS: OBJECTIFICATION AND INVISIBILITY

According to Remy (2003), in an objectification process, the actor-human interacts with the animal, as if he/she were an object: the animal is not seen as a sensitive creature, but as an insensitive and passive one. In contrast, the subjectification process can be positive (when the animal is perceived as innocent) or negative (when the animal is seen as a threatening enemy who has to be treated with violence). However, the incidents linked to the act of killing reveal a negative subjectification. Even though the workers in a slaughterhouse recognize “the sensitive and intelligent nature” of the animal, they turn him/her into an object to facilitate the act of killing.

This suffering reality imposed on animals by human domination has been discussed by several authors, such as Isaac Bashevis Singer (2004), whose ideas inspired the historian Charles Patterson to write the controversial book *The Eternal Treblinka: Our Treatment of Animals and the Holocaust* (2002). Its main thesis is that human liberation cannot be disconnected from animal liberation. Humanism – as a speciesist philosophy, which built a hierarchical relationship favouring the superiority of the human, reducing animals to resources for the use of humanity – cannot resist its logical contradictions. That domination, as it started ten thousand years ago, at the dawn of agrarian societies, was the first form of hierarchical domination and the basis of all other forms of dominations such as patriarchy, slavery, war, genocide, and other systems of violence and power (Best 2007; Patterson 2002).¹ Even if the argument can be criticized, as hierarchical dominations existed long before agrarian societies, for example, the main point is the link between animal domination and other forms of power.

Based on the philosophical school of utilitarianism, in *Animal Liberation* (1975) Peter Singer develops the application of a principle of utility that consists of knowing if an act is ethical (right or wrong) checking if it implies a reduction of suffering and an increase of pleasure for the highest possible number of people. However, in developing his argument, the author intends to free himself from the prejudice of speciesism and, consequently, it becomes

1 In different fields, this approach is found in authors such as Marguerite Yourcenar (*That Mighty Sculptor, Time*, 1992) and J.M. Coetzee (*The Lives of Animals*, 1999), as well as philosophers such as Peter Singer (*Animal Liberation*, 1975) and Elisabeth de Fontenay (*Le Silence des Bêtes*, 1998), and also social scientists in the field of Critical Animal Studies (Nocella et al. 2014) compare the way of treating animals, in contemporary societies, to the Holocaust.

irrelevant if the object of the act is a human being or an animal. Rather, it becomes sufficient to refer to a sentient being (capable of feeling pleasure or pain), in order to validate the criterion. A large part of this book reveals how animals are treated by the human being in the livestock and entertainment industries, as well as in animal testing. These descriptions can be understood as the empirical foundation of his thesis. Furthermore, this classical book sets the foundations of the *Animal Rights Movement*, as it allowed a reflection and a well-founded debate about the moral status of animals, as well as the ethical evaluation of the values that encompass the practices of humans toward them.

In short, objectification is one of the main founding processes from which dominant representations of animals in Western societies derive. Invisibility, in its turn, is another one: animals' subjectivity – in the sense that they possess certain forms of “mental life” or individual sentient properties (as consecrated in the Cambridge Declaration of Consciousness (Low 2012) – are very frequently erased from collective understandings. And as the philosopher and ethologist Vinciane Despret (2002; 2008) claimed, the animal's intelligence could only be observed in the light of ethology and from the moment that appropriate questions began to be asked. The growing complexity of these scientific questions enabled a rising wonder with animals and their lives. This opened the way to acknowledge them as beings in their own right (Matignon 2013). In the first chapter of her book *Animal*, Erica Fudge (2002) discusses the visibility/invisibility of animals in our lives, as a question of recognition/misrecognition. To illustrate this idea, she tells us the story of Ham, a 4 year-old male chimpanzee sent by NASA in 1961 for a journey into space. His image, seen all over the world, led to misinterpretations. The baring of teeth by the little chimpanzee, so often interpreted as a radiant smile, was probably a real sign of aggression or even fear. Apes do not express their joy by laughing like human beings do and the conditions of such a trip for the small chimpanzee (in a situation of loneliness, confinement, uncertainty, and dependent on gradual doses of oxygen), were possibly not pleasant for that animal.

If one refuses the anthropomorphic image of the chimpanzee, what does this interpretation say about human beings? First, that humans prefer to look at this image as a smile of joy and pleasure as linked to his experience of travelling into space. Secondly, and more importantly, it shows willingness to ignore the differences between humans and animals (Fudge 2002, 26-27). The intellectual challenge proposed by the author is, hence, the following: how do the different ways we interpret animals influence the way we live with them

and the different status that we give them? But, most importantly, how is it possible that crucial issues of our relationship with animals are invisible?

One of the most interesting examples is that of food and clothes. For many, the most common interaction with animals happens when they eat them, or when they wear their skin or fur (DeMello 2012), as “objects” which are, in fact, dead parts of what used to be a living animal. During this objectification process, the animal as a living being disappears and becomes “meat”, “flesh”, or an “object”: sliced ham in a plastic package, a pair of shoes, or a fur coat (Fudge 2002, 26-27). In contemporary Western societies people do not eat animals; they eat “meat” (DeMello, 2012, 130). How does an animal become an object? How does an animal become “meat”? How can it be that the subjectivity of an animal disappears in the process?

Once an animal is considered edible, according to the cultural rules and especially the taboos of a particular society, it is important not to give him/her a name. This would create a personal relationship and the most important taboo, in general, is that we do not eat those who are close to us. One of the most distinct aspects of this objectification process is the way animals are treated within animal agribusiness, depriving them of their individuality. The invisibility and massification of all these animals is in high contrast when we consider the strong individualization of the same animals when they become pets (Williams and DeMello 2007).

ANIMALS IN CHILDREN’S LIVES

Despite these processes of objectification and invisibility, animals are ubiquitously present in children’s lives and worlds and share with them a quite similar history of acceding rights.

Even if “children have an unsettled relationship with the status of citizenship” (Larkins 2014, 7), their provision and protection rights are recognized in contemporary western societies, despite the gap that very often exists between the rhetoric of principles and real childhood conditions. Nowadays, Nation States formally guarantee to all children, namely, the right to food, safety, health, education, and family wellbeing; the right to be protected from any form of discrimination or punishment based on race, colour, sex, language, and ethnic or social origin. Additionally, the UN Convention of the Rights of the Child (UN, 1989) brought to the scene the innovative notions of the

“superior interest of the child” and children’s participatory rights, which are far from being fully considered (even less practiced) in public policies or decision-making processes. But the CRC illustrates, as an international mandatory document, a relevant turning point in the dominant ways of perceiving generational relations or the child.

In fact, traditional representations of children view them as naturally immature, vulnerable, incomplete, emotional, and unready individuals – opposite to mature, competent, rational, and independent adults. Home was the right place for them to be, as they were denied (as many women) access to the public domain, where only men deployed instrumental and power skills. Back in the 19th century, children were clearly in an inferior, dominated position, compared to their parents or educators; what is more, “maltreated children” (a new emergent category) were defended by pioneer charitable human rights organizations based on their “animal condition”, as the full human one seemed to be an adult exclusive (Almeida et al, 2001). However, the indoor/outdoor border became fuzzier when child labour in industrial Europe and later children’s massive schooling brought their public presence and economic contributions to society to the public fore. More recently, democratic values penetrated the “relational family” (Singly 2010): as literature reveals, children are affective partners in parental arrangements and a core centre of all family life.

Thereby, the historical process that conveyed children the right to share a full human condition with adults (while the citizen one is still partial or conditional) was the product of changing values in changing societies. Curiously, a quite similar social and scientific “visibility” turn has been increasingly operating with non-human animals. Left behind or in the shade for a long time in sociological thought, their ubiquitous presence is being progressively recognized within innovative theoretical frameworks, as well as their role in the fabric of social life. This is especially true amongst children.

Elaborating on the presence of animals in children’s lives, Cole and Stewart (2014), following a critical animal studies tradition, have explored the socialization process through which we teach children how to relate to animals. It operates along two main axes: sensibility and objectification. An emotional close connection with animals is encouraged in early ages (through fluffy soft toys, and cute representations in film characters and other elements of popular culture). However, as children are “coached” into boyhood and girlhood, and later, into adulthood, they are taught to create emotional and physical distance

from animals (including touch and physical proximity). Therefore, throughout the socialization process, the ways children look at animals and relate to them move from maximum sensitivity and minimum objectification, to minimum sensitivity and maximum objectification. This process is at the roots of what they call “the anthroparchal culture” (Cole and Stewart 2014, 28) – one that silently encourages the progressive desensitization toward animals, their objectification, and consequent transformation into objects of consumption. Even if contexts are not brought into discussion and socialization is reduced to a one-formula process, critical theory is an inspiring clue to problematize reality and formulate new research approaches.

From food to clothes, toys, books, and films, there would be a consistent process through which society manipulates the way children construct “other” animals, progressively creating a distance between human and non-human worlds by the increasing power of the former and instrumentalization of the latter. The authors detail their perspectives, considering different life stages.

Indeed, infants and toddlers’ food packaging (e.g., infant formula), clothes, and toys are commonly decorated with images of baby “pets” or “wild animals”, mixed with tender colours and symbols (e.g., love hearts). In toys, the promotion of child-animal affectivity and reciprocity is even greater through the soft materials used and a friendly and inviting body expression. This infantilized reproduction of animals promotes a relationship between children and animals as peers, in which objectification is, thus, minimal and sensitivity is high. But after a few months, still as toddlers or already as preschoolers, children are then socialized with cartoonized animal toys with much brighter colours and with colder and less responsive materials and designs. Nevertheless, animals are now much more articulated and sound effects and tactile surfaces are used, both in toys and books, to imitate nonhuman animals (e.g., farm animals like sheep, cows, or chickens). These characteristics continue to encourage children’s curiosity and friendliness with animals, especially “character animals” (such as Disney figures), while introducing the use one can make of them and the sense of difference between humans and non-humans. As animal toys become much more unarticulated, realistic, plastic, and anonymous, children and animals become more distant, and animals compete with other toys for children’s attention (e.g., cars, trains, science sets, or puzzles). The focus is then much more on the animal’s habitat and on a variety of natural and/or technological elements of it that, together with animal toys, are accessories with which children create scenarios

simulating reality in which the violence underlying the animal objectification is invisible. In this phase, the way children mechanically manipulate and even construct 3D animals transforms them into entertainment shows, diminishing the sensibility and increasing the distance and power toward “other” animals.

Regarding fictional literature, although the use of animals can be found since Greek and Roman civilizations (e.g., Aesop’s Fables), the emergence of animals in children’s stories dates back to the 17th century (with La Fontaine’s Fables), continuing throughout the 18th century and the Victorian Era (e.g., Kipling’s *The Jungle Book*, 1984; Brunhoff’s *Histoire de Babar*, 1931). As in adult literature in which animals (*talking animals*) are frequently used to give voice to the more disadvantaged groups in society (e.g., women, the poor), in children’s books animals are mainly used as human models to teach/educate the reader. They may adopt either a humanized appearance (clothing, mannerisms, or language – anthropomorphization) or a realistic animal appearance while portraying high quality moral behaviours. The use of animals in children’s literature comes with the idea that children do not yet draw a clear division between the world of humans and non-humans, and therefore animals may have many different roles (friend, parents, and teachers), appearances, and behaviours. Following what is described as a *natural affinity between children and animals* – especially those that look like a little person (e.g., bears) – by reading about animals, children can easily *identify and empathize with animals* and, thus, develop their own identities as people and learn key social skills (DeMello 2012). Different species of animals, for example, are frequently used as a way to teach children diversity without mentioning ethnic stereotypes or to teach historic events during which groups of people were exploited, discriminated against, or killed (e.g., Holocaust – *The Terrible Things: An Allegory of the Holocaust*, 1989; Communism – *Animal Farm*, 1945).

But although promoting child-animal relationship in the early ages, when targeting older children, toys and children’s books tend to emphasize the separation between human and non-human worlds, namely by breaking up that close and meaningful relationship, as the child grows up, in the end of the story. Also, as a way to decrease the possible conflict that comes with the mixed conceptualization of animals as “friends” and as “food” (Morgan and Cole 2011), the acknowledgement of nonhuman animals’ instrumentalization in children’s books comes together with *idyllic images* of animal “farming” (Coats 1991).

Films and news media also help to disseminate animal's objectification, anthroparchal views, and the invisibility of exploitation and violence. For example, it is common that children's films associate the ideas of prosperity as good, and suffering as bad, whether characters "remain people" (are anthropomorphized) or are relegated to animal status (e.g., *Puss in Boots*, Cole and Stewart, 2014). News reports, while aiming to reflect public opinion, participate in shaping and forming those opinions by the visibility they give to the dominant discourse and by maintaining "strategic areas of silence" (slaughtering of nonhuman animals, Morgan and Cole 2011).

This socialization process intends to create a human state toward nonhuman animals that accepts a "*willed ignorance*" (Masson 2009) or rather *denial* to rectify acknowledged wrongdoing (Cohen 2001). Nevertheless, this result of accepting or ignoring this dissonance is not always straightforward.

EXPLORATORY FIELDS: CHILDREN, PETS, AND VEGANISM

We have explored so far how animals are constructed through discourses and practices developed by human adults, and passed on to children, throughout a hegemonic socialization process. Research is obviously needed to study, in different contexts, the consistency of these premises. Discourses, narratives, and images do not translate automatically into corresponding practices. Besides, children are not passive agents who would assimilate as *tabula rasae* adults' dominant ideas and ways of doing. Rather, they actively build their own worlds and daily life, negotiating rules and meanings with humans, and non-humans – including animals. We highlight two illustrative examples in which the companionship between children and animals becomes particularly visible: the importance of pets in children's lives; and the counter-hegemonic practices of veganism.

We choose these two examples not as the *only* paths for companionship between children and animals, but as illustrative cases that can contribute to developing our conceptual argument further and bring the relationship between children and animals to the forefront of the debate. Yet, from a critical animal studies perspective we can stumble on a first controversy with these examples: keeping a pet can be understood as an alignment with the reproduction of exploitative attitudes toward animals; on the contrary, veganism could illustrate the ultimate example of respectful attitudes toward

other animal species when there is a radical refusal to incorporate them through our mouths into our bodies (animal embodiment). Notwithstanding, in one case or in the other, children can illustrate new forms of unsettling the human centred perspective on animals.

PETS IN THE LIVES AND WORLDS OF CHILDREN

Before going any further, it is worth clarifying the meaning of *pet*. A pet is an animal who has been named, who is allowed to share the domestic space with humans, and who will never be eaten (De Mello 2012, 148; Fudge 2008, 15). When describing their personal and affective worlds, children spontaneously include not only their own pets, but also their relatives', friends', neighbours', and acquaintances', referring to both living *and* dead animals (Tipper 2011). So, one specific, and constitutive, aspect of children's experiences seems to be that knowing someone's pets is a very important and legitimate part of the experience of knowing that person, thus blurring the boundaries between people and (their) animals.

Moreover, children seem to feel highly competent and fully authoritative to speak about animals, particularly pets, than about other aspects of the world of adults. In part, this is linked to the importance of age as an organizer of norms that regulate children's relationship to the world around them, and also with animals. Thus, in their relationships with animals, children are not only negotiating human/non-human boundaries, but also adulthood/childhood boundaries, situating themselves in a relational axis in which power, knowledge, and authority are usually on the adult side. In this process, animals arise as an area in regard to which they feel particularly confident, with authority and proper knowledge (Tipper 2011).

Children also reveal awareness of their own agency toward pets, as when they describe their influence in adopting one (Tipper 2011). So, what children *do* in their daily lives is relevant to know the animals they live with: who they are, and the conditions they live in. This "practice approach" deconstructs developmental theories (such as Melson 2001) that focused mostly on the "functions" and roles of animals in children's lives, and therefore remained anthropocentric: in learning the "facts of life and death", to develop a sense of responsibility through caring practices, emotional competences, or any other skills that could be later used in the relationships with humans (Tipper 2011).

As Ingold (2013) and Haraway (2003) proposed, humans and animals are beings in the process of *becoming*, and all form of becoming is *becoming with*. Their actions toward each other are relevant to define them. In this sense, knowing the practices through which children and animals engage with one another is a way of understanding how they build, together, their common worlds and mutual understandings. In this sense, this discussion is better framed if animals are considered as *companions* in the lives of children, rather than pets – species with whom children develop *companionship* relations (Haraway, 2003), rather than stewardship relations based mainly on practices of *petting*. But how can we get to know the *practices of pets*? What are the *practices* of animals, and how do we get to know them? Drawing on Science and Technology Studies, Law and Miele (2011) defend that animals do not *pre-exist* the practices they are involved in. Rather, they are the relational effects of those practices, and *are being done* in the unfolding of actions. As such, different versions of the same animals can be enacted by different specific practices. Examples of these relationally emergent versions are the *animal-as-sentient-being*; or the *animal-as-an-infectious-agent*. “Animals are the heterogeneous material and relational consequences of specific and patterned ordering practices that extend beyond local scenes to include more or less distant times and places” (Law and Miele 2011, 62).

If we apply these arguments to the domestic space and to the relational practices between children and animals, then it is possible to begin to entangle the many-folded emergent versions of animals as pets, which are enacted through many different and specific domestic practices, in daily life; practices that are very heterogeneous, specific, and in which all participating elements engage in “bodily choreographies” (Law and Miele 2011), through patterned sets of relations; practices that intersect with spaces other than the household, such as school, other relatives’ homes, the neighbourhood, the mass media; with different times, such as memories of deceased pets, or; with several types of knowledge arrangements, such as veterinarians’ or paediatricians’. By approaching the uncertain, complex, and often incoherent ways in which all these intersect (Law and Miele 2011), we may begin to untangle the “relational emergent versions” of pets (such as *dog-as-sentient-being*, or *dog-as-emotional-support*). And because children’s relationships with animals are also contradictory, involving conflict and negative experiences and emotions, they also enact negative versions of pets: an example are *pets-as-dangerous-beings*, who bite and invade the child’s vital space.

VEGANISM FOR CHILDREN: A COUNTER-HEGEMONIC CULTURE?

Notwithstanding the strength of hegemonic discourses and practices within the anthroparchal culture, some children are raised in contexts and practices of resistance. Veganism has been pointed out as an exemplary case of such counter-hegemonic cultures by prominent authors such as Cole and Stewart (2014). Their perspective is inspired by a “critical sociology” tradition and so they focus their general analysis on cultural products surgically selected. Examples are a well-known toy store in London, Hamleys, animated movies, television sitcoms, children’s stories and children’s books and, regarding the topic of vegan cultures, an analysis of books of vegan literature for children.

Given the deep implantation of the dominant meat culture in capitalist society, veganism occupies an unequal position, with many fewer resources and smaller scale. Nevertheless, its cultural products for children become powerful in both promoting new values of respect for other species, and empowering children who already embrace alternative vegan cultures (*ibid*).

Part of this power comes from the way in which veganism, and the cultural practices around it, reconfigure the ways human and non-human animals are defined. For instance, in vegan literature for children, humans are presented as having the potential to become compassionate toward other species, of coexisting peacefully with them. This ethical move, based on a value-oriented rationality, also brings a sense of human empowerment: humans, children or adults, “learn” to take “pleasure” out of contemplation of other animals’ beauty, freedom, and intra-species richness, rather than from consuming their bodies, fluids, or objectified representations. A move from “exploitation to wonder”; an ontological transformation with ethical consequences toward the non-human world (Cole and Stewart 2014).

At the same time, vegan culture reconfigures non-human animals, presenting them as sentient beings, with agency and subjectivity, and a rich intra-species relational and affective life, in which humans do not necessarily participate (let alone are indispensable to produce other animals’ emotional sides). They are depicted more in their peculiar physical characteristics (long tails), and less in anthropomorphic terms (big round eyes with tears, or smiley mouths). They also refer to the tension between confinement (imposed by humans) and freedom (their natural right), echoing other social minorities’ rights. In this, the role assigned to pets is not unanimous. While some representations advocate their exemplary status, as bearers of “role model”

attitudes toward non-human animals (“treat all animals like you treat your pets”), other critical approaches find it too risky: they argue that practices of pet-keeping are deeply entangled with anthroparchal culture, and thus may undermine the disruptive and emancipatory potential of veganism as a counter-culture (Cole and Stewart 2014, 161).

To the extent that animals are presented as sentient beings in their own right, rather than resources to be exploited, vegan culture thus constitutes an example of counter-hegemonic practices that have the potential to disrupt mainstream food practices. Knowing animals in their rich specificity makes it more difficult to objectify them, and consume them. Another important effect of vegan practices is to inspire younger consumers such as children to change food tastes in school, encouraging the inclusion of plant based diets in the school menus (Cardoso et al., chapter 12 in this volume). In recent years, there have been campaigns to include plant-based dishes on the school menus, where pulses, vegetables, and legumes feature as alternatives to animal protein. For example, a new policy measure is now in place in Portugal (Law n.º 11/2017) for the school year 2017/2018 that obliges the inclusion of a vegetarian option in all public canteens (prisons, schools, and elderly care centres). This is an opportunity to get children more familiar with plant-based foods, and develop a taste for vegetables instead of the prominent taste for meat.

Beyond dietary concerns, it is possible to relate the assumptions that underlie the vegan culture with environmental issues, such as deforestation, pollution, and species extinction. For instance, a large part of planetary deforestation is due to the production of soy, with the aim of feeding livestock in the meat industry (Twine 2010). Although a word of caution is needed to equate vegan diets with zero social and environmental impacts on the planet², they have, notwithstanding, the potential to fuel a change of values and behaviours toward biocentrism, conceived as a network of interdependencies (Cole and Stewart 2014, 157); and the corresponding dismantling of anthropocentrism, based on a hierarchical model in which humans occupy the dominant position. The role of “vegan children” (Cole and Stewart 2014, 151) in this process is particularly illuminating of the weaknesses that, nevertheless, permeate the anthroparchal culture. Despite being subject to socialization processes that leave them little

2 See the BBC – Future article “What would happen if the world suddenly went vegetarian?” published on 27 September 2016, in which it is clear that a radical eradication of meat from eating habits would also have detrimental consequences for developing countries (see: <http://www.bbc.com/future/story/20160926-what-would-happen-if-the-world-suddenly-went-vegetarian>).

room to choose freely how to relate to non-human animals, there are children still managing to resist and develop alternatives. This raises the question of whether it is possible to enlarge their disruptive potential to other humans and the adult world. Research has shown how children are able to demand and to impose, at certain moments of their family life, alternative and meat-free diets at home (Cairns and Johnston 2018). According to these authors, this can trigger important family changes toward meat consumption but, at the same time, fuel new paradoxes and tensions in mothering practices (ethical concerns regarding intensive animal husbandry practices by demanding transparency of information displayed on food versus protecting children from *knowing too much* about the suffering of animals in intensive farming).

CONCLUSIONS

In this chapter we present a critical reflection about the political project of sustainable development, discussing biased or excluded dimensions of the 17 SDGs. Two partners seem to be subsumed either as naturally vulnerable individuals (children) or are simply absent (non-human animals). Both share a condition of vulnerability that has, for long, put them on the side of nature (in a mind-set that opposes it to culture), as instinctive beings or, in the case of children, as unready manifestations of humanity.

Despite the power of the “anthropological machine” and the anthroparchal culture in the lives of children, some manage to build actively, through their daily practices, alternative ways of relating to animals. That is why we have argued that the relationships between children and animals are a gateway to understand the construction of alternative and more sustainable ways to relate to the planet. Animals are conspicuously present in the worlds of children. Through their joint daily practices, both contribute to enacting several different versions of animals *and* children: as-beings-to-be-protected; as-play-mates; etc.

Future research should pay attention to several dimensions engaged in these relationships: what and how children learn about animals; what happens to animals as a consequence of that; what children effectively do *with* animals, in their daily life; and the power of the affects and emotions involved in those practices to disrupt dominant practices and discourses. We have underlined two examples of the particular modes of relationship between children and animals: the importance of pets in children’s lives; and practices of veganism.

In this, we endorse a sociological perspective that aims at knowing how humans *look at* and *relate to* non-human animals, by including the latter as epistemological partners: a sociology *with* animals, rather than *about* them (anthropocentric perspectives) or *for* them (animal rights' activism perspectives) (Michalon, Doré and Mondémé 2016).

As such, children help us to problematize the concept of sustainability, so as to encompass non-human animals as legitimate companions and beings in their own right. For this, it is relevant to disrupt the humanist and speciesist legacy of sociology in general, and sustainable development in particular. Instead, it is necessary to propose a new goal for sustainable development that encompasses the agency of non-human animals. In this, we would be embracing a *biocentric* approach, and helping to challenge enduring anthropocentric assumptions in social sciences.

There is room for this intellectual project within the Sustainable Development debate. Authors such as Griggs et al. (2013) advocate a (re)definition of SDGs so as to include the security of people *and* the planet. Likewise, we argue that animals are major agents in this process, which are already there, but remain invisible. Unveiling their presence and importance is a key factor to achieve both people's and the planet's security and quality of life. As Griggs argues that both the protection of Earth's life support system *and* poverty reduction must be twin properties for SDGs, we argue for a more-than-human redefinition: comprising the needs of all human *and* non-human sentient beings, *and* their earthly life support systems, *and* all forms of reducing social inequalities.

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CITE THIS CHAPTER AS:

POLICARPO, V. et al. 2018. “A life of their own: children, animals, and sustainable development”. In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 203-225.
<https://doi.org/10.31447/ics9789726715054.08>

PART III

Transitions

9.

How green was Portuguese colonialism?

Agronomists
and coffee in interwar
Angola

Maria do Mar Gago

INTRODUCTION

The origins of environmentalism are much older than we thought and the context of its emergence is far more complex than originally suggested. These are the two main conclusions of Richard Grove's *Green Imperialism: Colonial Expansion, Tropical Island Edens, and the Origins of Environmentalism, 1600-1860* (Grove 1995). In this book, environmentalism appears not as a creation of the 20th century but firmly rooted in the 17th century. The argument of this English historian is simple: the experience of European imperialism, especially in island environments, was crucial in the development of conservationist notions and in the growing awareness of the limitability of local and global resources. This historiography of early environmentalism had important repercussions. Firstly, it forced us to gain distance from the environmental and political movements after World War II and to investigate other reactions to human-induced ecological changes put forward in earlier times.¹ Secondly, it compelled us to make a clear distinction between state and private sectors as far as imperial governance is concerned. As Grove insists, imperial states had a clear agenda as to why ruled territories should be environmentally sustainable, seeing this agenda as a guarantor of their longevity – in contrast with private capital and international trade-interests to which “global environmental well-being” was generally “an accounting irrelevance” (Grove 2002, 54).

The historiographical debate on modern forms of environmentalism and imperialism, calling into question and denaturalizing this opposition has been raging for the last decades.² The African continent was no exception. Scholars working on the 20th century identified long-term management and the regulation of natural resources as central themes in colonial administrations, and showed us how they frequently resulted in concrete environmentalist practices (Beinart 1984; Tilley 2011). They have also described how often environmentalism stimulated the appropriation of indigenous knowledge (see also Anderson and Grove 1987). This perspective contrasts with post-colonial literature that describes environmentalist ideas as rhetorical devices to impose

1 A good introduction to the history of environmentalism, taking into account several traditions and periods in time, is Sorlin and Warde (2009). For a reflection about post-wwII environmentalism with emphasis on the German case see Uekoetter (2011).

2 This is an extensive literature, some examples are Beinart (1984), Rajan (1998), Sachs (2003), Sachs (2007), Anker (2001), and Coen (2011).

agendas of domination over African populations. This literature offers us many demonstrations of how environmentalist arguments were used to classify African agricultural practices as primitive, obtuse, and environmentally unsustainable, and to create ecological concepts and theories that favoured European exploitation (see, for instance, Fairhead and Leach 1996; Fairhead and Leach 1995; Fairhead and Leach 2000).

This chapter explores the relationship between environmentalism and imperialism in the case of Portuguese Africa. It follows the agronomists of the Agriculture Department of Angola in charge of missions of agricultural survey during the 1920s. Its chief goal is to examine how environmentalist ideas and practices were appropriated and articulated by these imperial agents. In order to do this I propose to follow them in the missions to the coffee producing regions – a crop that has been the object of a monograph by the present author, and upon which this chapter is based (Gago 2018). I am especially interested in understanding how Angolan coffee, with its environmental, technological, and cultural specificities, challenged enlightened prejudices regarding native agriculture. To put it bluntly, I use coffee, a symbol of violence and exclusion in the history of Angola, to pose a rather unusual question: how green was Portuguese colonialism? The ultimate purpose of this chapter is to historicize and problematize the notion of environmental sustainability so often associated with the social welfare of world populations.

The interwar period (1918-1939) was a time of profound transformations in Africa, ushering in a new phase of European imperialism. With the end of the processes of military occupation and amidst the “internationalization of colonialism”, Europeans were forced to implement policies aimed at “developing” colonial economies and “protecting” native populations and local environments.³ In colonial departments (agriculture departments included) the recruitment of technical personnel rose dramatically.⁴ This aspect, largely investigated in other contexts of colonial Africa, has been poorly documented for Portuguese Africa, particularly in what Angola is concerned. Technical and scientific expertise has been on the scholars’ agenda, but not of those working

3 A major work about the internationalization of colonialism is Pedersen (2015); for a reflection about the Portuguese case see Jerónimo and Pinto (2013, 2014, 2015).

4 In the interwar period technicians and scientists of the British Empire started to account for more than 40% of the total colonial administration (Hodge 2007, 10). For the particular case of agriculture departments, also regarding the British empire, see Tilley (2011).

on this period.⁵ It is also worth noting that some of the most prominent historians of the Portuguese empire often associate the interwar period with a “long stagnation” – an idea originally stemming from the analysis of economic indicators but whose scope became much larger.⁶ This chapter is an opportunity to problematize such assumptions by retrieving some missing links.

THE METROPOLITAN VOICE

In Portugal agronomists were trained at the High Institute of Agronomy (*Instituto Superior de Agronomia*), in Lisbon.⁷ This was the only institution conferring the diploma of *engenheiro agrónomo* (here translated as agronomist), the *sine qua non* condition to occupy a leading position inside the colonial agriculture departments.⁸ Colonial training entered the institute’s curricula in 1906. Two courses were organized at the time: Economic Geography and Colonial Crops (*Geografia Económica e Culturas Coloniais*), lectured by José Joaquim de Almeida, and Colonial Technology and Husbandry (*Tecnologia e Zootecnia Coloniais*), given by Carlos de Mello Geraldês.⁹ Also in 1918 the

5 For the mid-18th century see Santos (2010). For early 20th century see Roque (2003) and Bastos (2014). For the post-WWII period see Saraiva (2014) and Castelo (2016). A good exception, focusing on the role of experts during the interwar period, is Coghe (2015).

6 The expression “long stagnation” is from Telo (1994, 224). A similar analysis of the interwar period can be found in the work of Clarence-Smith and Gervase (1985) and Alexandre (2000, 12). In contrast, historians of Angola describe the mid-1920s as a “distinctive development phase” (Wheeler and Pélissier 2009, 193).

7 Founded in the mid-19th century, the High Institute of Agronomy gained the status of a college (and this name) in 1911. For the history of this institute see *Anais do Instituto Superior de Agronomia*, year 1, no. 1 (1920).

8 It is worth noting that in Portugal *agronomia* is a branch of engineering in a clear reference to the French example. “Agronomie”, “agronomiste”, and “ingénieur agronomique” are also terms in the French scientific tradition, while in the Anglo-Saxon tradition one generally talks about agricultural science and agricultural scientists. Despite the problems of translation, I follow here Christophe Bonneuil, who wrote extensively about these scientists in France and uses the English word “agronomist”.

9 José Joaquim de Almeida worked as an agronomist in Angola – in Lunda (1901-1903) and in Luanda (1904-1906) – and in Mozambique (1911-1919). Carlos Mello Geraldês worked in Angola as an agronomist of the Benguela district (1903-1905), immediately after his graduation in 1902. There is mention of several “official reports” Geraldês may have produced during his missions in the Benguela district, see *Anais do Instituto Superior de Agronomia*, year 1, no. 1 (1920, 40).

Laboratory of Colonial Agriculture and Technology (*Laboratório de Tecnologia Agrícola e Colonial*), an institution directed by Geraldès, was created. Geraldès was also responsible for the supervision of dissertations on colonial studies, normally based on material of the Colonial Garden, of which he was also the director.

Prolific writer, almost always in French, close to the circle of the Lisbon Geography Society, Geraldès wrote extensively about the Portuguese colonies during the interwar period. His papers followed the format of his students' dissertations: an introduction to the economic importance of a certain agricultural commodity, followed by a laboratory analysis of certain characteristics (length, weight, humidity, etc.) of the grain, leaves, fruit or other parts of the plant. In some cases statistical treatment was applied and simple correlations were traced between features. But in the end he was above all a systematizer of data. When in 1920 an expert was needed to coordinate a scientific mission to S. Tomé, it was his colleague Manuel de Sousa da Câmara, director of the Laboratory of Plant Pathology (at the High Institute of Agronomy) who was sent, not him.

Geraldès was also an assiduous participant of international conferences and meetings in which the European models of colonialism in Africa were being rethought and reframed.¹⁰ He was often the expert representing Portugal and, invariably, his position was that of a colonial hardliner. At the 1929 session of the International Colonial Institute Geraldès was one of the voices among the Portuguese representatives that, together with “supporters of French planters”, strongly opposed the Belgian botanist Émile De Wildeman when he defended the involvement of natives in export agriculture as “genuine producers” (Daviron 2010, 494).¹¹ One year later, at the III Congresso Colonial Nacional, hosted by the Lisbon Geography Society, he protested against the increasingly international trend, advocating the defence of native rights, “especially since the end of the Great War” (Geraldès 1934, 5). According to him, these voices were partly propaganda and partly the opinions of “very intelligent and enlightened persons who unfortunately

10 Information about his presence in international events can be found in Nunes (2013, 89–112).

11 This pro-native agriculture movement was supported by leading plant scientists, namely by the Belgians Émile de Wildeman and Camille Janssen, and the French Auguste Chevalier and Daniel Zolla. About the 1929 session of the International Colonial Institute (ICI) see Daviron (2010, 492–499), and about the Portuguese delegation at this session, including Geraldès' interventions, see Direito (2013, 67–74). More information about ICI and Portugal can be found in Jerónimo (2015, 235–270).

knew nothing about what it was to *almost* civilise a people, and colonise and develop agriculture and industries in Africa, and above all in Tropical Africa” (Geraldes 1934, 6).

In this communication at the Lisbon Geography Society (in 1930) Geraldes scrutinized the future legislation about native labour. He argued that labour legislation should be independent of the *regulamento ou estatuto geral do indígena*, because it should rely exclusively on local specificities – and by “local” he meant the specific requirements of “white agriculture”. For him, only these enterprises could provide the industrial sector with enough production, and ultimately turn colonial agriculture into a lucrative activity (Geraldes 1934, 15). Against the “total freedom of work” (*liberdade de trabalho total*), he stood for what he called “restricted freedom of work” (*liberdade de trabalho condicionada*) and urged for the establishment of longer-term labour contracts, “at least 5 years, as practiced in the Dutch colonies on tobacco and other plantations” (Geraldes 1934, 15). He saw the possibility of implementing a regime of “total liberalization of work” as a “perilous utopia”, whose results would prove counterproductive, as it would prove “the economic ruin of the colonies (...) harming the native people, both materially and morally, while thwarting their development.” The reason for this ruin was the “backward state” of African civilization and the answer to it the “civilizing mission” of the Portuguese empire, capable of “transforming them from ignorant apprentices, which constitutes by large their present condition, into truly skilled workers” (Geraldes 1934, 19). Geraldes carefully stresses the differences between Africa and “the Orient”, in which the different “level of civilization” of native people and the “population density” justify the different forms of colonialism (Geraldes 1934, 10).

At the *Congrès International de la Société Indigène* in Paris, in 1931, Geraldes expressed his opinions about the rights of Africans to use and own land. Describing them as causers of “progressive destruction of forests”, due to their nomad agriculture and the practice of slash and burn, he ends by arguing that the so-called movement toward “native agriculture” should be confined to native reserves (Geraldes and Gouveia 1931, 8). This position is even starker in a communication presented at the *I Congresso de Agricultura Colonial*, held in Porto in 1934. Again invoking the nomad agriculture system and slash and burn as “the main culprit for the destruction of forests”, he concluded that it was “pointless to legislate on indigenous property rights, intending to bind them thus to the land, since there is no established way of

granting and recognizing rights to properties, which vary widely on area and limits periodically, given that the system of agriculture in place so demands it" (Geraldes 1935, 10). Education was for him the only solution to "help" Africans to make the transition from nomad to "stable" agriculture. But – until they were "educated", they should have no rights to land.

Geraldes is key to understand the relationship between agronomy and Portuguese colonial thinking during the crucial years of the interwar period. Being several times in the position of representing Portugal abroad, he was able to creatively intermix science with politics. Two debates arising from the internationalization of colonialism required his special attention: one concerning the wages of African labour and the end of forced labour; and one about the advantages of promoting native agriculture. While in the first Geraldes defended forced labour policies using cultural arguments to explain the "backwardness" of African civilization, in the second he takes advantage of environmentalist ideas and concepts. Geraldes' position in relation to native agriculture was simple: for the sake of African landscape, and in order to assure its environmental sustainability, initiative should be taken away from Africans. The argument stitching together environmentalism and colonialism was deforestation. For Geraldes, there were only two possible paths envisioned for non-Europeans: to live in native reserves or to work on European plantations.

ENVIRONMENT, AFRICANS, AND ROBUSTA COFFEE

This was Geraldes' position, at least theoretically speaking. Reality was a bit more complicated than this. In the same year that he was criticizing De Wildeman's ideas about transforming Africans into genuine producers of export crops, he also published an article about coffee in the Portuguese colonies. In this article he wrote that in Angola such a promising commodity came from: 1) the "exploitation" of wild coffee "above all made by natives", and 2) "cultivated fields" (*plantation*, in French) of "spontaneous species" set up "by natives, companies (*sociétés*) and settlers."¹² No doubt that Geraldes

12 "Tout les café exporté par l'Angola, provident de l' exploitation des peuplements naturels de caféiers, surtout faite par les indigènes, et de plantations faites, avec les espèces spontanées, par les indigènes ainsi que par des sociétés et des colons" (Geraldes et al. 1930, 27).

was well informed about native coffee production in Angola when he wrote his article in 1930. In the rooms of the Lisbon Geography Society, where legislation about native labour and their access to lands was being discussed, it was probably best not to bring it to the forefront.

The spontaneous species mentioned by Geraldès is *Coffea canephora*, commonly known as Robusta coffee, the coffee species traditionally commercialized in Angola. The genus *Coffea* includes many species but only three are economically relevant: Arabica (*Coffea arabica*), Robusta (*Coffea canephora*), and Liberica (*Coffea liberica*). Arabica is by far the most popular of coffee species, the one with the most intense trade history and the most expensive one. The Portuguese tried to introduce Arabica in Angola, but these attempts proved almost always fruitless. In 1974, when Angola became the fourth coffee producer in the world, Arabica only counted for approximately 2% of the total production (see Ferrão 2009; Gaspar et al. 1998; Baptista et al. 2012). The empire of coffee that the Portuguese built around the colony of Angola was, since the beginning and until the very end, a “Robusta empire” (Gago 2018).

In my work I contend that the process of making coffee grow in Angola is crucial to understand the nature of this Portuguese empire of coffee. *Coffea canephora* is indigenous to the cloud forests of Northern Angola – tropical and mountainous forests permanently covered with fog during the dry season – and it was here that it was cultivated. It was therefore in the middle of the forests and mountains, in places where Robusta coffee grew spontaneously, that the large cultivated fields nurturing the Angolan economy and the Portuguese Empire were located. On the basis of this production was an agro-forest system invented to take advantage of the environmental conditions of the plant when growing in the wild. These environmental and technological dimensions of Angolan Robusta have been largely ignored in the literature. In my opinion they are crucial to understand a central paradox in the history of coffee production in Angola: European *fazendas* highly dependent on the coercion of African workforce, producing side by side coffee *lavras*, in the hands of African producers, also the inhabitants of the forests where Robusta was indigenous. The coffee case in Angola, and the elite of African entrepreneurs that emerged around it, brings into the debate about Portuguese colonialism the theme of non-coercive native production, a trait that seems absent from the imperial trajectories of other cash crops in this colony, such as cotton and sugar (Gago 2018).

It is worth noting that African production in the case of Angolan coffee was not small. In the interwar period, and according to official statistics, it represented roughly half of the colony's total production (Gago 2018, annex II). The competition between natives and Europeans for the lands most suitable for coffee cultivation was high. There is much evidence of this in the colonial archive, mainly complaints of African producers who saw their *lavras* being occupied by Europeans. Africans did resist this colonial pressure. Such resistance differed according to geography. In the interwar period the scenario was this: Cuanza-Sul, the newest district in the business, economically relevant only since 1920, was almost entirely in the hands of Europeans (native coffee production was insignificant and it was here that the largest coffee *fazendas* in the colony were located, like CADA); Cuanza-Norte, comprising the lands where coffee had been first cultivated in Angola (in the 1830s), remained divided between European and native producers (according to the colonial statistics, both groups contributed more or less the same to the district's final production); Congo, which occupied the third place in the ranking, was the district where African producers and their *lavras* ruled – during the interwar period there was an increase of European producers in this district, but they remained insignificant when compared with native production (Gago 2018, 91).

CONCESSIONS, DEFORESTATION, AND NATIVE AGRICULTURE

The consolidation of agriculture departments in Africa occurred after the end of the processes of military occupation, roughly around 1920. The case of the Agriculture Department of Angola (*Serviços de Agricultura de Angola*) is strongly connected to the government of the high commissioner Norton de Matos.¹³ In 1922 new legislation conferring more autonomy to the Agriculture Department was published,¹⁴ and in 1923 the publication of this

13 I could not identify the exact date of the creation of the Agriculture Department of Angola. The oldest reference I found to the “Serviços de Agricultura” was in *Boletim de Agricultura, Pecuária e Fomento* (1908), Gago (2018, 49). This colonial department changed name several times: Serviços de Agricultura, Inspecção de Agricultura, Secretaria Provincial de Agricultura, Repartição Superior de Agricultura, Direcção dos Serviços de Agricultura, Serviços de Agricultura e Comércio, Serviços de Agricultura e Comercio, Colonização e Florestas, etc.

14 Decree 110, 14.03.1922 created by Secretaria de Agricultura, Agrimensura e Terras.

department's journal was retaken under the name of *Boletim da Secretaria de Agricultura*.¹⁵ More importantly, it was then that a systematic survey of the Angolan territory began (Gago 2018, chapter three). During the early 1920s several technicians were sent on agricultural and botanical survey missions to different regions of Angola. Like earlier missions, interwar survey missions were also small initiatives often conducted by one scientist. The main difference was that they were now more regular and centralized around the Agriculture Department. In the end, the expert to whom the mission had been entrusted – normally an employee of the Agriculture Department, but it could be also a “professor” from the Portuguese homeland – produced a report that was published in the department's journal.

By examining these reports, it becomes obvious that one of the main targets of criticism of these agricultural experts was the Portuguese policy of concessions. In 1923, José de Almeida, agronomist and professor of the High Institute of Agronomy, entrusted with one of these agricultural survey missions, harshly criticized the colonial administration for the “last delirium of concessions”, which occurred at the end of the 1920s. According to Almeida, the policies of concessions had been particularly problematic in the case of crops such as palm trees or coffee, which traditionally depended on the initiative of Africans. In his report he describes that under the patriotic guise “of fomenting agriculture and protecting local workforce”, the colonial administration “had gone about Angola sticking claiming stakes around the natives’ coffee bushes and palm trees”, denying them access to these lands in the name of concessions that were not productive (Almeida 1923, 23-46). The solution he foresaw was the demarcation of native reserves (*reservas indígenas*), which at the time, he explained, were still not being rationally implemented, the sole exception being the “renowned oil palm trees of Libolo” (Cuanza-Sul) that had already gained from this “altruistic ambition” (Almeida 1923, 43).

Also in Uíge (Congo), concessions were very criticized. The agronomist Laurentino Pereira Coelho, the head of the Cazengo Experiment Station, who was sent to the region in 1926 to study a blight that was affecting coffee beans,

15 This journal changed names several times: *Boletim de Agricultura, Pecuária e Fomento* (1908-1919), *Boletim da Secretaria de Agricultura* (1923-1926), *Boletim da Direcção dos Serviços de Agricultura* (1928), *Boletim da Direcção dos Serviços da Agricultura e Comercio* (1928-1933), *Boletim dos Serviços de Agricultura e Comercio, Colonização e Florestas* (1934-1937). From 1937 until 1948, the agricultural department suspended its publishing activity, and in 1948 was replaced by *Agronomia Angolana* (1948-1972).

did not spare the *Sociedade Agrícola do Uíge*: “It is regrettable that a Society holding roughly 20,000 hectares of land, and with an existence of six years, can’t be credited for any service, for any sign of exertion and willingness to work” (Coelho 1929, 7). According to him, the present holder “had arranged for a six hectares coffee plantation”, but only “to put on a show of activity”. Finally, the same point is made in Cabinda. The forester Raul da Silva Guardado, appointed head of the Forestry Section of the Agriculture Department in 1923, was convinced that the main problem of the Maiombe was that the empire had given away to the Cabinda Company 136,000 hectares – the cultivated area of this gigantic estate was “almost totally devoted to cocoa and coffee” (Guardado 1925b, 50). According to him, this company suffered from “a lot of problems”, namely the lack of proper scientific guidance, lack of workforce and capital (Guardado 1925b, 49). The major threat of such unskilled administration was that timber exploitation would result in high levels of deforestation. These were warning signs and even more so because “the authors of it show no sign of concern with the prospect of some products becoming extinct, like some of the best timbers, already scarce” (Guardado 1925b, 69).

Deforestation was also a common environmental concern of those sent to coffee-producing regions. Far from being a problem created only by natives, as according to Gerald’s general interpretation of the phenomenon, this was observed mainly in European coffee *fazendas*. This was what Gomes e Sousa (also a forest scientist) concluded during his mission to Cuanza-Sul: “the main loci of the diseases are to be found precisely in those areas where the felling of trees is more intense, which demonstrates the harmful influence of lack of shelter for plants requiring, in their natural habitats, high degrees of humidity and shadows” (Gomes e Souza 1925, 20). The problem was that, according to him, too many trees were felled in order to set up a coffee plantation, and authorities ought to thus “adopt urgent measures against abusive forest clearing, particularly in the Amboim forest region, and to conduct an intense reforestation with indigenous and exotic species under the guidance of the Forest Department” (Gomes e Souza 1925, 32). Later, the head of the Agriculture Department, Bento Alves, would make the same association between deforestation and coffee plantations in Angola (Alves 1932).

Regardless of the alarm that deforestation may have caused amongst our experts, it should be said that this problem was only relatively significant in the case of Angolan coffee. In this colony, coffee cultivation did not imply the “total destruction” of the forests, in contrast with what happened, for instance,

in Brazil. As mentioned above, Robusta coffee was planted in the middle of its natural habitat using an agricultural system that implied only the “partial destruction” of the forest – that is, the cut of the lower and medium level of plants (including old and wild coffee bushes) and the saving of higher trees, so that new coffee seeds or seedlings could be planted under the same conditions (of shadow, humidity, soil, etc.) of wild coffee plants. Since the beginning of the 19th century, when the first coffee cultivation experiences took place, it was known among coffee growers that Robusta did not survive the practices of total deforestation – because it needed shadow to grow (Gago 2018, chapter two). The expertise (scientific and agricultural) of Angola was well aware of the local environmental constraints regarding these practices. Curiously, this did not prevent high-profile international experts from commenting on the Angolan case, arguing that total deforestation was the most economic method for planters and the healthiest for cultivated plants (Lopes 1930, 23-24).

Finally, native agriculture was also under their scrutiny. We often see native agricultural practices being criticized by these experts, and in some cases identified as the main causes for deforestation. In his visit to Amboim Company (one of the most important in the coffee business in Cuanza-Sul) Guardado describes with sorrow the “clearings” opened by the Africans in the middle of the forests to make their *arimos* of maize. As he explains, the company complained many times of these practices “and justifiably I think”, but “until now its reclamations had not been attended”. Guardado describes “the native” as “still living in a primitive state” and being “a nomad and an enemy of the forest” – very close therefore to Gerald’s ideas. “The first concern of the black man is to destroy the bushes which he sets on fire – there he tills the land for a few years; he then leaves to inhabit other places of the forest where he proceeds to do the same” (Guardado 1925a, 138).

Yet, his opinion gets less clear later in the report, when he describes the visits he made to the properties of Amboim Company (Boa Entrada, Progredior, Africana, Amizade, and Boa Ideia) and to several other “coffee *fazendas*” belonging to “Pratas, Couto, Marques Seixas, Monteiro Nascimento, Faz Tudo, and Sardinha”, wherein “the latter two are natives” (Guardado 1925a, 139). According to him, these coffee growers had been responsible for “great clearings of the woods”, which was pointed out as counter-productive for coffee cultivation. In this case, both Europeans and Africans committed the same mistakes.

In all the conceded lots there are spots where tree felling was excessive, especially at Roça da Saudade, located in Morro do Pemba, and belonging to Monteiro Nascimento, where he conducted extreme tree cutting at certain spots, which have damaged the coffee culture, which appears etiolated and without future. Both this concessionaire and the native Sardinha must be forced to replant at once the trees they razed to the ground (...). If they fail to do so, it is our understanding that their concessions should be withdrawn” (Guardado 1925a, 139).

Laurentino Pereira Coelho’s report on his mission to Congo in 1926 follows the same line. During the mission the agronomist visited two concessions (the *Sociedade Agrícola do Uíge* and the German *Sociedade Agrícola do Lucunga*), two Portuguese *fazendas* and two *lavras* of African chiefs. According to him, the cultivated fields in the best shape were two: one Portuguese and one indigenous (Coelho 1929). The question is then: who were those Africans whose agricultural practices were being praised? The colonial dichotomy “Europeans versus natives” makes these reports terrible guides. But one conclusion we can make: from their point of view – that is, seeing productivity and environmental sustainability as two faces of the same coin – our experts could not make a clear distinction between natives and Europeans. The language was there, classifying the whole African collective as “natives”, but the message was different, revealing the heterogeneity of the group. The same could be said about the European side of the story.

CONCLUSIONS

The voices of those using an environmentalist-driven agenda to criticize African knowledge and agricultural practices are well documented in the colonial archive (Fairhead and Leach 1996). In the case of Angola this biased environmental agenda is represented in the scientific persona of Geraldès. Assiduous attendant of international conferences, where the European models of colonialism in Africa were being discussed and negotiated, he often invokes the African nomad agriculture system and their practices of slash and burn as “the main culprit for the destruction of forests” (Geraldès 1935, 10). This environmentalist argument sought to hamper an international movement in favour of the involvement of natives in export agriculture and their role as genuine producers.

On the other hand, we also saw that many of Gerald's political ideas about the development of Portuguese colonies were based on abstractions and formulaic notions about Africans and Africa. What this chapter demonstrates is that the way Portuguese agronomists engaged with environmentalism was not as instrumental and univocal as some might think. Following them in the Agriculture Department of Angola, in the context of the missions of agricultural survey, another view emerges, one that places these experts as agents of a "green imperialism" (in Grove's sense) until now neglected in the literature. We see them using environmental arguments to condemn European *fazendas* whose environmental sustainability was considered to be at risk. These arguments concerned the degree of deforestation and the politics of concessions – the latter severely criticized for giving too much land to those who could neither exploit it nor protect it in environmental terms.

This chapter zeroes in on the case of coffee – specifically, Robusta coffee. It was by examining the local and material conditions of this coffee species that this fine-grained analysis of the Portuguese agronomists was possible. By investigating their engagement with Robusta coffee we were able to gain distance from flat conceptions of the colonial world and to call into question dichotomies such as "European *versus* native", "white agriculture *versus* native agriculture", and "*fazendas versus lavras*".¹⁶ One important feature emerging from this investigation is that Europeans and Africans used the same agro-forest system to cultivate coffee, meaning that *fazendas* and *lavras* (in merely technical terms, and not in terms of scale, evidently) were not that different, contrary to what happened with other colonial cash crops. The experts of the Agriculture Department of Angola saw in Africans promising coffee producers and in some cases even exemplary ones.

The histories of environmentalism and colonialism are tied together. The idea that late European empires were concerned only with the exploitation of natural resources is no longer tenable; nor that they criticize only natives and their traditional practices. Environmentalist practices, such as forest protection or soil and water conservation, some of them inspired in local practices and traditions, were needed to guarantee the future exploitation of the resources, and for that reason they were implemented. In the present

16 We have here a clear example of how the history of science and technology opens the way for some of the most important criticisms coming from colonial and postcolonial literature, for instance, BhaBha (1984), Stoler and Cooper (1997), and Stoler (2009).

case we see them giving form to a conservationist agenda, as our scientists, pursue the goal of making coffee *fazendas* and *lavras* more productive and environmentally sustainable. As William Beinart, reminds us: “environmental regulation was not seen to undermine colonial development, but to facilitate it” (Beinart 2016, 273). There was nothing incompatible about these two purposes – quite the contrary.

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CITE THIS CHAPTER AS:

GAGO, M. do M. 2018. "How green was Portuguese colonialism? Agronomists and coffee in interwar Angola". In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 229-246.
<https://doi.org/10.31447/ics9789726715054.09>

10.

The sustainability
of agricultural
intensification
in the early
21st century:
insights from the
olive oil production
in Alentejo
(Southern Portugal)

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INTRODUCTION

Widespread consensus has emerged around the importance of further agricultural intensification, if the nutritional requirements of the ever-expanding global population are to be met (FAO 2017). Mainstream models of agricultural intensification, closely linked to specialization, have proved to have a strong impact on the environment while also disconnecting agriculture from rural communities (Woods 2011; Primdahl and Swaffield 2010). Climate change and increasing urbanization pressures add urgency to the challenge of ensuring global food security without compromising the sustainability of social-ecological systems.

Calls for sustainable forms of agricultural intensification are frequent in policy and scientific circles (Garnett et al. 2013; Lima Santos 2017). Yet, what constitutes sustainable intensification remains contested, with a range of weak to strong sustainability concepts depending on, for example, uses of technology, synthetic inputs, and local ecological knowledge (Horlings and Marsden 2011; Rockstrom et al. 2017).

In the Portuguese context the Alentejo region seems to be undergoing a process of rapid agricultural intensification, despite its dry Mediterranean climate and a tradition of extensive, multi-functional agricultural systems. This has been fuelled by local, national, European, and global factors and processes, in close alignment with the dynamics of urban-financial capitalism. Specific drivers include a long-standing public investment in the Alqueva irrigation system, national and EU agricultural policies, and recent strategies of financial investment in agriculture-related assets, especially since the 2008 global financial crisis. Although the two modes of production continue to coexist in the region, the transition from a long lived model of extensive agricultural production toward a predominantly intensive mode of agriculture has been extremely fast.

The chapter addresses the sustainability of the ongoing agricultural intensification and financialization processes. We explore how this is taking place in the area of influence of the Alqueva irrigation system since 2002, when the system's main dam was completed. We focus on olive oil production, which in 2017 occupied 57% of the newly irrigated land (EDIA 2017). The process of agricultural intensification in southern Portugal is relatively new, and there is an urge to better understand its contours, mechanisms, and potential implications.

On this basis, we focus on the emerging actor-networks and explore their implications for the making of sustainable rural places, particularly place-specific interdependencies between economy, community, and ecology (Marsden 2013; Ferrão 2016). To operationalize the notion of network and adjust it to the study of agri-food systems, we adopt the broader notion of actor-network proposed by Latour, previously employed in studies of food governance and its political economy (Stuart 2010) as well as in research on land degradation in Southern Europe, including Portugal (Wilson and Juntti 2005). As emerges from our case study, we are witnessing the constitution of new heterogeneous networks composed of both social (individuals, organizations, rules in use) and material elements (e.g. technologies, infrastructures, genes, olive tree varieties, fungi, fauna). This notion of actor-network acts, in our case, as entry point to understand rapid change in economy-community-ecology linkages in rural places undergoing agricultural intensification.

Our vision of sustainability is premised not only on the original social, economic, environmental, and institutional requirements of the concept (WCED, 1987), but also on the requirements of social-ecological resilience (Folke et al. 2016), often reaffirmed in the face of the challenges posed by both climate change and “planetary urbanization” processes (Merrifield 2013). In addition, our analysis is informed by a geo-historical approach that considers the economic, social, and environmental legacies of past agricultural modernization processes, and their implications for the present and the future. Our guiding questions are:

- What new actor-networks have emerged in the process of agricultural intensification associated with the Alqueva irrigation system, particularly in relation to olive oil production?
- How are new actor-networks relating to local communities? How are new actor-networks dealing with key public environmental goods such as soil fertility, water quality, and biodiversity? Are new actor-networks helping to link economy, community, and ecology in the region?
- What risks can emerging actor-networks present for sustainability in the region under the influence of the Alqueva dam?

The findings presented here combine research results from three different projects: (i) an individual post-doctoral project (2016-2019) on non-point source pollution, spatial politics, and adaptive governance in the Guadiana

river basin, financed by the Portuguese Foundation for Science and Technology (GuadianAdaptativo)¹, (ii) an EU-wide project (2015-2019) on Sustainable Finance for Sustainable Agriculture and Fisheries (SUFISA)², and (iii) an inter-university research project (2015-16) on Municipal Adaptation Strategies for Climate Change in Portugal.³

Research methods employed are of qualitative nature, primarily semi-structured interviews (20 considering all projects), focus groups (3), participatory workshops (2), media content analysis and analysis of primary sources such as legislation, plans, statistics, and policy documentation. Further detail is provided in Table 10.1. These provide a rich set of primary information, allowing more opportunities for triangulation of information from different sources. We have overcome the absence of a single line of enquiry planned *ex-ante* by focusing on the knowledge emerging from consistent overlaps, and mutually beneficial insights, revealed in a structured *ex-post* analysis.

The remainder of the chapter is organized as follows. The first section reviews literature on key approaches to the challenge of sustainability in agriculture, including that of sustainable intensification, and connects those approaches to enabling financial and scientific processes. In part II we introduce key conceptual and analytical tools for a geo-historical analysis of sustainability in rural places. This is followed by an overview of the trends of intensification of olive oil production in the Alqueva irrigation system and some of its drivers. Part IV describes the novel actor-networks emerging from the intensification of olive oil production in the Alqueva irrigation system, while part V discusses some of the social and ecological implications of this recent phenomenon. In the conclusion we review and discuss key findings, and share recommendations for both public policy and further research.

1 <http://www.ics.ul.pt/instituto/?ln=eandpid=255andmm=5andctmid=2andmnid=1anddoc=31809901190>.

2 <http://www.sufisa.eu> (H2020-Project Number: 635577).

3 <http://climadapt-local.pt/en>.

Table 10.1 *An overview of the research methods employed*

METHOD/ TECHNIQUE	NUMBER OF PARTICIPANTS	TIME OF DATA GATHERING	DATA ANALYSIS	DATA SOURCE
Media Analysis	none apart from SUFISA researchers	Data collected between September 2015 and May 2017, covering the period between 2002 and 2017	Content analy- sis using NVivo software, using the keywords (in Por- tuguese): Intensive, Super-Intensive, Olive Oil, Sustain- ability, Resilience, Intensification, Production, Export, Invest- ment, Irrigation, Environmental Impact.	9 internet portals, 5 specialized journals, 4 daily newspapers, and 3 professional newsletters
Semi- -structured interviews	20 participants from government organizations; farmer Associations; Agri-business managers; Academic institutions; and Non-Governmen- tal Organizations	Interviews conducted between 2015 and 2017	Transcriptions of recordings; notes of the rapporteur and thematic coding of common issues	ClimAdapt.Local interviews (N=2) in 2015, SUFISA interviews (N=10) in 2016, and Gua- dianAdaptativo (n=8) in 2016 and 2017
Focus Groups	3 focus group discussion with 3 to 5 participants following Intensive, traditional or mixed production methods	September 2016, March and June 2017		Focus groups conducted under the SUFISA project
Workshops	Workshop 1 - 36 participants from Governmental institutions at the National, Regional, Municipal, and Parish levels (26%); Civil Society Organizations (22.2%); Public universities and Regional Research Centres (22.2%); Private companies (11.1%); Other local experts and leaders (18.5%) Workshop 2 - 15 participants from Independent Farming businesses (20%), Regional governmental organizations (33%); farmer Associations, and Professional and Technical Lobbies (33 %); and Non-Governmental Organizations (24%)	Workshop 1 - November 2015 Workshop 2 - September 2017		Workshop 1 conducted under the project ClimAdapt.Local Workshop 2 conducted under the SUFISA project

GETTING MORE OUT OF OUR LAND: THE DEBATE ON THE INTENSIFICATION – FINANCIALIZATION – TECHNOSCIENCE “VIRTUOUS CYCLE”

There is a lively debate in both policy and scientific circles about new pathways for sustainability in agriculture (see Levidow and Papaioannou 2012). We follow and complement Marsden's (2012) conceptualization of two polarized visions: on one side the bio-economy, which is the dominant paradigm of agricultural modernization and arguably espouses a weaker conception of sustainability; on the other the eco-economy, which embraces a holistic, stronger view of sustainability that is firmly embedded in agroecological knowledge.

In general terms, bio-economy refers to all economic activities that produce, manage, or exploit biological resources. Its objective is to transform production through bio-economic processes such as genetic engineering, while mobilizing scientific knowledge from a diverse set of disciplines such as veterinary medicine, food sciences, engineering, and industrial biotechnology (Marsden 2013, 217–218). Allowing living things to become appropriated and patented through genetics and genomics fits well with the current urban-financial form of capitalism (Busch 2010, 339).

In contrast, the eco-economy paradigm incorporates a stronger, more ambitious interpretation of sustainability in agriculture. Rather than intensifying the use of technological inputs, eco-economy strategies and practices seek to intensify the ecological processes that underpin long-term agricultural productivity, promote soil fertility, and conserve water and organic matter. Under the eco-economy paradigm knowledge about local agro-ecologies is integrated in processes of scientific knowledge co-production to provide local and regional food security solutions.

Table 10.2 provides a summary of distinctive features of bio-economy in opposition to eco-economy. This provides an idealized typology that is best interpreted as a heuristic model, presenting the two extremes of a continuum in which more or fewer hybrid realities may be identified across regions and agricultural systems.

In terms of economic gain and control, the bio-economy paradigm both fuels and benefits from the financialization of agriculture, providing urban-financial capitalism with a new opportunity to expand its sphere of intervention from the global to the local, the individual and, more recently, to the gene. In the context of world agriculture, Busch (2010) describes financialization as “the

tendency of financial markets to dominate and for financial organisations to dictate conditions to those organisations involved in production” (Busch 2010, 337). In the context of agribusiness and trade in agricultural commodities, financialization has given way to the rise of commodity trading companies and a stark increase in the use of commodity derivatives (financial products that enable risk to be transferred, effectively allowing speculators to gamble on the future behaviour of key variables in agro-food systems). This makes the performance of the financial markets more important than real trade in agricultural goods.

Table 10.2

A comparative characterization of two competing paradigms for sustainability in agriculture

DIMENSIONS	THE BIO-ECONOMY PARADIGM	THE ECO-ECONOMY PARADIGM
Economy	Long-distance control, short-term decisions	Place-based agri-food networks
	Productivity increase through technology-oriented science	Productivity increase through “intensification of ecological processes”
	Mono-culture	Multi-functional agriculture
	Typical actors – large corporate and financial actors	Typical actors – farmer cooperatives, small to medium size family firms
Technology	Technology development driven by corporate actors/ high-tech suppliers	Technology development as a demand driven process
	Reduced role of the state in setting research agendas	Local and traditional knowledge contributing to set research agendas
Socio-cultural	Sense of dependency	Sense of autonomy
	Loss of agricultural employment	Labour and skills intensive
	Instrumental relationship between humans and nature	Multiple synergies between society and nature
Ecological	Ecological and genetic engineering	Agro-ecological principles emerging from specific socio-ecological contexts
	Lab based experimentation and field trials	Knowledge co-production and dissemination
Spatial	Globalized/export-oriented/use of external factors of production/“space of flows”	Locally embedded/use and conservation of local resources/primarily a “space of places”

Own elaboration, adapted from Marsden (2012), and complemented by the authors based on Busch (2010), Levidow (2012), and Primdahl and Swaffield (2010).

The financialization of agriculture has been facilitating the phenomenon of farmland concentration in the European context. Following the 2008 global financial crisis, farmland gained renewed importance as a commercial asset and a new category of investors emerged. Adopting a strategy of “portfolio diversification”, a number of European banking groups, pension funds and insurance funds have created specialized agricultural investment funds, with a view to invest in farmland, spread risk, and profit from a boom in agricultural commodity prices (Van der Ploeg, Franco and Borrás 2015). As Ferrão (2016) notes, there should be particular concern with farmland concentration; the expansion of the bio-economy paradigm; and the extent to which the first is paving the way for the second.

TOOLS FOR A GEO-HISTORICAL ANALYSIS OF SUSTAINABILITY IN RURAL TERRITORIES

The “social” constructs the “spatial” in multiple ways (Jessop et al. 2008). Notions of place, for example, emerge out of a common sense of attachment, proximity, identity, strong social relations, and local differentiation. They constitute a specific set of socio-spatial relations and result in spatial identities that, in the case of Alentejo, often link local and regional identities to multi-functional agricultural landscapes with high ecological value, such as traditional olive groves (Gómez-Limon and Riesgo 2012). Naturally, notions of place are highly dynamic, particularly under urban-financial capitalism and agricultural intensification.

Our analysis is empirically grounded on the observation of emerging actors in the sphere of agricultural production, which, by enrolling new market institutions, technologies, plant varieties, specific types of scientific knowledge, and labour, often of foreign origin, are decoupling agricultural production from its underpinning social and ecological systems. Our departure point is therefore the change in the nature of actor-networks, while our final target is the changing notions of place, particularly via processes of de- or re-territorialization (Ferrão 2016). The notion of territorialization refers to the spatial embeddedness of an economic activity in a given place, within local knowledges, place identities, and regional ecologies. It occurs therefore in the presence of strong and mutually reinforcing linkages across the economy-community-ecology triangle. The concept relates to an interpretation of

sustainable rural places such as those that are territorialized, i.e. well-rooted both socially and ecologically (Baptista 2011; Marsden 2013; Ferrão 2016).

The recent Portuguese geo-history holds key information about the dynamism of economy-community-ecology linkages in the Alentejo. The region witnessed a state-led process of re-territorialization between the 1880s and the 1950s, when vast portions of bushland were cleared for agriculture, and the multifunctional agricultural landscape gained prominence. Its core drivers were the construction of new transportation links (roads and railways) to national and international markets; the availability of chemical fertilizers, allowing sufficient productivity in poor soils; and, most importantly, a large scale campaign (1929-1935) to promote wheat production (Roxo 2000). In effect, the Alentejo was assigned the role of the nation's breadbasket.

Unfortunately, the soils of the region were (and remain) too poor to fulfill this political assignment. The ecological consequences of this re-territorialization trend were serious and were visible in the depletion of organic matter in soils (Roxo 2000). This less visible process of environmental degradation must be seriously considered when assessing the sustainability of current policy and market incentives for agricultural production in this region.

Following this first period, the expansion of urban-industrial capitalism in the period from the 1950s-1980s introduced, according to Ferrão (2016), new trends that destabilized previous links between economy, community, and ecology, namely:

- ecological decoupling, as new technical and scientific knowledge made baseline environmental conditions considerably less relevant;
- sociocultural decoupling, through which progressive urbanization stimulated the dissemination of urban values and discouraged those associated with rural ways of life;
- institutional decoupling, in which a command-and-control administration system devalued or dismantled proximity-based decision-making mechanisms such as neighbourhood councils;
- functional integration of the rural into the sphere of the urban, as a result of a decrease in agricultural employment, urban-industrial expansion, and greater rural-urban mobility.

In the late 1980s a second round of urban-industrial capitalism expansion started in Portugal, triggered by the country's entry into the European Union

(then European Economic Community). New visions and narratives sought to bring about a post-agricultural rural in which socio-cultural and ecological identities are adequately valued (Ferrão 2016). These are having a limited impact, however (Figueiredo 2011).

The trend of agricultural modernization continues, particularly in rural areas with: (i) predominantly medium and large properties; (ii) adequate climatic conditions and access to natural resources (e.g. water), especially those with irrigation infrastructure; (iii) better connections to larger consumption centres. The first two conditions are particularly obvious in the Alqueva region. In general, current agricultural modernization in Portugal is leading to further de-territorialization (Baptista 2011; Ferrão 2016), driven mainly by the intensification of agricultural production and mechanization and by a continued process of depopulation, ageing, and migration.

Ferrão (2016) notes that a bio-economic approach to agricultural modernization tends to aggravate de-territorialization. While well-resourced economic agents use highly sophisticated scientific knowledge to construct an artificial “nature” on an industrial scale, links with local communities are also very weak or non-existent (Marsden 2012).

Throughout the chapter, the analysis of the geo-historical process of de- or re-territorialization is aided by an investigation of the assembling and reassembling of actor-networks, inspired by Latour’s Actor Network Theory (1999), and its application in agri-food systems research (Stuart 2010). We therefore define actor networks as heterogeneous networks comprising social and institutional elements and enabling material/technological elements. Nevertheless, we add emphasis to the role of social power and asymmetries in social power, which we see as constitutive of social constructions of space.

INTENSIFICATION OF OLIVE OIL PRODUCTION IN THE ALQUEVA IRRIGATION SYSTEM: TRENDS AND DRIVERS

The Alqueva dam and irrigation system is located in Alentejo, southern Portugal. In administrative terms, the Alentejo comprises 47 municipalities covering an area of 31,551 km² representing a third of the total area of the country. The region is well known for its characteristic rolling plains and flat landscapes. It is characterized by a Mediterranean mesothermic climate with

hot summers (Aug 31–32°C Tmax) and mild winters (Jan 6–7°C Tmin) and total mean rainfall value of approximately 600–750 mm per year, with the rain falling mainly during autumn/winter and early spring (IMP 2008). The population density of the region has been continuously falling over recent decades, and in 2014, it stood at 23.2 inhabitants per km², while the national population density was 111.8 inhabitants per km² (INE 2018).

The construction of the Alqueva dam was concluded in 2002, when the infrastructure was effectively established and the reservoir began to fill. It currently represents the largest artificial lake in Europe, with 4,150,000,000 m³ of water storage capacity. Despite recent historic drought records it was at 70% of its capacity in November 2017. The first irrigation blocks became operational in 2004 and in 2015, 117,666 hectares were covered by the infrastructure (EDIA 2016). Figure 10.1 shows the Alqueva irrigation system, including both the first stage of the project concluded in 2016, covering up to 120,000 hectares, and the second stage that will add 49,427 hectares to the system in the period between 2018 and 2022 (Agência Lusa 2017).

Figure 10.2 shows how olive groves expanded and areas benefiting from the water provided by the Alqueva irrigation system. In 2017, the percentage of

Figure 10.1 *Map of the Alqueva irrigation system*

Source: www.edia.pt.

Figure 10.2

Map of the olive grove expansion and intensification in Alentejo between 2006 and 2012.

land used for irrigated olive groves (intensive and super-intensive plantations) was 57% in the Alqueva area of influence, with the second most popular crop (almond groves) covering less than 10% of irrigated land (EDIA 2017).

Marques (2015) has shown a 20-year trend toward intensification, specialization on commodity production, and professionalization of workforce, noting that the turning point was the start of the operation of the first Alqueva irrigation blocks in 2004. Figure 10.3 illustrates the contrast between traditional and 21st century olive grove landscapes

Information from media analysis, semi-structured interviews, and focus groups identifies a general shift in the system, involving the emergence of new investors and a wider variety of crops, which is also visible in the olive oil sector. We handpick some signs of this trend: (i) PepsiCo investment in peanut production; (ii) multi-nationals with foreign HQ contract local farmers for vegetable provision (e.g. onion), determining which seeds or production inputs (i.e. fertilizers and pesticides) to use; (iii) English companies make

Figure 10.3*10.3a — A traditional olive grove.**10.3b — A super-intensive olive grove.*

contracts for the production of poppy in similar manner; and (iv) the largest retailer and distributor company in Brazil buys olive oil from new super-intensive olive tree plantations.

Regional statistics for Alentejo show an increase in both olive grove area and olive oil production. In 1998 olive groves occupied an area of 144,759 hectares (22,238 of which were irrigated). In 2015 olive groves occupied 169,869 hectares in the region. Among these, 49,026 hectares were irrigated and 31,128 were located in the Alqueva irrigation system (INE, 2015; DRAPAL, 2015; EDIA 2016). Naturally, this radical change was translated into litres of olive oil produced: from 118,000 hectolitres in 1998 to 866,204 hectolitres in 2015, with an exponential shift after 2008. As a result, national statistics from 2015 show that the country is now able to satisfy internal demand and has become net exporter of olive oil (INE 2015).

In general terms, between 1999 and 2009 the number of farms with over 100 hectares of agricultural land in the Alentejo has increased, while all other categories of smaller size farms have declined (INE 1999 and 2009, in Marques and Carvalho 2017, 28). In the case of olive oil production, and the evolution of the number and size of farms dedicated to this production between 1999 and 2013, statistical data show that the number of farms with more than 100 hectares has increased significantly (from 136 to 250), with a decrease in the number of all other smaller size farms (INE 2015; DRAPAL 2015). The traditional farm structure in olive oil production, with a majority of smaller size farms and few properties with more than 100 hectares, is therefore undergoing rapid change, particularly in areas with access to irrigation.

PUBLIC REGULATORY FRAMEWORK, POLICY, AND INVESTMENT

The most cited national legislation concerning land use for olive oil production is *Decreto Normativo 1/2002*, approved by the Ministry of Agriculture, Rural Development and Fisheries, forbidding, in principle, the destruction of existing olive groves without public permission. A recurring reference in focus group discussions was the often granted permission to replace old groves with imported fast growth/high yield olive tree varieties such as Arbequina.

The public company – EDIA – manages the Alqueva Multi-Purpose Project, charging irrigation water and irrigation conservation fees according to national legislation. Payment of conservation fees is compulsory for all landowners in the system, regardless of whether they choose to irrigate or not. The irrigation conservation costs make intensification capacity more dependent on access to capital or credit (EC, 2014; Fragoso and Marques, 2009). The cost of Irrigation Conservation Fees (55 Euros/hectare for water provided with higher pressure and 20 Euros/hectare for water provided on low pressure in November 2017) is a significant driver for smaller farmers to sell to private investors/companies interested in large-scale intensive farming. According to discussions during focus groups, Alqueva is driving a “true agrarian reform”, giving the land to those who want to farm it, i.e. those who want to farm it intensively.

At the same time, low water prices are granted to all to promote competitiveness of the agro-business in the region. In April 2017, a cross-ministerial decision (Despacho 3025/2017) was taken to lower the prices of irrigation water by 20% for farmers using water in high pressure and 33% for farmers using water in low pressure. This represents a *de facto* increase in the public subsidy awarded to all farmers in the irrigation system. A state-led policy of irrigation expansion oriented to agricultural exports is therefore an important driver of intensification and financialization of agriculture in the newly irrigated lands of Alqueva.

In addition, a food sovereignty argument seems to be a complementary driver. Both media and policy-makers emphasize the fact that Portugal is now self-sufficient in olive oil, and that a national surplus is enabling exports. This analysis was contested by some focus group participants, who argued that most olive oil produced in Portugal is exported (that with the best quality) and most of the olive oil consumed in Portugal is imported (that with lower quality). This is confirmed by Freire (2017).

While subsidies from the European Union Common Agricultural Policy (CAP) are decisive for extensive olive oil production businesses, intensive producers consulted argue that CAP subsidies are simply a welcome bonus. The latter rely on large scale exports of olive oil, sold in bulk and treated as a commodity rather than a differentiated high-quality product. Nevertheless, interviewees and focus group discussants highlight that CAP support to large-scale intensive producers is still larger in absolute terms. These producers have greater capacity to prepare applications and meet complex subsidy requirements than smaller or traditional producers.

PRIVATE INVESTMENT

A clear indicator of the influence of corporate agricultural businesses in the Alqueva system is the fact that between 2009 and 2013 corporate farm ownership in Alentejo increased by 33% and fell 10.6% in the case of individual producers (Marques and Carvalho 2017). Interviewees and focus group participants confirmed that the large majority of new investments in olive oil production are being carried out in the Alqueva irrigation system.

Both media and academic literature indicate that the development of intensive olive groves is expensive and strongly associated with foreign capital investment (Pires 2012; Pires and Neves 2013). Our media analysis revealed that the majority of actors in the intensive and super-intensive olive oil business aim for maximum agro-industrial competitiveness; highest possible levels of production (intensification and upscaling); technological innovation (irrigation, crop and soil protection, harvesting and transformation); large-scale marketing with limited information on product specification; and financialization through, for example, alliances with risk investment funds. A paradigmatic example is Sovena and its joint venture with the venture capital company Atitlan Alpha, seeking to buy farmland and olive orchards. The company owns approximately 10,000 hectares of intensive and super-intensive olive groves spread across 57 properties (Crespo 2010) and two large olive oil processing mills. Overall, our media analysis revealed that the benefits and advantages of intensive olive oil production for rural development permeate the media with little discussion about alternatives, disadvantages, or unintended consequences.

THE ACTOR-NETWORKS EMERGING FROM THE INTENSIFICATION OF OLIVE OIL PRODUCTION IN THE ALQUEVA IRRIGATION SYSTEM

This section identifies and characterizes the core elements and dynamics of actor-networks associated with intensive production of olive oil in the Alqueva system. Figure 10.4 provides an abbreviated illustration of these elements. Regarding the social elements of these networks, related agri-businesses tend to be managed by young highly specialized managers and technicians, many of whom are foreign to the region. In order to cover demand for cheap workforce, unskilled staff are sourced by employment agencies in Eastern Europe, Nepal, and Thailand for short periods of time.

To allow mobilization of financial resources, some of these new producers have created partnerships with venture capital funds (e.g. the Spanish firm Atitlan Alpha) (Crespo 2010), and/or received support from investment funds (Caixa de Crédito Agrícola; Santander). Intensive olive oil production requires a high level of initial investment and is feasible only for those with access to sufficient financial capital. As to state-led organizations, EDIA plays the main role in implementing and charging water and irrigation conservation fees, mediating access to fundamental factors of production – water and the set of technologies and infrastructures that distribute it to each of the farms serviced. This irrigation infrastructure is operated and monitored in real-time.

In close association with the Alqueva project, the Operational Centre for Irrigation Technologies (with the Portuguese acronym COTR) was created in 1999 with the aim of promoting regional development through irrigated agriculture. It constituted the only instrument of the Portuguese state to promote collaboration and knowledge dissemination amongst farmers and agri-businesses adopting irrigated agriculture. COTR is a non-profit association, fully funded by the Portuguese Ministry of Agriculture and Regional Development until 2015, involving EDIA, a range of farmers' associations, regional municipalities, and universities. It operates on a project basis according to the priorities of its associates, and currently focuses on water use efficiency and related technological solutions.

The Portuguese government agency aiming to promote trade and attract foreign investment (AICEP) also plays an important role in facilitating financial flows underpinning intensive olive production. Bottling of bulk olive oil and distribution to retailers and consumers worldwide are often done by Italian and Spanish intermediary firms selling to their network of Italian restaurants

and Spanish shops worldwide. Italian traders, for example, mix, bottle, and commercialize Portuguese olive oil using labels “Italian produce of EU origin”. Italian agents compete on the ground for access to Portuguese olive oil, which they generally consider of good quality. Before being able to sell to Italian intermediary firms, a certification of the product quality is required; this process is carried out by independent certification agencies (e.g. Agricert or Certis) set up in the Alentejo. Intensive producers are closely aligned with large-scale market operators and distributors (DRAPAL 2015).

The most striking material component of the new actor-network is the dominance of new varieties of olive trees that are fast growing/high yield/short lived, mainly Arbequina and Picual, which originated in Northeast Spain (SUFISA Focus Groups). These highly productive olive trees yield their first crop when only three years old, but have a very short life span (*circa* 14/15 years).

Figure 10.4

An abbreviated view of the actor-network associated with the intensive olive grove agribusiness

Source: own elaboration.

With the aim of maximizing production and saving resources, the latest technologies manage irrigation, inputs application, and harvesting in the case of super-intensive olive groves, with high levels of precision. There is also a perception of intense use of agro-chemicals (especially herbicides), which remains contested by intensive producers on the basis of their economic incentive to save on inputs whose application is minimized through the use of precision technology. The transformation into olive oil is done in high tech olive oil mills built by the largest investors. Rather than selling the olive oil by the bottle, many of these businesses sell the largest proportion of their production in bulk. The olive oil is then transported in tank trucks with purchase prices set by the tank-load to facilitate international trade.

Non-human elements of this actor-network include the fishing eagle (*Pandion Haliaetus*) and an endangered endemic plant *Linaria Ricardoii*. Their presence is invoked to help producers in intensive production modes legitimize the sustainability of irrigation and intensive agricultural practices (Campos 2017).

SOCIAL AND ECOLOGICAL IMPLICATIONS OF NEW ACTOR NETWORKS

In view of the rapid emergence of the new actor-networks, key implications for economy-community-ecology links need to be considered. Firstly, we can observe a de-coupling of land from the previously dominant social fabric, accompanied by an active effort by public entities to re-wire newly irrigated land with the new actor-networks. Participants in the projects underpinning this analysis perceive the linkages between the new agriculture and local communities to be weak.

The permanent staff needs of large firms associated with intensive forms of agricultural production are often covered by a few young and highly skilled individuals, most of whom are foreign to the region. As to the seasonal employment opportunities, these are often covered by employment agencies importing cheap labour from Eastern European and Asian countries (Guedes 2018). At the same time, there is a widespread perception of a lack of labour (skilled or not). This was mentioned by some focus group participants as a significant factor fuelling decisions to transform extensive production systems into super-intensive ones, which are fully mechanized.

From a farmer's perspective, the fact that EDIA's irrigation conservation fee per hectare is equal for all farms, on which the infrastructure is installed regardless of their consent or socio-economic situation, is seen as driving a detachment between agricultural land and farmers with traditional production practices. This, in association with the 2002 ministerial decree allowing the replacement of old olive groves by new ones of different varieties, is effectively dismantling the pre-existing actor-network of extensive olive oil production in the area covered by the Alqueva irrigation system.

Key elements of this extensive farming actor-network are long-lived, traditional, Portuguese olive tree varieties (e.g. Galega, Cordovil), older farmers with fewer technical skills, often as family businesses with occasional help from foreign unskilled labour. Pre-existing actor-networks are based on economies of scope (differentiated, traditional products, and associated ways of life), and are highly dependent on subsidies from CAP, including pillar II agri-environmental schemes. Commercially, they target the local and national market and benefit from labelling as produce of protected origin (with the Portuguese acronym DOP – *Denominação de Origem Protegida*). Some agro-tourism is also found in association with extensive olive groves. National and regional statistics of 2015 (INE) reveal that since 1999 an increasing number of small farmers in the olive production sector have declared bankruptcy. More traditional farmers linked to extensive agriculture are showing very limited capacity to adapt to new physical infrastructures and market demands (Pinto-Correia and Azeda 2017).

All of the factors and elements discussed above reveal a set of flows that help characterize the dynamism of economy-community-ecology linkages, namely financial and commercial flows, knowledge/information/data flows, labour flows, and production input and output flows connecting farms to wider ecological systems.

For a preliminary assessment of the environmental implications of new dominant actor networks, we focus on public environmental goods defined by Portuguese authorities as being particularly vulnerable to degradation in the context of intensive olive tree plantations – soil fertility, water quality, and biodiversity (DRAPAL 2009).

We should start by noting that the severity of environmental impacts often associated with the intensification of olive oil production is highly debated in the media. While there is a lack of scientific evidence regarding its effects over time in Portugal, signs of concern are often dismissed by

super-intensive producers on the basis of benefits for carbon sequestration, presence of certain species (e.g. rabbits), the lower water requirements, and use of agro-chemical inputs in comparison with crops such as maize (SUFISA Workshop 09/2017).

Portuguese government entities have identified a significant risk associated with intensive olive tree groves, particularly for soil fertility, water quality, and biological diversity in soils. The fast increase in the area of intensive olive groves in Alentejo led the Portuguese Ministry of Agriculture, Regional Development and Fisheries to set up an Olive Grove Working Group (Portuguese acronym GTO) in 2008 (DRAPAL 2009). The GTO was led by INIAV (the Portuguese acronym for the national institute for agronomic research), and comprised DGADR (the national Directorate-General for Agriculture and Regional Development), DRAPAL (Alentejo's regional directorate for agriculture and fisheries), and GPP (the national office for planning and public policy of the Ministry of Agriculture).

Due to a lack of financial and human resources, the GTO investigated the situation adopting a case study approach, instead of a statistically significant sample definition. For the same reason GTO members found it impossible to accompany soil erosion in newly irrigated olive groves over a significant time period. The case studies were chosen according to their distribution across municipalities and different soil types. On this basis, GTO experts selected 29 farms with intensive olive tree plantations (with over 200 trees/ha), 7 farms with super-intensive olive tree plantations (with over 1000 trees/ha), and a further 11 farms that are actively engaged in extensive olive oil production (under 200 trees/ha), for comparative purposes. The average production of olives per hectare in 2008 for super-intensive, intensive, and traditional plantations was found to be 9.1 tons/ha, 5.6 tons/ha, and 1.2 tons/ha, respectively. Key findings from this study are included in the analysis below.

Marques and Carvalho (2017) warn that the sustainability of irrigation agriculture is insufficiently researched, especially with respect to soil contamination and salinization. In his turn, Serralheiro (2017) emphasizes that a high risk of erosion and salinity exists for vertisols and luvisols, which constitute the most predominant soil types in the irrigation blocks served by the Alqueva dam.

An interviewee from a small farmers association (Guadiana Adaptativo 21/10/2016) emphasized that the longevity of intensive olive orchards is short (*circa* 15 years), and that, on the basis of information about Spanish intensive

olive groves, soils in the region are unable to hold more than two cycles of olive tree growth on account of serious soil degradation.

Among the main findings, GTO experts note that the amount of nitrogen-based fertilizer in intensive olive groves was twice that of traditional groves. Information collected for super-intensive groves conflicted with other previously available and thus remained inconclusive. As to the amount of phosphorous-based fertilizer, in super-intensive and intensive groves it was similar in both cases, but it was *circa* 32% higher than in traditional groves. Glyphosate was the most used herbicide in all types of olive tree groves, and was the only herbicide used in super-intensive groves. In 15% of the traditional and intensive groves, quantities applied surpassed those authorized. The consequences of this excessive herbicide use on water quality through seepage processes were not assessed in any of the case study farms.

One scientific expert interviewed (GuadianAdaptativo 10/11/2017) considered the presence of a monoculture to be a factor of high risk; and more so when one considers the lingering “myth” that soil erosion is only significant in fields with a slope. This disregards soil erosion processes in plain fields, including those areas previously used for wheat production throughout the 20th century in areas now occupied by intensive olive groves. Soil erosion is cited in the scientific literature as one of the principal environmental problems associated with olive farming in Mediterranean regions (Vanwalleghem et al. 2011). The Alentejo is no exception (Neves, Pires and Roxo 2013).

From the perspective of production input flows, good water quality is needed for irrigated land to be washed of excess salts and retain productivity (Serralheiro 2017). However, the GTO (DRAPAL 2009) found that in 94% of the cases analysed, the levels of bicarbonates exceeded the maximum thresholds advised for irrigation water; and in 39% of cases the levels of nitrates in the water were also excessive. This represents a considerable risk for already fragile soils. In relation to production output flows, deterioration of groundwater quality by excessive input of nitrates in intensive agriculture was reported in Ferreira do Alentejo (ClimAdapt interview 02/07/2015), where drinking water is supplied by the “Gabros de Beja” aquifer system. Although the aquifer system has been classified as a vulnerable zone under the European Union’s Nitrates Directive, its quality has continued to decline.

Regarding the ecological indicators of the impact of land use change and production output flows on water quality, Matono, Sousa, and Ilhéu (2013) examined a set of olive groves with different levels of intensification in the

Alentejo region, while comparing these with reference sites with little human disturbance. The authors' findings reveal that as intensification increases, water quality indicators show a deteriorating trend, particularly nutrient and sediment loads. They indicate that soil erosion and water runoff into nearby streams are a major source of suspended sediments, nutrients, and pesticides in watersheds. In addition, ammonium nitrite, total phosphorous, and phosphate concentrations showed increasing trends. As far as these indicators are concerned, these authors found that traditional olive groves are not significantly better, especially those with grazing animals, which are a significant source of organic matter and nutrient pollution in nearby waterways.

According to findings shared by Matono, Sousa, and Ilhéu (2013), a decrease in fish variety, habitat diversity, and continuity exists in streams close to the most intensive olive groves. There are also signs that the removal/deterioration of riparian vegetation is taking place in all types of olive groves, and is destroying the habitat of fish populations, especially of endemic and highly sensitive populations. Experts of the GTO (DRAPAL 2009) noted a significant decrease in the richness and diversity of vascular plants in the most intensive olive groves. The number of species present in these olive groves was 49% of those found in traditional groves. Dias (2018) also mirrors local stakeholder findings that are important to consider, including the coverings of streams and the absence of pollinators.

The predominance of alien olive tree varieties in intensive olive tree plantations, specifically the Spanish varieties Arbequina and Picual, was perceived by SUFISA focus group participants as a significant risk for genetic diversity. Traditional varieties (Galega and Cordovil) cannot produce similar yields under irrigation, and are being gradually less used. Yet, it was also noted that olive oil that is produced exclusively on the basis of Arbequina and Picual does not last once bottled. Olive oil durability is enhanced through the combination of varieties, particularly olive oil produced with traditional varieties, necessarily in an extensive production regime.

One finding of the DRAPAL (2009) cuts across the three types of public environmental goods highlighted here. In most farms surveyed there was no systematic record of the quantities of inputs used (phytopharmaceutical products, fertilizer, water volume) or of quantities of water in soils; and in none of the cases was there any monitoring of soil erosion processes.

CONCLUSIONS

This chapter addresses some of the new actor-networks emerging from the process of agricultural intensification in the context of the Alqueva irrigation system and olive oil production. The authors investigated the ways in which these actor-networks are rapidly changing previously existing links across economy, community, and ecology in the region, and we explored the consequences that this rapid transformation may hold for the sustainability of social-ecological systems.

This chapter shows that the actor-networks emerging from the intensification of olive oil production in the Alqueva region favour social and ecological elements that are foreign to the Alentejo, and represent a unique assemblage of human and non-human elements in the wider Portuguese context. From foreign skilled and unskilled labour, to fully mechanized harvesting and Arbequina olive trees in extremely dense and short-lived groves, new actor-networks are becoming the dominant socio-economic force, inevitably causing profound change in links across economy, community, and ecology in the case study area. This trend faces no opposition, as the previously dominant actor-network in the region has not been able to resist it or promote reflection on potential disadvantages of the on-going transition.

The new input/output flows associated with more intensive olive oil production, coupled with specific technological solutions and practices (ever higher tree densities, the cutting of riparian vegetation, more intensive use of agro-chemicals), are dissociating the agrarian economy from the ecological conditions underpinning it. Although there is currently no comprehensive assessment of the extent to which intensive and super-intensive olive production patterns are impacting ecological systems in Portugal, we found a significant amount of objective data from agronomic and life sciences research that indicate the high risk involved. On their side, the new dominant actors, very much in line with a bio-economic vision of agricultural modernization, associate themselves with the concept of sustainable intensification by stressing greater carbon storage capacity, and their use of precision technology for an efficient use of water, fertilizer, and pesticides, used only where and when needed.

In addition, a decoupling between economy and community is equally evident. The unavailability of local labour is playing a role and inducing two types of strategies: (i) the hiring of employment agencies to source cheap

foreign labour to work; and (ii) the conversion of extensive and intensive production into super-intensive and fully mechanized production, which results in further degradation or loss of the environmental public goods discussed. Unfortunately, we found that unskilled foreign labour tends to be tied up to a situation of poor working conditions, and no opportunity to create a connection with local communities or the ecological system. Although no representative survey has been conducted to allow a definite conclusion on the extent to which new trade, financial, and labour flows are disconnecting new actor-networks from local communities, our study gathers sufficient qualitative indicators to identify new high risk trends.

The findings suggest, therefore, that the new agrarian economy based on intensification is promoting a double decoupling process: a decoupling from the surrounding communities, in a context of local communities shrinking through emigration and aging, and a parallel decoupling from the underpinning ecological processes.

In a longer-term perspective, two types of de-territorialization seem to be succeeding one another. First, the departure through emigration of those with a greater sense of community belonging and attachment to the surrounding natural environment. As a consequence, the natural environment and ecological systems that previously supported local livelihoods are not conserved and valued in the same way, becoming more easily appropriated by external actors concerned with maximizing short-term agricultural production. This raises the expectation that once a territory suffers de-territorialization through “social emptying”, it is more vulnerable to de-territorialization through “resource extraction”, particularly concerning soil fertility, good quality water, and biodiversity, as shown in section v.

The double-decoupling process seems to have left a vacuum in which no actors feel responsible for the rural community or the environmental systems that underpin it. In the absence of other forms of intervention by public, private, and local community actors, de-territorialization can only increase in speed and intensity.

A few policy recommendations may be distilled. First, existing and novel governance processes need to be engaged in an expansion of problem framing to enable the identification of new solutions in line with climate change adaptation needs for the Alentejo. These consistently predict a decline in the environmental capacity to absorb human disturbance, such as less water in rivers and aquifers to dilute pollutant loads. This will require a

change of mind-set from supply management to demand management and risk avoidance. A second recommendation is to foster greater alignment of new actor-networks with sustainability goals, especially in view of the new sustainable development goals set for Portugal for the period up to 2030. This could mean, for example, that public irrigation systems include a new objective: to provide support water flows for those extensive traditional systems particularly disturbed by climate change and the significant change in the patterns of precipitation that it is bringing to the Alentejo region. Overall, climate change adaptation and sustainable development objectives demand us to re-imagine the role of irrigation in support of local social and ecological systems rather than promote water intensive crops or varieties in an increasingly arid region.

Moving forward toward a more sustainable form of agricultural intensification will require a greater investment in governance processes, particularly those at the biophysical scale, such as the landscape or the hydrological unit (i.e. the river basin). The complexity of the current and foreseeable challenges demands stronger collaboration amongst stakeholders with a view to facilitate information access, recognize risk, and build capacity to experiment, monitor, and learn practices that conserve and protect public environmental goods. This also requires a science policy that is better adjusted to the needs of knowledge co-production and greater involvement of social scientists as intermediaries across different forms of knowledge.

Future research should investigate the relationship between new and old actor-networks, and how they differ in their socio-spatial strategies, including those concerned with geographic scale. The politics of scale of the actors investigated in this chapter revealed links to specific notions of sustainability, food security, food sovereignty, and indeed territorial sovereignty, that remained unexplored. Future work could also usefully document the emergence of hybrid business models in the olive oil production sector, combining elements of the eco-economy and the bio-economy paradigms. Finally, further research should consider a comparative geo-historical analysis between Alentejo and Spanish regions where processes of intensification of olive oil production have been occurring for longer, and local stakeholders are already implementing measures to counteract the negative social and ecological consequences associated with this profound change in the agricultural landscape.

» ACKNOWLEDGEMENTS

The authors would like to gratefully acknowledge the support of the Portuguese Foundation for Science Foundation, which funds the work of the first author through a post-doctoral scholarship (reference SFRH/BPD/113091/2015). Research in the SUFISA project reflected in this publication has received funding from the EU's Horizon 2020 research and innovation programme under Grant Agreement No 635577. Research in the ClimAdapt.Local project was funded by the Adapt programme of the Portuguese Carbon Fund, managed by the Portuguese Environment Agency. The Adapt programme and the ClimAdapt.Local project were co-financed by EEA Grants at a rate of 85%. Responsibility for the information and views set out in this publication lies entirely with the authors.

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CITE THIS CHAPTER AS:

SILVEIRA, A. et al. 2018. “The sustainability of agricultural intensification in the early 21st century: insights from the olive oil production in Alentejo (Southern Portugal)”. In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 247-275.
<https://doi.org/10.31447/ics9789726715054.10>

11.

Digital technologies in the transition to a sustainable energy system: knowledge-related challenges from everyday life

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INTRODUCTION

Over the last decade digital technologies have developed very quickly and their widening use is fuelling visions of networks of intelligent objects, all connected to facilitate everyday life and give feedback to users, providers, and officials, so that resources are used more efficiently, and citizens in some Western countries feel engaged, willing to take more active roles as consumers, and thus enabling creative and smart solutions for current sustainability problems (Verbong et al. 2013, Beaulieu et al. 2016, Hyysalo and Juntunen 2018). A transition to energy-efficient and low-carbon systems is one of the most pressing of these problems, as it would help to reach climate change goals, as well as improve the security and reliability of energy supply. A wide range of information and communication technologies, from smart grids to smartphones and “smart building solutions”, are expected to enable energy savings and reduce carbon emissions.

However, this transition poses many challenges, the needs for government agencies, utilities, and companies to engage individuals being some of them. Since the growing pervasiveness of these technologies raises questions regarding privacy and individual rights, and possible consequences are difficult to foresee, the increasing acceptance and adoption of digital technologies are uncertain. Moreover, although digital technologies may empower citizens, their complexity is likely to widen the divide between groups – between those with and without the skills to use these technologies (in the ways prescribed by developers), and also those who ignore such technologies. Individuals’ knowledge is thus a critical issue, which has been considered even more important than access to technology. Notwithstanding the relevance of social inequities in access to digital technologies, several authors have argued for the need to go beyond the study of access in order to capture nuances to the digital divide that are related to the ways in which individuals use technologies (Ragnedda and Muschert 2013). This seems even more pertinent regarding rich Western societies, which are the focus of this chapter.

Research on the forms of knowledge related to individuals’ dispositions to interact with information and communication technologies is needed. However, the mainstream view on the role of digital technologies in the transition to sustainable energy systems is based on the assumption that individuals need more knowledge about these technologies (Hargreaves et al. 2013), in accordance with the long-standing supposition that the public is

ignorant of science and technology and therefore needs to be informed (Irwin and Michael 2003). That is, given more information, and with the appropriate skills, individuals would be more likely to engage and take personal action toward sustainable solutions. This view does not account for the diversity of ways that knowledge is part of individuals' everyday lives.

In accordance with recent strands of research that emphasize the need to investigate forms of knowledge that go beyond traditional sociological standpoints, this chapter explores how individuals deal with these technologies in their everyday life and, in particular, how they deal with what they do not know, do not want to know, as well as how they strategically use ignorance in the pursuit of benefits unanticipated by developers and policy-makers. Thus understood, this chapter is part of the emerging field of *ignorance studies* that does not treat ignorance or nonknowledge as the mere absence of knowledge, but as a realm with a social and political life of its own (Gross and McGoe 2015).

The chapter starts by presenting the mainstream view of how digital technologies can contribute to a sustainable energy transition, with a focus on the role attributed to householders' information about these technologies and how this has been narrowly discussed as a deficit of knowledge. Technological determinism and rational choice are influential frameworks in the mainstream discourse on the topic, but have led to a utopian perspective on energy transition. The chapter deconstructs this utopia by referring to the complexity of relations between users and technologies, focusing in particular at the household level. The concept of non-knowledge is then presented as a necessary element in understanding individuals' involvement with these technologies. Not knowing does not necessarily mean a barrier to social acceptance of digital technologies – it points to the uncertainty and unpredictability of ways users can deal with these objects. By presenting several empirical examples of different forms of non-knowledge of digital technologies, as well as diverse types of information and communication technologies (not just the so called “smart energy technologies”), the chapter contributes to an understanding of how interactions with these technologies take the forms they do in order to shed light on the challenges that may hinder the transition to a sustainable energy system.

DIGITAL TECHNOLOGIES AS KEY IN A SUSTAINABLE ENERGY TRANSITION: FROM UTOPIA TO USERS' REAL WORLD

Energy has become an essential element in discourses about sustainability. Although implicitly until the 1960s industrialized western countries had policies based on the assumption that their economic growth depended on access to cheap and abundant energy, debates around the limits of growth and peaks in oil production, beyond which oil would be scarcer and extracting it would be more expensive, have questioned this “cheap and abundant” energy paradigm. In recent years several problems have contributed to put the energy system and its sustainability in political agendas. Besides geopolitical and economic issues – including increasing global energy demand and insecurity about access – combined with concern over climate change, growing investments in renewable sources of energy have also been pressuring the conventional models of energy distribution.

The idea of a transition toward a sustainable energy system has become appealing, as it announces a process of gradual change in which political decision-makers, with the involvement of key stakeholders, steer socio-technical shifts along desirable visions of the future (Meadowcroft 2009). In the European Union, for example, “the clean energy transition” is envisioned as a way to modernize the economy, speed growth, and create jobs, as well as lower carbon intensity. It is also expected that this transition will benefit all consumers, who “should feel involved” (European Commission 2016, 3). These goals are to be achieved through more energy efficiency, investment in renewable sources, and empowerment of consumers - by providing them better information about the energy market and thus “enable them to be more in control of their choices” (European Commission 2016, 10). As part of this transition toward a low-carbon economy, the European Union has been promoting a greater integration of new information and communication technologies (ICTs) in the economy. Also, energy companies have been increasingly investing in digital electricity infrastructure and software as these facilitate management and monitoring (IEA 2017).

Along these lines, widespread integration of digital technologies in home appliances, services, or energy grids is considered key to enhance energy efficiency through remote control and automation, as well as by allowing utilities to adjust to energy demand in real time through smart meters. Information and communication technologies are also expected to enhance a

more active role of consumers, including as “prosumers” of renewable energy. Smart energy technologies – such as meters that monitor energy usage in real time, sensors embedded in devices throughout buildings that predict how much lighting is needed, or programmable thermostats that preheat the home before occupants arrive – are being developed rapidly. Together with artificial intelligence, ambient computing, the Internet of Things, automation, and the electrification of vehicles, these innovations are expected to be implemented at large scale soon. Overall, in mainstream discourses these developments are expected to enable a smarter future. Based on this scenario, digital technologies have been considered a crucial feature in the transition to sustainable energy systems. As an illustration of this thinking, the Global e-Sustainability Initiative, which includes over 30 world leading ICT companies, argues that “ICT can help break the link between economic development and resource depletion, with emissions savings close to ten times those generated by the ICT sector itself” (GESI 2015, 4). The transition to a sustainable energy system is thus taken for granted.

However, the possibilities offered by these new technologies depend on the adoption and actual modes of use by individuals, as well as on the socio-technical contexts in which these technologies are embedded. By itself, having access to digital technologies does not necessarily mean use, or meaningful use, or engagement (Selwyn 2004).

The technological determinism according to which new technologies unleash changes in society has been refuted and shown to be oversimplistic by science and technology studies as well as sociology. Indeed, there are important processes of appropriation of technical objects, and although technologies define frameworks of action in which they are supposed to act, users can redefine them (Akrich 1992). Furthermore, the processes of how digital technologies are appropriated and integrated into everyday life are subject to constant negotiation, as socio-technical contexts are dynamic (Berker et al. 2006). Besides influences from wider socio-technical contexts, such as technological infrastructures and policies, economic models and multinational marketing strategies or cultural frameworks, embodied dispositions and micro-interactions between people, as well as between humans and materials, either at households, workplaces or other settings, also have a critical role in shaping the ways technologies are integrated in everyday life. Meaningful use and engagement with digital technologies thus depend on multiple processes and cannot be considered straightforward.

Yet, although acknowledging the relevance of consumers, a common assumption in discourses on smart energy technologies is the idea that by providing access to information on individuals' own energy consumption (through smart meters, for example), consumers will engage in the potential of these technologies and take control of their energy use in a rational and efficient way, without compromising their lifestyle expectations (Strengers 2015). Indeed, these mainstream discourses expect that the integration of digital technologies in everyday life will enhance the active participation of individuals in the energy system. The Global e-Sustainability Initiative, for example, states in its 2015 report that in order to realize the potential of the ICT-enabled world, "consumers have to take an active role", and what they "should do" is: pressure governments to have access to reliable broadband infrastructure; mass-purchase ICT-related products and services; and adopt "a mind-set that recognizes the opportunities the digital economy can bring to them" (GESI 2015, 98). Also, the Smart London Plan set out as first priority for the future citizen engagement in the development of digital services (Mayor of London 2016).

Only some kinds of social possibilities are examined in these visions. As in other writings that can also be considered technological utopianism, here digital technologies are the central enabling element of a vision of the future that is presented as desirable for everyone. In this genre of discourse, important possibilities that are likely are not discussed (Kling 1996).

Utopian views around information and communication technologies are not new (May 2003). However, in recent years this vision is becoming increasingly central in the thinking on the transition to energy sustainability as if there were no alternative, this pathway could not fail, no unintended outcomes were foreseeable, or there were no contradictions in the relationships people establish with technology. As noted by Yolande Strengers (2015), the assumptions underlying this "smart utopia" have not been sufficiently problematized.

The consumer envisioned in these discourses is "a data-driven, information-hungry, technology-savvy home energy manager, who is interested in and capable of making efficient and rational resource management decisions" (Strengers 2015, 51). Yet, social science research on energy consumption has shown that approaches focused on individuals as if their actions were driven only by information and feedback on their energy use, are not able to fully explain actual practices (Shove 2010; Buchanan et al. 2015; Frederiks et al. 2015; Horta 2018). Even among "early adopters" of smart meters with displays that provide real-time feedback on energy consumption, only some of them

are motivated by a desire to gain more information, and many face numerous issues that limit their ability to change their home energy consumption, including the relevance certain appliances have for them or discussions between household members (Hargreaves et al. 2010, 2013). Indeed, as these technologies enter the private sphere of the home, household dynamics and cultures shape a variety of ways how technologies are appropriated.

In accordance with household's values, interests, daily practices, and the meanings of these objects, technologies are continuously negotiated and redefined in the domestic sphere. However, information and communication technologies pose specific problems since (unlike many other objects) they provide links between the household, individual members of the household, and the world outside – and this is problematic because it may challenge the household's sense of security and control (Silverstone, Hirsch, and Morley 1992). Furthermore, the fact that information and communication technologies can be used to provide detailed information on how individual members of the household use energy (whether, when, or for how long they turn on specific appliances, for example) may be quite problematic since energy use is critical for individuals' comfort and well-being (e.g. room temperature, lighting, or entertainment, for instance), but its cost is often considered a significant burden for the household, and thus subject to control and discussion.

The connection between information and communication technologies and energy use thus raises privacy issues – not just between household members, but also between the household and whoever might have access to data on householders' practices. These concerns have been considered one of many obstacles in the path to realizing the benefits of widespread digitalization in buildings (IEA 2017).

While those mainstream visions on digital technologies take too narrow a view of social reality, a possible unplanned consequence of this pathway may be the emergence of “energy-intensive ‘smart’ lifestyles” (Strengers 2015, 3). In fact, a historical perspective shows that earlier rounds of integration of ICTs into everyday life led to higher electricity consumption (Røpke et al. 2010). As admitted in a recent report by the International Energy Agency (2017), rebound effects from automation and further electrification in the transport sector could result in more travel and therefore more than double current energy use. With regard to buildings, since smart devices and appliances need to maintain their connectivity, energy consumption in standby mode can increase significantly (IEA 2017). In fact, the sum of electricity consumption

of communication networks, personal computers, and data centres has been growing at a rate of nearly 7% per year (van Heddeghem et al. 2014). Even the environmental impact of devices designed to monitor and help manage domestic energy consumption may not be positive, since the energy saved through home energy management systems may not outweigh the overall energy needed for production, use, and disposal of these devices (van Dam et al. 2013). It has also been observed that current policies at the base of the ongoing transition to broadband internet need to focus more on the development of long-term sustainability (Röpke 2012). Thus, not only have the assumptions around individuals' relationships with these technologies been overly simplified, as pointed out by Andrés Luque and colleagues (2014), the possible consequences of smart technologies have not been sufficiently scrutinized and, as often in the past, claims made for the potential of "smart", instead of being realized, may actually reinforce business as usual.

Given the complexity of the range of actors involved and framework conditions governing technological innovation toward societal change, transition processes to sustainable energy systems can be considered real-world experiments, which in many respects means that outcomes cannot be anticipated precisely (Gross and Mautz 2015). In spite of the relevance of understanding how different actors help to socially construct the many unknowns in this process of energy transition, in this chapter we focus on householders. These are often blamed for their "ignorance" or passivity, although actually having limited autonomy (Southerton et al. 2004) and nonknowledge may be among their simplest resources.

In the following sections we focus on knowledge-related challenges affecting the adoption and use of digital technologies, as both energy consuming devices and as "smart energy technologies", i.e. objects designed to provide feedback on energy use and facilitate demand side management. We start by referring to the theoretical background of ignorance studies, which is a novel approach to this area and, we propose, allows us to further understand the new digital unknowns.

NOT KNOWING ABOUT DIGITAL TECHNOLOGIES

Although not named as such, ignorance studies is a relatively old field that extends back to at least the 19th century, if not indeed to the well-known

saying attributed to Socrates: I know that I know nothing. In 2002 the terms known and unknown unknowns received some media attention via Donald Rumsfeld's statement about evidence (or lack thereof) of weapons of mass destruction owned by the state of Iraq. Indeed, the concepts of known and unknown unknowns existed long before Rumsfeld, since much scientific research has been conceptualized as investigating known unknowns or, as Robert Merton (1987) called it, "specified ignorance." In this spirit Michael Smithson's now classic monograph *Ignorance and Uncertainty* (1989) showed that deliberately imposed unknowns can be understood as socially constructed in both ordinary action as well as strategic manipulations. Nevertheless, for the most part, the topic of ignorance has suffered from a lack of scholarly attention. It is only relatively recently that academics have begun to rediscover some of the classical concepts related to ignorance and have addressed it as a subject worthy of investigation in its own right as well as regarding its relationship to decision making in everyday life.

However, as with other terms, streams of ignorance studies have their own conceptual frameworks that are discipline based and therefore often in opposition or completely unrelated to one another (Smithson 2015). In the following we focus on notions of ignorance that we render important toward a better understanding of the way digital technologies in the transition to sustainable energy systems in everyday life are handled. In so doing our approach departs from the view that ignorance must necessarily be rendered as something negative in order to deliver an understanding of how ignorance can serve as a productive resource. In order to be able to act, actors need to agree on what is not known and take this into account for future planning. They often decide to act in spite of (sometimes) well-defined ignorance – or what has more recently been called nonknowledge, a term used to refer to knowledge of what we do not know (Gross 2012). Unlike the term ignorance, nonknowledge points to symmetry between accepted positive knowledge and ignorance that is adequately well-defined. Whereas the term ignorance has many meanings – with connotations ranging from actively ignoring something to not even knowing that something is unknown – nonknowledge is a specified form of the unknown, and it is this greater precision that makes it more suited to the task of analysing decisions. As a generic term, ignorance can be defined as knowledge about the limits of knowing in a certain area; but it can also include unknown knowledge gaps that actors recognize only with hindsight. The latter can be referred to as nescience, which constitutes

a different epistemic category from nonknowledge or ignorance given that no one can refer to their own current nescience because it is not part of their conscious nonknowledge (see Table 11.1 for an overview).

The aim, then, is to specify ignorance so that users of new technologies frame it in a meaningful and constructive way. Our thesis is that in order to use novel digital technologies users need residues of ignorance. This is in accordance to debates on preventive genetic diagnostics and the right not to know that becomes relevant since options for treating and healing possible “diseases” are often very limited (Andorno 2004). The right to nonknowledge is therefore an example that demonstrates that nonknowledge is not necessarily a detrimental state but needs to be understood as a right that should be protected in order to cushion the impacts of the risks, indeterminacies, and uncertainties of using digital technologies.

Research on nonknowledge seems particularly valuable for the understanding of energy use in everyday life. It has been observed that energy consumption is very often invisible or inconspicuous to users as its use is not always as apparent as when someone lights a room, and it is even more unnoticeable to users since they are in fact consuming services provided by energy (such as space heat, cooling or conserving food), rather than electricity itself (Wilhite et al. 1996; Wilhite et al. 2000; Shove 2003; Burgess and Nye 2008). In addition to individuals’ low awareness of some forms of energy consumption, knowledge about energy use (such as how much electricity is consumed by each appliance, how it can be measured, or what exactly does

Table 11.1 *Types of ignorance*

Nescience	Unknown ignorance can only be known in retrospect, but can also be things people are not aware of but in fact “know” (e.g. intuition)
General nonknowledge (broad ignorance)	The acknowledgement that some things are unknown but are not specified enough to take action (e.g. knowing that devices on standby are using energy but not knowing how much)
Active/Positive Nonknowledge	Known and specified ignorance used for further planning and activity in the pursuit of more knowledge (e.g. getting ICT tools to know their energy consumption and make informed decisions about their tariff options)
Passive/Negative Nonknowledge	Known and possibly specified, but rendered unimportant and/or dangerous for the pursuit of new knowledge at this point in time (e.g. “What you don’t know won’t hurt you.”)

Adapted and amended from Gross (2016).

a kilowatt hour stand for), as well as understanding of energy bills, cost, and prices also tend to be low (Kempton and Layne 1994; Attari et al. 2010; Pierce et al. 2010; Cotton et al. 2016). However, in spite of being acknowledged in the literature, these issues have been overlooked in research. The complex ways that knowledge is connected to behaviour have been reduced to a “straightforward link” between information and education, and change in action – albeit one of the most common policy tools, it has usually failed to achieve effective results (Goldblatt 2005, 90). Indeed, dominant approaches have simply prescribed raising awareness through more information, instead of analysing ignorance about energy as a social phenomenon, and view it as regular rather than deviant.

Since the increasing use of digital technologies in everyday life adds further technical complexity and uncertainty to the already difficult to understand domain of energy use, it is even more pressing to analyse how these new unknowns are dealt with. The approach proposed in this chapter may thus shed new light on the process of technological change toward sustainability.

In the following section we present five cases that illustrate how passive/negative nonknowledge and active/positive nonknowledge can be socially constructed as forms of dealing with digital technologies. The examples selected are meant to illustrate different but complementary situations. In the first four cases, not wanting to know and fear of the unknown (i.e. passive/negative nonknowledge) may hinder the acceptance and use of digital technologies in the transition to sustainable energy systems. The last case illustrates how active/positive nonknowledge can be used to successfully cope with digital technologies’ energy consumption, although in an unexpected and not environmentally friendly way.

SOME EMPIRICAL EXAMPLES: FROM NOT WANTING TO KNOW AND FEAR OF THE UNKNOWN TO CREATIVE WAYS OF DEALING WITH IGNORANCE

Users interested in saving energy or money can resort to a variety of digital technologies that provide information on home energy consumption. However, after knowing more about their consumption, except for changing their tariffs and utilities or switching to more efficient appliances, most saving options will revolve around changes in everyday life practices. These changes can either

be small gestures, like setting the washing machine to a lower temperature, or major alterations in daily routines, such as shifting the time of washing to an off-peak one. Given the complexity of elements and connections between elements involved in changing practices (Shove et al. 2012), users may find it difficult to make some changes. Knowing beforehand that they are not willing to change their habits, individuals may not be interested in getting new knowledge that would call into question their current practices, as shown in the following example. Moreover, they may even avoid getting into a situation in which such new knowledge may be a source of stress.

In a US-study, a meter (Kill A Watt) was installed that could assess the electricity consumption of the appliances it is connected to and calculate its cost by the day, week, month, and year. The meter was made available to every participant so that they could monitor their energy use if they wished. In a final interview with users researchers found that not a single participant had ever used the energy meter. When asked about why they did not use it, several participants replied that since they are not going to change their routines, they did not want to know about the cost. One of the answers given is particularly illustrative: “I know I’m not gonna change anyway, so I don’t really wanna know” (Pierce et al. 2010, 4). This case of passive/negative nonknowledge illustrates that individuals may choose not to know if they perceive that it is more important for them to keep their energy consumption patterns – as these translate into services that they feel to be a need or convenience, for example. Knowing the cost of those services could create a cognitive dissonance or anxiety between a value such as saving and their actual practices, about which they may feel unable to escape. The new knowledge provided by the meter could thus constitute a threat to their well-being. Thus, not knowing was constructed as a shield against unease. Indeed, among the participants in this study, even those who routinely made an effort to save energy were not interested in using the meter. Just like in contemporary society more individuals are concerned about time pressure (Southerton 2009), digital technologies’ information on energy consumption may represent a new source of anxiety for householders. Furthermore, the technology itself and the uncertainty of not knowing how to use it can also cause anxiety. Unlike businesses’, policy-makers’, and other stakeholders’ expectations, digital technologies as a means of knowing more about home energy consumption can thus be rejected outright in situations where passive/negative nonknowledge emerges to potential users as a preferable resource.

Besides the issue of users' willingness to change their habits, smart energy technologies have been raising concerns about privacy since these devices, especially smart meters, may be used to identify the electricity consumption of individual appliances, and thus collect information about the devices being used at any time within a home. These detailed data may therefore reveal personal information on users' routines and activities (which can be a source of conflict within households, as mentioned above), or to identify when the house is empty. These technologies also pose security issues. Connected appliances may be remotely switched on or off through digital technologies and hence be subject to a variety of cyber threats, including from natural hazards such as geomagnetic storms. The expansion of these smart technologies in itself increases the risk of cyber-attacks in energy systems due to the massive numbers of potential users affected (IEA 2017). In all these cases in which householders are either not willing to change their everyday life or are concerned about their own privacy, security, or ability to cope with a new technology, not knowing about digital technologies has been a resource for not feeling too pressured, harried, or conditioned. Nonknowledge thus has become an asset to help preserve individual autonomy, freedom, and privacy. From this point of view, instead of damaging individuals' capabilities of possibly reducing their energy consumption (through the knowledge that would be accessed via those technologies), not wanting to know can be strategically used by individuals and hence constitutes a capability in itself.

All these issues increase uncertainty around the social acceptance of smart energy technologies. Yet, in spite of acknowledging the need for user involvement, interviews conducted with stakeholders related to smart grids and the energy sector in the Netherlands showed that these concerns have been overlooked by stakeholders. In fact, users are perceived as potential barriers to the implementation of smart grids, but in general stakeholders expect that energy will become a more prominent topic for users due to an increase in the proportion of income spent on energy. In a context of higher energy costs, stakeholders believe that changes in users' behaviour can be induced through feedback on the energy consumption of their appliances and some economic incentives (Verbong et al. 2013). It seems telling that several stakeholders said it has been difficult to find enough individuals to participate in smart grid experiments. From an ignorance-based perspective, the uncertainties related to the adoption of these technologies seem significant enough to lead to individuals' passive/negative nonknowledge, and thus indifference and non-

adoption of these technologies. In fact, the implementation of smart meters has met severe resistance in the Netherlands, as users try to defend themselves against what they consider to be new modes of surveillance and commercial strategies of energy companies, while new forms of surveillance within the household are also at stake (Naus et al. 2014).

Another possible source of opposition to the adoption of digital technologies might be the health concerns about potential health effects of radiofrequency signals emitted by wireless smart meters. Although these health risks are not officially recognized by regulatory bodies in California, consumers and counter-experts have contested. As observed by Hess and Coley (2014), around 2010, when Californian utilities were installing smart meters in people's homes without giving them a choice, it triggered widespread public controversy – including the creation of the organization “Stop Smart Meters!”, direct protests, and civil disobedience. A website launched to register individuals' complaints about smart meters showed that the highest level of concern was expressed for health and environmental impacts (especially sleep disturbances, stress, anxiety, irritability, headaches, ringing in the ears). Security and privacy risks was the second highest category of complaints. The extent of these health risks is unknown and scientific research on long-term effects will take decades. However, in the face of uncertainty, Californians advocated a full moratorium on smart meters.

Similar controversies have occurred elsewhere regarding potential health effects of the electromagnetic emissions of other digital technologies, such as mobile phone masts. In spite of utilities' expectations regarding the deployment of digital technologies in buildings, there has been significant consumer opposition in the United States. In a web-survey of 1,050 consumers, representative of the US population, which was conducted in 2011, respondents showed relatively strong levels of interest in knowing more about their energy consumption at home (through energy information displays), especially those with higher electricity bills. However, only 30% were very interested in or favourable to smart meters, and 32% were interested or favourable to demand response services (although these were described as energy savings plans). Among respondents not interested in smart meters, energy information displays, demand response services, or smart appliances, the most common reasons for an unfavourable opinion about these technologies were related to risks or uncertainties perceived by individuals, such as the concern that these devices would lead to an increase in electricity bills, and the concern that the

electric utility would have “Big Brother” capabilities to monitor and control electricity usage within their home. Respondents also referred to their lack of understanding of how these devices would work and concern about losing control of their appliances and other devices (Vyas and Gohn 2012).

Although technological progress has been very appealing in promising technofixes for environmental and other problems, there is also some cultural skepticism of technology, and information and communication technologies in particular have been the objects of some movements of resistance (Bauer 1995). Growing criticism of scientific and technological achievements (Touraine 1995) might add to a fatigue of technocracy, rationalization, efficiency, and control, especially if felt to come at the expense of individual freedom, as it might happen regarding smart energy technologies. Passive/negative nonknowledge may thus constitute a disruptive resource for social groups resistant to technology pressure.

These cases illustrate situations in which fear of the unknown and resistance to potential threats or nuisances hinder the adoption of digital technologies as useful devices in increasing energy efficiency. The next case study illustrates a different situation: individuals not wanting to know about digital technologies’ energy consumption, but creatively acquiring enough practical knowledge to manage their energy use in an instrumental way in order to maintain what matters most to them, and also have some advantage in the long run. This case is especially interesting as it concerns a young generation of supposedly technology-fluent users and simultaneously offers a glimpse of how their practices might develop in the future.

In mobile devices such as smartphones energy consumption is critical since usage of these technologies depends on their battery life, which is limited. Research on teenagers’ energy consumption related to the use of electronic media (Horta et al. 2016) recently conducted in Portugal has shown that although they had developed strategies in order to make their phones’ batteries last longer, most of them were not interested in searching for information on how to save energy or on how to prevent batteries from wearing out due to use. As one interviewee said, many of them do not “waste time searching” for information on batteries. Yet, as some of them admitted, they were not sure about what the best practices were, and often “myths” and jokes circulated among them, creating even more uncertainty about it. Although not knowing much about batteries, and how to make them last longer, through their everyday life experience and processes of informal learning, these teenagers had acquired

the skills to manage their phone battery. These skills included, for example, estimating how much power would be needed until they could recharge the battery, curtailing unnecessary uses (like listening to music whilst walking), turning off functions and features (e.g. Wi-Fi) that were not necessary at the time, or turning on applications that allowed power saving (by lowering the brightness of the screen, for instance). Others always carried a charger with them so that they could charge the phone's battery anytime (e.g. at the school) or used another device (computer or MP3 player) that could provide the same services as the smartphone (checking social media or listening to music, for instance). In this way they were able to keep their smartphone on so that they could still use it to make important phone calls or send and receive messages, for example. However, their concern was solely to avoid draining the battery, not to save energy *per se*. For this reason some interviewees said they often used their smartphones while the devices were charging – from their point of view, in this way they were not running down the battery. Thus, although ignoring formal or technical knowledge about the energy consumption of smartphones and the functioning of batteries (which they could search for in instruction manuals or specialized websites, for instance), they had acquired practical knowledge about managing their batteries.

Secretly, however, as some admitted in the interviews conducted, not having well-grounded knowledge about battery use was a strategy for shortening their smartphones' batteries due to wearing out. Rapid product innovations together with marketing strategies have been leading to continuous releases of newer and improved smartphones and software. In addition, peer dynamics, and often also family, promote the rapid replacement of current devices by new ones. "To be updated" is very valued, not just by teenagers. And thus smartphones tend to be considered obsolete very quickly – even when they are still working well. Yet, most parents can be reluctant to buy a new smartphone if their child's is still in good condition – but not if it is broken (and not necessarily by accident) or the battery is worn out. This forced obsolescence (Horta et al. 2015) seems to correspond to a case of active/positive nonknowledge in which ignorance can be used in the pursuit of benefits, as not knowing how batteries should be handled allows teenagers to increase the speed of replacement of their current smartphones by more fashionable ones.

CONCLUSIONS

In this chapter we argued that strategic as well as accidental nonknowledge can be understood as a critical dimension to analysing novel forms of energy consumption. Since such an approach to energy consumption would allow us to understand the emergence and development of diverse forms of not knowing about energy use, and how these are socially, culturally, and materially embedded they also deliver insights into how they translate into everyday decision-making and action.

A possible way forward is to take ignorance of digital technologies and of energy consumption for granted and investigate the socio-technical conditions and transformations that contribute to it. Especially the case discussed of knowingly bracketing out sources of knowledge is a case in point that not knowing is not a detrimental state *per se*. We thus suggest that strategic nonknowledge should be used as an analytical device to frame user behaviour and everyday practices in such a way that the known and unknown are closely linked to each other. Even more so, when conceptualizing strategic nonknowledge as part of everyday life, it also invokes making some form of sacrifice in the present to hope for a gain in the future, i.e., to have newer smartphones despite not knowing how to take care of batteries. In short, the reflections presented above imply that additional areas of research can be informed and enriched by analyses of different layers of knowns and unknowns.

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CITE THIS CHAPTER AS:

HORTA, A., M. Gross. 2018. "Digital technologies in the transition to a sustainable energy system: knowledge-related challenges from everyday life". In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 277-296.

<https://doi.org/10.31447/ics9789726715054.11>

12.

Public support for vegetarian meals in public canteens: a preliminary study

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INTRODUCTION

In 2016 the United Nations implemented the 2030 Agenda for Sustainable Development with 17 Sustainable Development Goals and 169 targets pertaining to the economic, social, and environmental dimensions. Scientific evidence suggests that of the 17 goals, at least six would be closer to being accomplished¹ if the Global West transitioned to a more plant-based diet.² In 2006 a FAO (Food and Agriculture Organization of the United Nations) report identified the livestock sector as “by far the single largest anthropogenic user of land” (Steinfeld et al. 2006, xxi) since it uses no less than 70% of all agricultural land and 30% of the land surface of the planet. This amount of production takes its toll on the environment: the livestock sector operates as a big influencer in climate change, reportedly responsible for 18% of greenhouse gas emissions – a share higher than all transports taken together. The sector is also stated to be one of the greatest contributors to water pollution and biodiversity loss (possibly even being the primary cause) due to its role in deforestation and in “land degradation, pollution, climate change, overfishing, sedimentation of coastal areas and facilitation of invasions by alien species” (Steinfeld et al. 2006, xxii and xxiii).

Part of the solution is to transition toward more plant-based diets since these types of diet tend to generate less waste, preserve more water, and exert significantly less toll on the land and soil (Marlow et al. 2009). As consumption of animal products rises with income, a higher intake is commonly found in developed countries, where a significant part of the population consumes an unnecessary amount of animal protein. According to Smil (2002), the production of a typical Western diet requires up to 4000 m² of agricultural land per capita, meaning that if the whole world followed the Western dietary pattern, the existing agricultural land would not suffice.

1 The six relevant goals are: “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”; “Ensure availability and sustainable management of water and sanitation for all”; “Ensure sustainable consumption and production patterns”; “Take urgent action to combat climate change and its impacts”; “Conserve and sustainably use the oceans, seas and marine resources for sustainable development”; “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”(UN General Assembly 2015).

2 Plant-based diets are diets that limit or avoid animal sources and have the bulk of calories from plant sources, such as vegetarian diets (Graça, Oliveira, and Calheiros 2015; Stehfest et al. 2009).

PORTUGUESE TRENDS REGARDING DIETARY PATTERNS AND SUSTAINABLE EATING HABITS

Dietary patterns in Portugal compare to those of the Global West, being high in animal products and caloric intake. Data from the National Institute of Statistics shows that in 2012-2016, the Portuguese intake of meat, fish, and eggs exceeded the recommendations – instead of the recommended 5%, these protein sources reached an equivalent of 16% of the Portuguese diet in 2016 (Instituto Nacional de Estatística 2017). Nevertheless, the Portuguese health authorities released guidelines for healthy vegetarian diets for adults and children, stressing that the country's abundance in vegetable products all year around makes for a smooth transition to plant-based diets (Direção-Geral da Saúde 2016).

In 2016 a partnership between ICS-UL (Institute of Social Sciences of the University of Lisbon) and Missão Continente (a social responsibility programme held by a major national supermarket chain) developed the first national survey to analyse the Portuguese population values, knowledge, and representations of sustainability in its various dimensions, including diet. Although the vast majority recognized the benefits of eating plenty of fruit and vegetables, only 33.3% identified reducing red meat consumption as important to maintaining healthy eating habits. Furthermore, when asked about their willingness to eat more vegetable proteins *instead* of meat, 45% answered favourably, while 16.8% were uncertain, and 38.1% were unwilling to do so.

Nevertheless, while an estimated 95% of the Portuguese population eats animal products (meat, fish, dairy, and eggs), plant-based diets are increasing in popularity. A 2017 survey set to determine the growth of vegetarianism has concluded that 1.2% of the Portuguese population currently follows a vegetarian diet, a fourfold increase since 2007 (Centro Vegetariano 2017).

SUSTAINABLE LIFESTYLES ON THE SPOT: EMERGING SOCIETAL CHANGES

Across the globe, citizens' concern about environmental sustainability has been increasing over the last years (National Geographic and GlobeScan 2014). Since food consumption is relevant for environmental sustainability, those concerns could be triggering changes in the food system and, indeed, advances are slowly being made. Examples are the 2016 dietary guidelines

published by the Chinese Government outlining a plan to reduce its citizens' meat consumption by 50%, and the meat tax discussion in Denmark's Parliament to help combat climate change (Milman and Leavenworth 2016; Nagesh 2016).

Similarly, plant-based diets are also increasingly under the spotlight across several segments of society. For instance, Danish politicians are joining vegan challenges to serve as role-models and Helsinki and other Finnish cities declared a mandatory weekly vegetarian day in schools (Lombardini and Lankiski 2013; Morley 2017;). In 2006, vegetarian food was considered a hot trend by the famous Baum+Whiteman food consultants group and the influential power of celebrities advocating a plant-based diet (such as Bill Clinton or Ellen DeGeneres) has likely contributed to raising awareness of the topic. The buzz also reached the economic sector, with the accelerated growth of the value of the vegetarian food market from £333 million in 1996 to £786.5 million in 2011 (more information on www.miltel.com).

In Portugal the large majority of citizens show a great deal of concern pertaining to the health consequences of meat consumption (Schmidt et al. 2016) and recent empirical data show an increasing demand for organic products in the country (Truninger 2010). The economic sector seems amenable to these tendencies, and the main supermarket chains in the country are now offering health-conscious sections in their stores, including animal-free and organic products (Nunes and Pereira 2016).

NEW POLICIES ON TRANSITIONING TOWARD SUSTAINABLE EATING

The widespread availability of more sustainable food options and the boom of meat reduction initiatives are being followed by requests to develop food policies that promote a more plant-based diet. For the purposes of our work, we will refer to food policy as any plan, guideline, regulation, or course of action created by the government and adopted by institutions and/or citizens to guide choices, decisions, and/or actions concerning the food system (Obenchain and Spark 2016). In a nutshell, any policy that affects “who eats what, when, how, and with what impact” (Obenchain and Spark 2016, 4).

In 2008 Roots of Change (an American food activist organization) developed a *Declaration for Healthy Food and Agriculture*, “meant to provide policymakers with a set of principles, endorsed by a broad base of organizations and individuals committed to a healthier food and agriculture, to use in creating

policy that will lead to a healthier food system” (Obenchain and Spark 2016, 121). Efforts for changes in the European Union food policy are also being requested. For instance, the *Planting Fresh Ideas* movement brings together citizens, corporations, and policy makers to achieve a reduction of 30% on the EU consumption of animal-based foods by 2030 (more information on their website, www.plantingfreshideas.eu/). Additionally, policy makers seem receptive to working together with researchers. For instance, the European Roundtable on Sustainable Consumption and Production (ERSCP) society was created to be a non-profit forum providing a platform of academics as well as practitioners to stimulate, develop, and disseminate new initiatives aimed at fostering the implementation of sustainable consumption and production.

In Portugal a recent law based on environmental, health, and animal protection concerns made vegetarian options mandatory in all public canteens (prisons, hospitals, schools, and elderly care centres) – Law n.º 11/2017. The legislative proposal n.º 111/XIII (2006) was proposed by the political party PAN (People – Animals – Nature) and pointed out some of the problems of the current food system, the increasing adherence to plant-based diets, and the benefits of these diets. In June 2017 the law began to be implemented, giving six months to public canteens to be fully prepared to serve vegetarian options.

Although vegetarianism has been considered a blossoming field of research (Ruby 2012), literature approaching the ramification of this field into policy support, legal change, or social movements is scarce. Only recently have researchers started to explore which variables could be linked to citizens’ support for policies that promote plant-based diets (Whitley, Gunderson and Charters 2017). As such, literature regarding worldviews could be particularly highlighting.

WORLDVIEWS AND POLICY SUPPORT

Sustainable behaviours are deeply embedded in worldviews, values, and cultural associations and habits (Soron 2010). Worldviews are sets of beliefs and assumptions that attempt to establish a complete and coherent view of how the world operates (Cobern 1996). Worldviews embody values (that are one of several types of beliefs) but can also include other types of beliefs (Koltko-Rivera 2004).

The “collated model of worldview” proposes 40 dimensions that deal with a different topic of worldview beliefs (Koltko-Rivera 2004). One of them refers

to the relationship between humanity and the natural world. It profoundly influences perceptions of the proper human-environment relationship, positing humanity in a subjugation, mastery, or equilibrium point regarding nature.

This set of beliefs constitutes a framework that may have powerful effects on cognition and behaviours, for instance, on the adoption of sustainable lifestyles. Take for example the consumption of organic food. The beginning of organic agriculture in the 20th century has frequently been associated with shifting views on and feelings toward nature. Such changing perspectives on the human-nature relationship – from domination over nature toward participation with nature – may point at larger processes of changing worldviews in society, thereby supporting economic and political trends, such as global growth in the organic food industry or the emergence of political support for organic agriculture. In fact, worldviews not only shape how individuals perceive particular issues and their potential solutions, they also tend to influence their willingness to partake in such solutions themselves, as well as their political support for addressing the issue societally (Gifford 2011).

One of the most widely used scales measuring worldviews concerning sustainability and environmental concern is the NEP scale (New Ecological Paradigm; Dunlap et al. 2000). Given its relevance to the present work, we describe it in detail in the next section.

MEASURING ENVIRONMENTAL CONCERN: THE NEP SCALE

Until the 1970s the “Dominant Social Paradigm” (DSP; Pirages and Erhlich 1974) was a belief in economic growth, progress, and unlimited natural resources and humans were seen as above and independent from nature. Since then a new set of ideas rooted in environmental awareness has challenged the DSP by proposing that nature cannot support unlimited economic growth. Human activity and nature were seen as inextricably interconnected and, therefore, the fragile equilibrium of nature could be disturbed by humans’ behaviours. Dunlap and Van Liere (1978) were interested in measuring these new ideas and developed the first version of the “New Environmental Paradigm” (NEP), not knowing that it would become one of the most widely used scales to explore environmental worldviews in the following decades. According to Dunlap (2008, 10) the scale measured an “ecological worldview”, the overall relationship between humans and the environment. Those generalized beliefs about the nature of human-environment interactions may be influenced by

social structure and values, which could, in turn, influence attitudes, beliefs, and behavioural intentions regarding environmental issues (Stern, Dietz and Guagnano 1995).

Twenty-two years later, Dunlap and colleagues (2000) recognized several limitations of the original New Environmental Paradigm Scale and proposed an updated scale, termed the New Ecological Paradigm (NEP) Scale. This new scale comprises 15 items that tap a wider range of facets of an ecological worldview and offer a balanced set of pro- and anti-NEP statements (Dunlap et al. 2000).

Although Dunlap (2008) highlighted that the NEP is “a broad attitude measure” and was not intended to predict specific behaviours, several authors have found the NEP scale to be a useful predictor of both reported and observed behaviour and included it as a key variable in theoretical models developed to predict environmental behaviours (Stern, Dietz and Guagnano 1995). For instance, the NEP could predict pro-environmental behaviours such as recycling, using public transports, buying organic food, and environmental activism, such as boycotting products or donating money to support an environmental cause (Blake, Guppy and Urmetzer 1997)

More important for the purposes of our study, it also predicts several kinds of policy support. For instance, Rauwald and Moore (2002) concluded that the NEP scale was a good predictor of policy support for tax incentives for voluntary land protection, stricter environmental regulation of public lands, and protection of natural parks despite reduced hunting and timber opportunities (for the American sample). Moreover, Milfont, Hawcroft, and Fischer (2008, cited in Dunlap 2008) found that national-level NEP scores were positively related to nations’ endorsement of international environmental treaties.

Recently, Whitley, Gunderson, and Charters (2017) showed that the NEP is associated with higher levels of support for policy measures promoting plant-based diets. Additionally, individuals who value more equality and social justice were also more willing to support those kinds of policy measures. That is, individuals who were guided by concerns about others and nature were more receptive. The authors argued that support for policies, including those that promote plant-based diets and meat reduction, are rooted in individual’s values, beliefs, and norms. Interestingly, these authors also tested the influence of eating practices on the support for policy measures that promote plant-based diets. They found that the consumption of vegetables has a positive influence on policy support; however, the consumption of red meat and eggs reduces policy support.

By testing different types of variables, Whitley and colleagues (2017) were able to achieve a broader perspective about public receptiveness to policies promoting plant-based diets. Their work suggests that how we perceive others and what we eat, are also important predictors of how much we are willing to support policy measures linked with dietary choices. Ultimately, dietary choices influence our group membership and constitute building blocks of our own identity (Greenebaum 2012). As such, recent theorizing and research relating social psychology and vegetarianism could be relevant to our discussion. Theories regarding social groups are being applied to analyse the relationship between vegetarians and non-vegetarians, as we argue in the next section.

MEAT CONSUMPTION AND VEGETARIANISM THREAT

Despite the growing scientific consensus on the health and environmental benefits of shifting to more plant-based diets (in which vegetarian diets are typically included), large groups of consumers do not seem willing to change their habits (Graça, Oliveira and Calheiros 2015). The European Vegetarian Union estimated that vegetarians represent 2% to 10% of the total European population (Heinrich-Böll-Stiftung and Friends of the Earth Europe 2014). As mentioned above, in Portugal vegetarians still represent a fringe of the total population (1.2%).

Seen as minorities, vegetarians are more prone to suffer discrimination and being perceived as *symbolic threats* to the integrity of prevailing social values and traditions in the Western society, in which the exploitation of animals is mainstream and cultural norms favour meat-eating (MacInnis and Hodson 2015). Some scholars have even suggested the existence of “vegophobia” (Cole and Morgan 2011).

Intergroup relations researchers began to take interest in the topic and are applying psychology theories to understand why and how bias against consumers of a plant-based diet has come about (Dhont, Hodson and Leite 2016). For instance, the Integrated Threat Theory (Stephan and Stephan 2000) has been proven relevant to address this issue. This theory posits that, if an outgroup’s beliefs, values or norms challenge those followed by an ingroup, they could be seen as threats to the ingroup’s value and dominant position within society, leading to negative attitudes toward the outgroup (Riek, Mania and Gaertner 2006). In fact, MacInnis and Hodson (2015) found that vegetarians are targets of discrimination. Individuals that endorse carnistic ideologies and

eat meat more frequently are more likely to perceive vegetarians as a threat and to support animal exploitative practices (Monteiro et al. 2017; Dhont and Hodson 2014).

PRESENT STUDY

Resolutions focusing directly on citizens' dietary choices, and therefore potentially influencing their own identity, could take advantage of public support to be implemented consensually and effectively. Thus, our general goal is to investigate factors that could influence citizens' support for policies aiming to promote plant-based diets, by offering more dietary choices to consumers. Despite the importance of this topic, the benefits of a global transition to a more plant-based diet have only recently started to be debated politically, and specific or country-based measures are still scarce and fragmented. The current debate around the implementation of Law n.º 11/2017 in Portugal provided us with a rich context in which to investigate these questions. In contrast to Whitley and colleagues' (2017) investigation, we were interested in measuring citizens' support for a law that is actually being implemented (instead of hypothetical political measures).

We aimed to examine the extent to which citizens' support for a vegetarian option in public canteens is influenced by a set of beliefs and individual variables. Specifically, we assessed how support for a vegetarian option relates with personal views concerning the environment (i.e., New Environmental Paradigm), meat-eating habits, and perceived vegetarian threat.

Although research about policies promoting a plant-based diet is at an embryonic stage, the literature about environmental policy is more robust and previous studies have highlighted that several attitudinal, personal, and contextual variables are relevant predictors of citizens' willingness to support protective environmental policies (Zahran et al. 2006). One factor that has shown to be particularly important is the "ecological worldview", which establishes the type of relationship between humans and nature (Dunlap 2008). Recent research has also showed positive relationships between the support for several policies promoting a plant-based diet and the NEP scale, concluding that citizens' support for food policies is rooted in their worldview beliefs (Whitley, Gunderson and Charters 2017).

As we discussed above, research has also shown that those who hold ideologies contrasting with vegetarian beliefs, values, and eating choices, are

more likely to perceive vegetarianism as a threat to the current norms and culture of Western societies. Thus, we expect that those who eat meat more frequently and those who construe vegetarianism as a threat to dominant social values would be less likely to support policies that somehow favour vegetarians, such as the inclusion of a mandatory vegetarian option in public canteens.

METHOD

SAMPLE AND PROCEDURE

The survey was hosted online by Qualtrics.com during August and September of 2017. Participants were recruited via ads in social media. A short recruitment notice invited users to participate in a study on “people’s opinions about several issues such as the environment and eating habits”. Participation was rewarded with the choice of registering in a draw to win a 50€ gift coupon. To minimize self-selection biases, no references were made in the advertisements and cover page to the specific goals of the study. Before beginning the survey, participants were informed about the study’s procedures and assured that no individual answers would be analysed or reported. They were also informed that participation was entirely anonymous and voluntary. Participants provided their consent and were debriefed at the end of the study. A total of 318 participants (aged between 18 and 69 years, $M = 28.77$, $SD = 8.75$; 84 men) completed all the measures under analysis, most had completed secondary or higher education (23.7% and 69.4%, respectively), and nearly four fifths reported eating meat at least once in a regular week (i.e., 78.3%).

MATERIALS

We assessed factors associated with support for a vegetarian option in canteens and cafeterias, namely, environmental concern, meat eating habits, and perceived vegetarian threat. At the end of the survey participants provided demographic information (age and gender) and their diet (omnivore, vegetarian, or other).

Environmental Concern. We used the last version of the New Ecological Paradigm scale (Dunlap et al., 2000), which includes 15 items. Participants show their

agreement, on a 5-point Likert scale (1 = *I strongly disagree*; 5 = *I strongly agree*) with the following sentences: (1) We are approaching the limit of the number of people the earth can support; (2) Humans have the right to modify the natural environment to suit their needs; (3) When humans interfere with nature it often produces disastrous consequences; (4) Human ingenuity will ensure that we do not make the earth unlivable; (5) Humans are severely abusing the environment; (6) The earth has plenty of natural resources if we just learn how to develop them; (7) Plants and animals have as much right as humans to exist; (8) The balance of nature is strong enough to cope with the impacts of modern industrial nations; (9) Despite our special abilities humans are still subject to the laws of nature; (10) The so-called “ecological crisis” facing humankind has been greatly exaggerated; (11) The earth is like a spaceship with very limited room and resources; (12) Humans were meant to rule over the rest of nature; (13) The balance of nature is very delicate and easily upset; (14) Humans will eventually learn enough about how nature works to be able to control it; (15) If things continue on their present course, we will soon experience a major ecological catastrophe. A pro-ecological view is represented by agreement with the odd-numbered items and disagreement with the even-numbered ones. As recommended by Dunlap (2008), we treated the items as a unidimensional scale and constructed a measure of Environmental Concern from the average of the items (Cronbach’s $\alpha = .77$).

Meat Eating Habits. To assess participants’ eating habits concerning meat, we asked them to indicate how often they consume white meat and red meat on a 5-point Likert scale (1 = never; 2 = less than a day a week; 3 = once or twice a week; 4 = three or four days in a week; 5 = five or more days in a week).

Perceived Vegetarian Threat. We adapted the scale used by Dhont and Hodson (2014) to the Portuguese context: (1) The rise of vegetarianism poses a threat to our country’s cultural customs; (2) Important culinary traditions which are typical to our country are starting to die out due to the rise of vegetarianism; (3) Eating meat is part of our cultural habits and identity and some people should be more respectful of that; (4) Vegetarians should have more respect for our traditional eating customs, which meat consumption is simply part of; (5) Important family traditions and celebrations are increasingly being ruined and disappearing because of the presence of vegetarians in certain families; (6) Vegetarianism has a negative influence on the Portuguese economy;

(7) The vegetarian movement is too involved in local and national politics; (8) Nowadays, when it comes to nutrition and meals, people listen too much to what a minority of vegetarians wants. Participants indicated their agreement with statements on a 5-point Likert scale (1 = *I strongly disagree*; 5 = *I strongly agree*). We constructed a Perceived Vegetarian Threat score corresponding to the average of the eight items (Cronbach's $\alpha = .88$).

Support for Vegetarian Option. Participants indicated how much they agree with the implementation of a policy measure promoting the offer of vegetarian meals in Portuguese public canteens and cafeterias, on a 5-point Likert scale (i.e., how much they agreed with the single-item “Ensuring that public canteens and cafeterias serve vegetarian meals”; 1 = *I strongly disagree*; 5 = *I strongly agree*).

RESULTS

The descriptives for the variables under analysis (Table 12.1) show high levels of support for including a vegetarian option in public canteens ($M = 4.51$ on a 5-point scale) in the current sample. The mean levels of Environmental Concern were also relatively high ($M = 3.87$ on a 5-point scale), whereas the variables referring to Meat Eating habits and Perceived Vegetarian Threat were closer to the mid-point of the scale ($M = 2.90$ and $M = 2.29$ respectively, on a 5-point scale).

As for the correlations (Table 12.1), we expected that the variable Support for Vegetarian Option would show a positive association with Environmental Concern, and negative associations with Meat Eating habits and Perceived Vegetarian Threat. These predictions were largely confirmed. In other words, higher levels of support for including a vegetarian option in public canteens was associated with higher levels of environmental concern, and lower levels of meat consumption (both red meat and white meat) and perceived vegetarian threat. The correlations were still highly significant when controlling for age, gender, and diet (i.e. vegetarian vs. non-vegetarian) using partial correlations. This means that these associations hold true regardless of individual differences in terms of age, gender, and being or not being vegetarian.

The remaining variables also showed significant associations with each other. Specifically, Environmental Concern was negatively correlated with

Table 12.1

Descriptives and correlations for the variables under analysis (i. e. Support for Vegetarian Option, Environmental Concern, Meat Eating habits, and Perceived Vegetarian Threat).

	M	SD	1	2	3	3.1	3.2
1. Support for Vegetarian Option	4.51	.67	—				
2. Environmental Concern	3.87	.45	.27*	—			
3. Meat Eating habits	2.90	1.02	-.38*	-.38*	—		
3.1 Red meat	2.62	1.12	-.36*	-.37*	—	—	
3.2 White meat	3.21	1.21	-.30*	-.30*	—	—	—
4. Perceived Vegetarian Threat	2.29	.76	-.37*	-.40*	.47*	.42*	.41*

* $p < .001$.

Meat Eating habits and Perceived Vegetarian Threat. In turn, higher levels of meat eating were associated with higher levels of perceived vegetarian threat.

Next, we tested which variables accounted for more variance in support for a vegetarian option when including them together in the same model (Table 12.2). As discriminating between red and white meat did not yield differences in the patterns of associations (Table 12.1), to ensure parsimony we used the aggregate measure of meat eating habits in this model. The findings show that Environmental Concern, Meat Eating habits, and Perceived Vegetarian Threat together explained 20% of the variance in support for a vegetarian option. However, only Meat Eating habits and Perceived Vegetarian Threat were significant predictors in the model, which suggests that these variables together also account for the associations of Support for Vegetarian Option

Table 12.2

Linear regression for Environmental Concern, Meat Eating habits, and Perceived Vegetarian Threat in predicting Support for Vegetarian Option.

VARIABLES	B	SE	B	R ²	F	DFS
Model summary				.20*	25.25	3, 315
Environmental Concern	.14	.09	.09			
Meat Eating habits	-.16	.04	-.24*			
Perceived Vegetarian Threat	-.19	.05	-.22*			

* $p < .001$.

with Environmental Concern, which was observed in the preliminary correlational analysis.

Lastly, we also examined age, gender (male vs. female) and diet (veg vs. non-veg) differences in support for a vegetarian option. With regard to age, the association was weak and did not reach statistical significance ($r = -.10$, *ns*). As for gender, although male participants ($N = 83$, $M = 4.41$, $SD = .77$) showed lower absolute levels of support than female participants ($N = 233$, $M = 4.55$, $SD = .64$), this difference was statistically small and non-significant [$t(314) = -1.68$, *ns*, Cohen's $d = -0.20$]. As for diet, as expected, vegetarian participants ($N = 40$, $M = 4.98$, $SD = .16$) showed higher levels of support than omnivorous (i.e., non-veg) participants ($N = 230$, $M = 4.42$, $SD = .71$), and this difference was statistically large and significant [$t(268) = -4.93$, $p < .001$, Cohen's $d = -1.09$]. Nevertheless, both veg and non-veg participants showed high absolute levels of support for a vegetarian option in public canteens ($M = 4.98$ and $M = 4.42$, respectively, on a 5-point scale).

DISCUSSION

Since citizens are taking a more active role in demanding changes in policies promoting more sustainable approaches to food, research addressing this topic has gained importance in recent years. Thus, our preliminary study adds to the sustainability and policy support literature by analysing factors influencing public support for the implementation of a mandatory vegetarian option in the Portuguese public canteens. We took advantage of the current societal debate in Portugal to conduct a study centred on the actual implementation of a policy measure that was proposed resorting to sustainability motivations and aligned in an inclusion movement.

Our findings demonstrated that the current sample shows high levels of support for including a vegetarian option in public canteens. The law was grounded on principles of inclusion and proposed widening the range of options for the general public (independently of their dietary choices). Nevertheless, vegetarians showed higher levels of support (when compared to non-vegetarians). Our results do not allow us to make further inferences about this difference, and it would be useful if future research could assess the public's perceptions about the motivations associated with this law and its advantages/disadvantages.

Regardless of their age, gender, and diet, higher levels of support were associated with higher levels of environmental concern, lower levels of meat consumption (both red meat and white meat), and perceived vegetarian threat. Thus, supporting the offer of a vegetarian option in public canteens is not only a result of environmental concern, it is also related with dietary group membership (vegetarian vs. non-vegetarian) and, ultimately, intergroup relations (perceived threat regarding other groups' beliefs).

Our results provide insights for developing strategies that could be applied before or after the implementation of food policies that promote the availability of more plant-based meals, in order to arguably increase their acceptance. For instance, if environmental concern is a key concept in the support for food policies that address plant-based diets, actions to increase the endorsement of the NEP could eventually contribute to how these policies are considered, respected, and encouraged. In this regard, Rideout (2005) showed that environmental concern could be increased by learning information about environmental problems. Thus, contextualized laws should be more effective in promoting societal adherence (Marteau 2017).

The Law n.º 11/2017 could also influence the perceptions of canteen users regarding plant-based meals by contributing to greater exposure on such meals. Thus, it would be worthwhile for future research to more explicitly link the implementation of this law and possible effects on plant-based meals, perceived vegetarianism threat, feelings and perceptions about vegetarians, and even willingness to follow a more plant-based diet.

Future research could also measure other factors that may influence the level of public support for this law, considering the different phases of implementation. Our preliminary study was conducted in a very early phase, right after the approval of the law and its first massive dissemination by the media. By the end of 2017, all public canteens must fulfill the adaptation period and canteen users should gain familiarity with vegetarian options (either by the simple exposure or through food practice). By then, it should be possible to examine more behavioural features of support (for instance, based on the number of vegetarian meals consumed) and explore associations with variables concerning ecological worldviews, intergroup relations, or identity.

Our study provides only a preliminary investigation that could inform further research. Limitations regarding our sample and the specific phase of the data collection do not allow us to make generalized assumptions. Thus,

further studies should resort to a representative sample and address subsequent stages of implementation of this law.

It is important for scholars in the field of plant-based diets to keep a close eye on policy developments. Motivated either by sustainability issues, or just on the debate on dietary choices as a human right, policies that could somehow contribute to citizens' adherence to plant-based diets could be rooted in individuals' beliefs about human-nature relations and challenge the relations between groups with different dietary choices. The current findings suggest that these variables should be taken into account when studying public support for these types of food policies.

» ACKNOWLEDGEMENTS

Fábio Rafael Augusto wishes to gratefully acknowledge the financial support from the Portuguese Foundation for Science and Technology (FCT), under the PhD grant SFRH/BD/130072/2017, co-funded by the European Social Fund (FSE) and national funds of the Portuguese Ministry of Science, Technology and Higher Education (MCTES) through the Human Capital Operational Programme (POCH).

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CITE THIS CHAPTER AS:

CARDOSO, S. G. et al. 2018. "Public support for vegetarian meals in public canteens: a preliminary study". In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 297-315.
<https://doi.org/10.31447/ics9789726715054.12>

13.

From hunger to food insecurity: technocracy and sustainability

Virgínia Henriques Calado

INTRODUCTION

This paper is an anthropological contribution to a theoretical, conceptual, and methodological discussion of the concepts of food (in)security. The decision to focus on these concepts is related to their relationship with sustainability issues and also to the fact that they are of fundamental importance in the evaluation of the nutritional status and food situation of different individuals and populations. The fact that the notions of food (in)security are at present indispensable to conduct research on issues such as *adequate food*, satisfaction, or deprivation of food, also justifies the attention devoted to it in this text. Moreover, the circumstance that the concepts of food (in)security give rise to relevant studies, arguments, and narratives that are used by different actors (intergovernmental structures, governments, industry, farmers, populations...), for purposes not always convergent, is another reason to pay attention to this topic. Taking also into account that food (in)security assessments mostly produced by experts are at the origin of programmes and measures through which public policies are implemented, the attention to these concepts is justified even more. Key concepts in the construction of discourses on food scarcity, production, and quality, which are drawn up by the United Nations, states, and other actors, are appropriated by different entities and can be used in different ways. They may appear, for example, to support political positions about forms of agriculture that are mainly focused on the quantity of foods produced and on intensive and extensive forms of agricultural production than on the protection of small farmers. These concepts are not neutral, neither in their uses nor in the way in which they are conceptualized, thus requiring continuous scrutiny.

What is proposed here is a contribution to a debate on how these concepts have been established, redefined, and transformed into evaluation tools. I will go into this discussion bearing in mind the way in which they have evolved and acquired new meanings, not looking for a literature review but, above all, a critical reading that allows us to establish dialogues between Anthropology and the specific uses and understandings that are made of the notions of food (in)security. In the final part of this paper, I will discuss how these notions can be instrumentalised, resorting to the fieldwork I conducted in 2016 in Nampula, Mozambique, related to a school feeding pilot project. The reference to this research will have a more illustrative value than a detailed presentation. Through it I will seek to refer to the discussion on how the notions of food

security/insecurity can be seen as instrumental in implementing food aid programmes and development projects. These projects are doubtful in terms of sustainability, because they often involve deep changes in the agricultural landscape.

As Truninger and Díaz-Méndez (2017) point out, the literature on food security has been very marked by production issues, that is, mainly focused on the quantity of food produced. Although the existence of sufficient food does not in itself mean that food security is ensured, the fact is that the association between food security and the quantity of food produced has become a constant. Thus, in a context that is projecting a significant increase in the global population, concern about the possibility of lack of resources has led to a strong focus on increasing agricultural production. This concern also serves to justify, in some cases, the presentation and development of agricultural projects that are debatable in terms of sustainability. This is the case of the PROSAVANA project (Mozambique), which I will refer to in the final part of this work. With the justification of increasing production and combating food insecurity, a type of intervention (large-scale intensive farming) is proposed that will be difficult to complete without resettlement and without problems for small farmers.

Food insecurity confronts us in this way with diverse and sometimes contradictory questions. While it evokes humanitarian security and refers to the eradication of hunger, which is one of the sustainable development goals (SDGs), it is also often and paradoxically the pretext for unsustainable forms of exploitation, from both an environmental and social point of view.¹ We must therefore be attentive to the way in which the concept of food insecurity is used, since it can serve the predatory aims of certain forms of agricultural investment or certain forms of political action, just as it can be an important resource through which social problems are combated. The classification of a context as critical in terms of food security creates conditions for the development of specific action programmes, and opens the doors to the entry of several agents, be they state officials, intergovernmental agencies, non-governmental organizations, or agribusiness. Such classifications may not be neutral and the possibility of making an instrumental use of the concept of food insecurity is not negligible. Particular vigilance on this concept, by those who focus in depth on this topic, is therefore recommended.

1 United Nations – General Assembly (2015).

The debate on sustainable development has led the United Nations to define goals (SDGs) that suggest contradictions and difficulties of conciliation. Goal 2: “End hunger, achieve food security and improved nutrition and promote sustainable agriculture” is an example of what is claimed, as food insecurity is one of the recurring arguments justifying the existence of crops with GMOs (genetically modified organisms) or crops with higher productivity. To harmonize the eradication of hunger with “sustainable consumption and production patterns” (goal 12), while pursuing economic growth (goal 8), suggests the same perplexity. Redclift (2005) gave a good account of many of the paradoxes that sustainability can take. Environmental and social goals are indeed often divergent. Intending to assign a neutral burden to the notion of sustainability, linking it to global security, environmental justice, or rights of nature, which should be seen as human rights, distracts from political action and the worldview followed by different orientations and political organizations. The concepts sometimes have long routes until they become instruments of action on the world, and efforts in their objectification or neutralization do not necessarily correspond to truly objective and impartial uses. The discussion on the notions of food (in)security, which I will focus on below, will seek to critically analyse the construction of these concepts, seeking to demonstrate how their re-elaboration affects the understanding of the world. More than a review of the literature, the historical perspective that will be presented here should be seen as a condition to discuss the forms that the concepts assume and how they support a worldview.

FROM HUNGER TO FOOD INSECURITY

The opening of a discussion on the concept of food insecurity is, in the context of this work, an unavoidable procedure, not only because this concept is the source of considerable measures and public policies, but also because this notion has become for both experts and politicians the epicentre from which the intense and obstinate relationship of individuals with food is set. If in the past *hunger* served to classify extreme states of food deprivation, creating states and processes easily recognizable in the social imaginary, today *hunger* is the subject of a judgment and technical treatment that refers to a specific gradual scale, defined by *experts*, which turns it into a potentially closed field in which only *experts* seem to gather conditions for effective participation.

The quest for rigour and operationalization of the notions of food (in)security to allow its presentation in statistical data gave rise to classifications ranging from mild to moderate or severe, chronic or transitory food insecurity (Lopes and Torres 2017a), and from hunger to chronic or acute malnutrition. These dimensions are constructed in a way that can result in quantitative data.

As the result of a conceptualization with the intent of statistical neutrality and operationality, the notion of *hunger* has thus become more complex and asserted itself as being only diagnosable by *experts*. More than two decades ago Radimer, Olson and Campbell (1990) had already reported on the need to measure hunger. These authors said that most of the documentation on hunger, then available, did not explicitly define what *hunger* was, and that those definitions could be related to situations as disparate as the physical sensation of hunger, the interruption in the provision of certain types of food, poor food quality, etc., so that other ways of identifying *hunger* needed to be found (Radimer et al. 1990, 1544). It would therefore be necessary to find instruments and concepts for a more rigorous measurement. They created a questionnaire with adaptations and modifications according to social and cultural contexts that is often used today (Lopes and Torres 2017a). Reiterating that the notion of food insecurity was very flexible and not very strict, Maxwell and Smith (1992) also point to the existence of some 200 definitions of food insecurity in published documents. This reality implied that at the beginning of each publication there was always a need to explain what was meant by food (in)security, so consequently there has been an effort to define this concept more precisely. The evolution in conceptual terms allowed the concept of food security to become a more technocratic and operational concept that could be used in the definition of public policies.

The search for objectivity led to such a complex set of calculations, for such technicity, that a closure was introduced. It is, I believe, this closure that needs to be analysed. First, and *in extremis*, this closure may induce an exclusionary effect, since common citizens, even if advised, can only classify the world in a fruitless way, that is to say, without practical implications, insofar as they feel they do not have *rigorous instruments* of observation and classification. As citizens, and even when being involved, they can rely on only *experts* when it comes to the arduous task of establishing diagnoses of reality that are supposed to lead to *good policies*. Still in the same line of thought, we can think of this situation as capable of leading to forms of alienation from reality, even if only partially, since it ceases to be perceptible through its *unprepared*

view, and is attainable only through the view and diagnosis of others. At this level we are therefore confronted with an epistemological problem which, by inviting us to inquire about the *conditions of the possibility* of different forms of knowledge and the use made of it, questions us about how the construction of scientific knowledge can remove the subject from the world. Hence, an unanswered question arises: can this effect of withdrawal, whether it corresponds to a deliberate act or not, be combined with the imposition of a world view grounded on a form of knowledge called scientific, but which at the same time never ceases to be a *narrative* about the world? Getting back to the example - the notion of food insecurity - it is worth thinking about how the dense construction of this concept can lead to the removal and exclusion of less specialized views on issues and problems that are a determining factor in the lives of ordinary citizens, and in that sense, an object of restlessness and interpellation.

The closure to which I have alluded, exposing a technocracy that admits only *experts*, is also a source of uneasiness for a second reason: it not only excludes laymen, but also tends to remove subjects such as History, Geography, Sociology, and Anthropology, among others, from their *field of action*, which may be silenced, if not excluded, by the mathematical work with which devout economists add pertinent and indispensable variables to the construction of concepts such as food security, even though they have a long intellectual and scientific tradition of description and analysis of problems related to food deprivation. As an example, consider the prevalence of quantitative approaches over qualitative approaches, even when the nature of the subject matter would suggest otherwise. This is the case with the application of quantitative analyses based on questionnaire surveys for the study of food security levels in household consumption, when a predominantly qualitative research would be advised, considering the variability according to gender, age, symbolic value of the food, place of consumption, number of meals, and other conditions that influence these same consumptions (Contreras and Gracia 2005).

It is not intended, of course, to undermine quantitative methodologies nor to doubt the accuracy and adequacy of the information collected or to underestimate the importance of statistical data. However, there are good reasons to suggest that the assessment of food insecurity would benefit from the possibility of making the use of direct and/or participant observation more consistent and frequent, even if just in case studies, in combination with other approaches. Mixed methodological strategies that articulate qualitative

research with quantitative research, such as that undertaken by Truninger et al. (2015), allow for a more weighted and less *closed* view of reality.

Furthermore, regarding a more global and epistemological discussion, it is necessary to mention another concern, which is related to the emphasis that has been placed on the *securitization* and how this topic fills the international agenda. This has become *par excellence* the way of addressing a wide range of problems: human security, environmental security, energy security. Food security is therefore part of this vacancy we currently live in, where a notion of *risk* prevails as a category involved in all human activity. In this case, the definition of human security has now been included amongst the components from which the notion of food security (UNDP 1994) should be assessed.

STUDIES ON HUNGER

The use that Audrey Richards (1932; 1995 [1939]), anthropologist, pioneer in the study of food in southern Africa, made of the term *hunger* would today be inaccurate, at least in the light of the developments on how to measure food deprivation. Nevertheless, her descriptions and analyses are an important milestone in the history of the Anthropology of food. Although she used specific techniques for analysing nutritional status, such as food weighing (Richards 1995, 178-183), and having E.R. Widdowson's collaboration in the field of biochemistry to write about nutritional aspects of the Bemba diet (Richards and Widdowson 1936), some of the most important aspects of her analysis, such as the claim that the relationships established from food were among the most significant cohesive forces of *communities* she observed, or the argument about the idea that hunger, appetite, nourishment, and taste are conditioned by cultural practices and not reduced to mere biological instincts, derive from an intense observation that has not been strictly confined to the quantification of the ingested food. This last dimension is indeed presented by Richards in *Land, Labour and Diet in Northern Rhodesia* (1995 [1939]), as having been made with some difficulties in data recollection, despite the fieldwork carried out between January and July 1933.

Richards (1995 [1939]) tells us that it was impossible for her to weigh and measure the food consumed by some families which she had visited throughout the year and which had been relevant for the evaluation given the seasonal variation in food consumption (Richards 1995, viii). Having

pointed out such difficulties, despite all the fieldwork, it does not seem abusive to suppose, even if the due time distance between the implementation of these studies and the sophistication in which surveys of food consumption are currently made is taken into account, that the information resulting from this type of questionnaire does not avoid significant omissions.² Although the exact figures create the illusion of objectivity, and even if there are efforts to introduce more and more rigorous forms of assessment, there are good reasons not to dismiss a more qualitative approach, combining different techniques of data collection.

Audrey Richards (1995 [1939]) also tells us that despite the simple way in which she collected the elements of food consumption for a nutritional analysis (1995, ix), the fieldwork developed amongst the Bemba in 1933 revealed some of the difficulties of observation and evaluation focused on consumption in the domestic unit. Richards (1995, ix) tells us that variations in food, according to the seasons, the amount of food eaten between meals and outside the domestic unit (for example, wild fruits) and hospitality issues, which implicate the sharing of meals, were some of the aspects that influenced the evaluations focused on the domestic unit.

Contreras and Gracia (2005), whose examples are geographically and temporally less distant than the studies done by Richards, also draw attention to this concern when addressing the methodological issues created by techniques such as the questionnaire survey, in which the domestic unit is taken as the food consumption unit. The example that they use from the Spanish surveys on food consumption allows them to present the limitations of this type of procedure.³ It also allows them to refer to other shortcomings, such as those relating to the categories used to classify food (which are excessively generic, not accounting for new products entering the market) or the identification of purchased food with consumed food (Contreras and Gracia 2005, 173). Beyond these aspects, the authors also point out the discrepancy that often occurs between discourses and eating habits. Not every individual remembers exactly what he/she consumed last week.⁴ The difficulty in clearly identifying

2 De Garine (1980) also emphasized the fact that generalizations from questionnaire responses are mainly a response to the discourses generated by these questionnaires.

3 Ministerio de Agricultura, Pesca y Alimentación. 2004. *La alimentación en España 2002*. Madrid.

4 In the *Inquérito Alimentar Nacional e de Atividade Física* (Lopes and Torres 2017b), respondents were asked in the questions on food choices to think about a typical week within the last 12 months.

the consumed food can thus be a bias factor. Consequently, it is advisable to minimize this type of effect with the use of intensive qualitative approaches.

Going back to Audrey Richards and the context in which she accomplished her work *Land, Labour and Diet in Northern Rhodesia* (Richards 1995 [1939]) and since this research was developed from the need to analyse the nutritional problems in the British colonial territories (a question that Britain decided to pay more attention to from the 1930s on), and having emerged from the creation of a Commission on Diet, composed by anthropologists and nutritionists, designated by the International African Institute, this work sought to show how anthropologists could contribute to the study of nutrition in African societies. Within a more general context, which we are interested in highlighting here in order to analyse the notion of food insecurity, this research must be seen in the light of the concern with studies on nutrition and health, which began to be well-evidenced between the wars, and later on, after World War II.

John Boyd Orr (1936), a physician and scientist with research in nutrition, authored the important study – *Food, Health and Income* (Orr 1936) – in which he identified the nutritional problems of food consumption among the British.⁵ Having participated in the definition of the system of food rationing instituted in Great Britain during World War II, he believed that the solution to the problem of hunger could be solved by transferring food surpluses to the areas where people were deprived of them.⁶ He presented his proposal at the League of Nations, but it was not successful at that point. Nonetheless the proposal was relevant to put policy actions on nutrition on an international level.

These concerns about nutrition have created a legacy that extends to Anthropology, as we have already seen in the works of Audrey Richards (1995). Volume number 9 of the journal *Africa* (AAVV 1936) is also dedicated to the theme “Problems of African native diet”. Its introductory text by Boyd Orr introduces this topic. It refers to the importance of the development of native agriculture in ensuring adequate nutrition for populations whose

5 In his view, these problems were largely related to the fact that the consumption of foods of higher nutritional value (milk, meat, fish, and vegetables) depended on income, which consequently showed a reduced consumption of these types of food among the poorest.

6 Boyd Orr was the first director general of the FAO (1945-1948) and was awarded the Nobel Peace Prize in 1949, a distinction for his effort to eliminate famine in the world.

livelihoods were changing and who were increasingly aware of the demands of intense and continuous work.⁷ In this journal it becomes clear that the nutritional question, which is not reduced to the choice of adequate food, requires the dedicated attention of Anthropology and its practitioners. Richards, as well as other authors such as Fortes and Fortes (1936), gives us an account of the importance of a careful analysis of biological and sociological aspects in the study of nutritional issues.⁸ The emphasis placed by Richards on the social, cultural, and symbolic dimension of food, and the importance attached to “studies in the community”, stress the absolute need for an ethnographic observation.

The relevance of an in-depth observation, using a more ethnographic work to assess levels of food security is, however, ignored or underestimated today. When reading reports that are reference documents for action in this field, such as the ones the Food and Agriculture Organization (FAO) writes to describe food insecurity in the world, it is not common to find descriptions containing contributions that only a more intensive and continuous analysis, such as those derived from ethnographic approaches, could provide (FAO and IFAD 2015). The same is true of other large surveys that are a reference point from which policy instruments can be defined and measures taken on food issues. The *Inquérito Alimentar Nacional e de Atividade Física IAN-AF 2015-2016* (Lopes and Torres 2017a), which is closer to our reality, is an example of what is claimed.⁹ There is in fact a set of procedures that favour records that can be easily converted into numbers, which leaves out significant dimensions in the analysis of food issues.

Before dealing with aspects such as the potential instrumentalization of the concept of food security and how this can lead to unsustainable practices, it is worth looking at the historical course of this notion.

7 Domingos (2016) also highlights the importance attributed to the relationship between diet and work in the context of the Portuguese Empire and in situations of effective colonial occupation, referring to the way in which it was articulated with purposes of labour exploitation.

8 The term nutrition is used by Richards comprehensively, not exclusively concerning nutritional aspects. The word *food* would now be more appropriate, since it can include not only the nutritional aspects but also the social/ cultural/ economic and symbolic dimensions.

9 *National Food and Physical Activity Survey IAN-AF 2015-2016*.

THE UNSUSTAINABLE NATURE OF FOOD INSECURITY

According to John Shaw (2007), who refers to the writings of Orr from the early 1930s and within the framework of the League of Nations, Yugoslavia had pointed out the need to gather information on the state of food in the main countries of the world. According to Shaw (2007, 6), the report that emerged from this concern gave origin to the concept of food insecurity and became the first alert to the problem in terms of international politics. The accepted notion of food security is therefore, as a concept, the result of a discussion process that dates back to the 1930s and became more effective in the United Nations (UN) since the 1970s, when identification of a global food crisis and the desire to overcome it led to an intensification of the international debate on the availability of basic foodstuffs such as cereals and their price stability (UN 1975).

The world food market and its way of operating were pointed out as having triggered the food crisis, which brought up the search for transformations. There was yet another perplexity: although the Green Revolution was seen as a technological success, this success did not translate into a reduction of poverty and malnutrition (FAO 2003, 26). The World Food Conference in 1974 suggested in this context the need to build a system of food security (UN 1975) that could provide food for all. The discussions generated on this issue led to the first formulations on food security: “availability at all times of adequate food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices” (UN 1975).

In 1983, and following the work of Amartya Sen (1981), the idea was dismissed that food availability would be sufficient for food security to exist. In fact, food could be available but people would not be able to access it, either because the price did not allow its acquisition or due to the lack of means, such as transportation, to obtain it. The concept then went on to include the notion of secure access by vulnerable populations: “ensuring that all people have both physical and economic access to the basic food that they need”. In 1986, the World Bank’s *Poverty and Hunger* report (World Bank 1986) would add to this conceptualization the distinction between chronic and transitory food insecurity, which is relevant when addressing situations of need and structural poverty. Thus, and in a nutshell, one would arrive at the following notion of food security: “access of all people at all times to enough food for an

active, healthy life” (FAO 2003). In the mid-1990s, the notion was broadened to include aspects such as safety (in the sense of healthy food), balance (nutritious food), and adequacy (culturally and socially appropriate food).

In November 1996 the notion of food security currently used was presented at the Rome Summit: “Food security, at the individual, household, national, regional and global levels [is achieved] when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO 1996). This redefinition gave importance to the most vulnerable and their access to food. In 2002, FAO would refine this notion a bit further: “Food security [is] a situation that exists when all people at all times have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO 2003, 27). Thus, elements of another nature, such as those that could result from social and cultural dimensions associated with food consumption (gender, religion, food taboos), were considered in the concept.¹⁰ The notion resulting from this process was therefore *negotiated and established* with the participation of various social, political, and economic agents and became subject to a significant apparatus in terms of governance, both in the United Nations and at national level, which turns into an important dimension when it comes to justify actions and programmes.

The notion of food security arrived at in 1996 implied four dimensions that were fundamental to evaluate this condition: *availability* (availability of adequate food in sufficient quantity); *access*, evaluated in physical terms (logistics), economic terms (financial capacity for acquisition), and social terms (gender, religion...); *utilization* (safe and nutritious food as well as clean water, sanitation, and health care); and *stability* (situation regarding continuity in the availability of food). It is worth noting that some dimensions of the concept have been emphasized so that in various circumstances the notion of food (in)security is not adopted *tout court*, but instead the notion of food and nutritional (in)security, emphasizing the importance of the question of nutrition and the biochemical quality of foods, since it was not enough to have sufficient food, but also nutritious food.

10 To this condition, other entities such as the Economic Research Service – United States Department of Agriculture later added elements such as the importance of obtaining food that was acquired through “socially acceptable means” (Lopes and Torres 2017b).

The integral dimensions of the concept of food security did not allow for all aspects of the definition presented, such as food preferences, to be assessed, but were taken as a way of objectifying a concept and of making it operational. To fulfil this purpose, the question of this condition is now made through the concept of food insecurity, a condition that can be observed in situations where there is no satisfaction of the above-mentioned dimensions: when “some people do not have access to sufficient quantities of safe and nutritious food and hence do not consume the food that they need to grow normally and conduct an active and healthy life” (Simon 2012, 8). The task of defining indicators that could accurately measure each of the dimensions of food insecurity became a laborious scientific work, aiming at results that could be recognized as valid. The assessment of food insecurity and its degrees (mild, moderate, severe) would also be made by reference to the household, a unit that in surveys carried out in Portugal was considered as corresponding to the family living in a house. As mentioned above, the composition of this unit is variable according to different social contexts, and the household may not coincide with the residents in the domestic space, a factor that should require some attention and that can be better understood when using qualitative approaches. On the other hand, individuals who are not integrated in this type of unit or who are not institutionalized, such as many of the homeless, are invisible in this type of inquiry.

There have been many specific proposals on how food insecurity should be assessed. As mentioned above, one of the most successful modalities among us was the Radimer et al.’s (1990) questionnaire survey, which was used by the Economic Research Service of the US Department of Agriculture and recently applied, with adaptations, in the *National Food and Physical Activity Survey IAN-AF 2015-2016*, carried out in Portugal (Lopes and Torres 2017c).¹¹ Pessanha et al. (2008) report five methods that analyse food (in) security: FAO method; household budget surveys; surveys of individual food intake; anthropometric research; food insecurity and hunger perception surveys (Pessanha, Vannier-Santos and Mitchell 2008). It is not relevant in this context to explore each of these methods; their reference only serves to illustrate the diversity of guidelines on how to measure food security, each

11 As reported by Lopes and Torres (2017c, 40): “this survey was widely applied in the evaluation and monitoring of public food assistance programmes in the US and other countries [...] adapted for Portugal by Sofia Guiomar of the National Institute Dr. Ricardo Jorge, in cooperation with Marck Nord of the Economic Research Service of the United States Department of Agriculture.”

with its advantages and disadvantages. The important thing is to underline the idea that social regulation policies implemented from the observation of food insecurity may serve specific actors, according to their specific interests, such as those that justify their action (intensive agricultural production) in combating food insecurity.

Going back to methodological issues, let us see how the methodology used by FAO – relevant for the agency's support for agricultural and food programmes in Africa – made the definition of the amount of calories consumed *per capita* in a country the main reference for identifying situations of food insecurity. Calories consumed are estimated by analysing the food balance (average of three years) and household budget information. It is the average caloric intake, determined from family budgets, that allows determining if the minimum caloric value considered adequate is being assured. Thus, national information concerning production, import, export, and stocks is expected to be accurate and used to make estimations for each country (Pessanha et al. 2008). However, if this method has the advantage of easily allowing international comparison, it also has the disadvantage, as defended by Pessanha et al. (2008), of reliance on information about production that can be very imprecise. It is to believe that in countries such as Mozambique, where, as I mentioned before, I carried out fieldwork in 2016 (Nampula), and where the rationalization and effectiveness of the information collection services still raises some problems, this type of imprecision is to be found in a significant way. On the other hand, the FAO method makes it possible to assess the availability of food but not aspects related to its access or its nutritional qualities. In addition to these difficulties, this methodology does not allow identifying the families and individuals who are in a situation of food insecurity. Recently, FAO (FAO 2017) began using a new methodology - Food Insecurity Experience Scale (FIES) – to measure food insecurity by sampling this dimension. Through eight direct questions related to the experience of the people it thus obtained information that previously was not collected. This methodology of analysis, based on Item Response Theory (IRT), uses a psychometric model - Rasch model - and gives us more information about the accessibility to food. However, many of the problems observed continue to persist.

It is with these limitations that the FAO annually produces reports on food insecurity in the world. It is understandable that poorer countries are interested in food assistance and agricultural development programmes, and it is likely that they will find some advantage in declaring high levels of

food insecurity. It is also legitimate to believe that the agri-food sector sees business opportunities in contexts declared to be subject to food insecurity. There is then a set of concerns and even perplexities that forces us to think about the concept of food security, at least in order to prevent it from being easily manipulated, susceptible of exploitation, and ultimately a gateway to unsustainable agricultural projects.

PROSAVANA AND NATIONAL SCHOOL FEEDING PROGRAMME IN MOZAMBIQUE

One of the fundamental goals of Mozambican agrarian policy - achieving food and nutrition security - has been identified and addressed by various agents and projects (Vunjanhe and Adriano 2015). In fact, food and nutrition security is evoked to justify development projects and new forms of land use and exploitation.¹² Projects such as PROSAVANA and corporations such as the *Mozambique Agricultural Corporation* (MOZACO) are examples of these projects and agents.¹³ Both PROSAVANA and MOZACO have been denounced as land encroachers by various entities, such as the *União Nacional de Camponeses* (UNAC) and the *Acção Académica para o Desenvolvimento das Comunidades Rurais* (ADECRU). This last association repudiated the occupation of land in the district of Malema (Nampula) by MOZACO, which sought to produce soybeans there, highlighting the demands made by small farmers to reclaim the lands they once cultivated and that were later occupied (ADECRU 2015). According to ADECRU, MOZACO (presented as part of the New Alliance for Food and Nutrition Security in Africa) would target land occupation for agribusiness, leaving families of former farmers in distress.¹⁴ Moreover,

12 Concerning agrarian policy, see *Plano Estratégico para o Desenvolvimento do Sector Agrário 2011-2020* (MINAG 2011).

13 PROSAVANA is a Trilateral Project between Mozambique, Brazil, and Japan with the alleged purpose of developing agriculture in the Nacala corridor and thus contribute to reducing food insecurity. It was signed in 2009 but only officially launched in 2011. MOZACO is the result of a joint venture between Rio Forte, part of the Espírito Santo group of Portugal and the Mozambican group of Portuguese origin João Ferreira dos Santos (JFS) (Vunjanhe and Adriano 2015). Meanwhile, in 2014, Rio Forte was declared insolvent by the Luxembourg Court of Appeal.

14 The New Alliance for Food and Nutrition Security was launched in 2009 at the G8 Summit (L'Aquila - Italy) and was actually founded in 2012. Under the auspices of the G8 and against »

the New Alliance is viewed with mistrust (Vunjanhe and Adriano 2015), as some critics say that its ultimate goal is not to reduce hunger and poverty in countries like Mozambique, but rather to create a favourable environment for the entry of large corporations through the simplification of land use, review of national seed policy, the revision of environmental prohibitions, fiscal policy, etc. More than seeking to respond to local needs, it would be designed to increase world food production and favour private investment. The food price crisis (2008-10), associated with the crisis of the financial systems of 2008, seems to have been an excuse for significant transformations, favouring private initiative.

In March 2016, in the course of fieldwork in Nampula, accompanied by a representative of the UNAC, I heard the words of discontent from members of the *Nakhitto* community regarding resettlement they had been targeted for in Iapala, district of Ribaué (Nampula). At the time, we could observe a signaling panel of an exploitation attributed to *Mathária Empreendimentos*, indicating a right of use of that land looked at with distrust. For UNAC, *Mathária Empreendimentos* was an agribusiness company with an interest in soybean production, financed through the PROSAVANA Development Initiative Fund, and thus a threat to small farmers. Talking to the community, we had the opportunity to hear complaints and requests for help from their representatives, a request for help in recovering the lands they had previously cultivated, which was already presented to the provincial authorities in Nampula. The new user of the land – identified as being the son of a former Portuguese settler who had been the owner of those lands – had acquired a Land-Use Right (*Direito de Aproveitamento e Uso da Terra* [DUAT]) – thus leading to resettlement of the population. The displaced population expressed great dissatisfaction with the new lands that had been assigned to them as being infertile, and thus not allowing them to grow enough food for their children. Translating the statements of the community members from Macua to Portuguese, the UNAC representative said:

They are hungry and ask for help from all who can hear them. They say that the new land is very sandy, which heats up a lot and burns the product [cassava]. The area is poor...

► the backdrop of the global food price crisis (2008-2010), the New Alliance for Food and Nutrition Security in Africa was also established in 2012, to improve food and nutrition security. This alliance was agreed upon by ten African states (including the Republic of Mozambique), transnational corporations, and multilateral financial institutions.

nothing grows! No maize, no cassava... nothing grows! Still they tried to cultivate in the ancient lands but they were expelled and threatened by the authorities. They had no compensation [for resettlement] and even the graveyard, where the grandparents and great-grandparents were buried, was occupied. We are nothing.

These cases allow us to reinforce the idea that the use of the concepts of food (in)security to justify new projects and farm enterprises does not mean that food and nutrition security will be achieved. In the last example presented, according to the description of the peasants, the resettlement generated more hunger than the situation that existed previously. In any case, a strict evaluation of the food (in)security of the population, which cannot be expressed in numbers only, would require the use of qualitative techniques of research, including direct and/or participant observation.

It is, therefore, in a scenario of contestation of big projects that will lead to the availability of land for agribusiness and the loss of land by farmers that we must look at the National School Feeding Programme – *Programmea Nacional de Alimentação Escolar* (PRONAE). This programme – presented by the Mozambican Ministry of Education and Human Development (*Ministério da Educação e Desenvolvimento Humano* [MINED]) as innovative in relation to the more recent past, and presenting as a general goal the reduction, in a sustainable way, of the negative impact that food and nutritional insecurity cause in the education sector – is, in this context, an example to be explored in articulation with the arguments presented. With the support of the *World Food Programme* (WFP) during its pilot phase, this programme sought to implement a new model for school feeding management. It was implemented in different Mozambican provinces in a relatively restricted number of schools (12) and gave primacy to the food distribution focused on local food production and eating habits, and to food purchases made from farmers of the region instead of through food assistance entities from outside the country. It is argued that this latter type of aid, seen as a form of welfare and incapable of reversing historical relations of dependence, should give rise to actions capable of valuing local resources and promoting the involvement of local populations.

An important part in the framework of this pilot project, which results from the cooperation established between Mozambique, Brazil, and the WFP since 2010, is the *Memorandum of Understanding between the Government of Mozambique*, represented by the MINED, and *The United Nations World Food*

Programme (WFP) on the Transfer of Funds for the Acquisition of Food and Non-Food Goods under Cooperation Agreement BRA/04/044 (Memorandum). This document, which established the cooperation between these entities, dates from 2015, and follows an earlier project from 2010, which already mentioned this cooperation. The partnership established previously between the Mozambican government (through MINED), Brazil (through the National Fund for the Development of Education (FNDE), the Brazilian Cooperation Agency [ABC]), and PMA, gives an account of the political activity of international articulation built around PRONAE. The pilot project, which began to be formalized in 2012, was therefore part of the South-South cooperation with Brazil to support the Mozambican National School Feeding Programme.¹⁵ In order to establish itself externally as a reference country in matters related to public policies to eradicate hunger and poverty, Brazil would also evoke its experience and special expertise in this field. It would thus assume, in the Mozambican context, but not only there, a very active role in the implementation of programmes in which food insecurity emerges as an important reference (Santarelli 2015).

I decided to carry out empirical work in the Nampula province between February and April 2016 to better understand the application of PRONAE's pilot project, and to find elements that would allow me to relate this programme to specific guidelines defined by the Food and Agriculture Organization (FAO) and the WFP on food security. In this province it was possible to find four Complete Primary Schools (EPC) that were covered by PRONAE: the EPC of Iapala – District of Ribáue; the EPC of Niapala – Rapale District; the EPC of Muecate – Muecate District; and the EPC of Muaualo – Mossuril District. However, contact with the schools did not allow me to observe the implementation of the programme, because in April the schools had not received any amount of support from the WFP. It was only possible to gather information on how the programme had run the previous

15 The *Memorandum* defines as one of its general goals “To reduce, in a sustainable manner, the negative impact of food insecurity and nutrition problems in the education sector, particularly poor schooling, school dropout, absenteeism and school failure” (Clause 2, letter a). In addition to this general goal, the following specific goals (Clause 2 – point 2) are also to be highlighted: “Encouraging the daily attendance of pupils, in particular girls, thus reducing school absenteeism (letter b); [...] Promoting local economy through the acquisition of foodstuffs (letter d); [...] Promoting community participation in the training of their learners (letter e) [and] Contributing to the development of students’ skills in agricultural production (horticulture, fruit growing and livestock farming) (letter f)”.

year. According to the school coordinators, the experience had been quite positive, with fewer children being hungry, less school dropout absenteeism, and less school failure. However, there was, as in previous programmes, inconsistency and uncertainty in the support given to school meals. The lack of continuity in school feeding projects was, in fact, one of the flaws pointed out.

It is not the purpose of this text to make a detailed presentation of PRONAE; what is important here is to highlight the way in which the pilot project inherent in this programme is based on the problem of food insecurity. Secondly, it is important to highlight the fact that the implementation of this programme is the result of a cooperation that is associated with other cooperation projects in Mozambique, particularly in the Nacala Corridor area. There is one of the most extensive African railway lines in this area. It reaches from Moatize (Tete) to Nacala (Nampula), crossing the provinces of Tete, Niassa, and Nampula, and it was for this area that PROSAVANA was created. This is a project that foresees a profound change in the landscape of the region, and amongst its aims, as anticipated, is the increase in agricultural production, investing in greater technological efficiency and seed improvement, combating food insecurity, and promoting development. Focused on the extensive production of *commodities* such as corn and soybeans and a model of land use that breaks down with more traditional forms of agriculture, this project has already generated protests due to the resettlement of populations and the profound changes in the agrarian structure that it implies. The implementation of this development programme is still contested by the weak participation of civil society in its construction (Santarelli 2016; Chichava 2016).

When we focus on the *Memorandum* (MINED 2015) that supports PRONAE, and we realize the support given by Brazil to this project through the transfer of funds to the WFP, we cannot stop questioning ourselves about the distinct and even divergent way of dealing with issues of insecurity that are placed in PRONAE and PROSAVANA. If, on one hand, local, family farming is promoted through the purchase of food from local farmers to be distributed in schools, the other proposes an extensive, commodity-oriented agriculture that, according to several local associations, disrupts small farmers and generates food security problems - therefore, sustainability problems. Thus, we can see in these two examples two very distinct ways for Brazil to assert its expertise in the area of food security, an area in which Brazil intends to affirm

itself as a particularly well-positioned leader given its experience and the knowledge capital it has accumulated on this issue. If PRONAE seems to meet sustainability requirements by encouraging local food purchase, community participation, training of children in sustainable forms of production, and gardening, PROSAVANA is a more aggressive project that fears small-scale local farmers. Although these can be integrated into production by making contracts with agricultural enterprises, this raises doubts about the effectiveness of this mechanism as a source of income and a way of ensuring food security. If on one hand Brazil supports a programme of the Ministry of Education for local acquisitions, on the other hand it seeks to promote the transfer of knowledge, seeds, and technology of Brazilian companies. Thus, we can see that Brazil's affirmation as a reference country in the area of food security is done through different projects, handling the issue of food insecurity with different purposes in articulation with different ministries, but always counting on the decisive support of the State, indispensable for facilitating private initiative (Santarelli 2016). Given the divergent interests that are moving around issues such as food security and that are not always clearly identifiable, the use of qualitative research, which allows us to know more about these processes and the situation of the populations that these projects should benefit, seems to be crucial.

As a concluding note, I consider it pertinent to establish connections between different programmes, in an effort to detect and signal their inconsistencies. If PRONAE is very oriented toward the acquisition of local products from farmers, aiming at their distribution in schools, PROSAVANA is a programme to stimulate agribusiness, which makes us fear the disappearance of small farmers. The question is whether the UN's second sustainable development goal – “End hunger, achieve food security and improved nutrition and promote sustainable agriculture” – can be achieved through these projects. This is, however, only one side of the issue, and another, more profound, is the risk of inefficiency associated with the definition of Sustainable Development Goals that do not question, nor really call into question, the dominant socioeconomic model and its characteristics of predation and exhaustion. In the dominant model, food insecurity, which can be transformed into a closed concept, can in fact be a strong argument for *development programmes* that are applied without questioning. Ferguson (1994), who reflected intensely on development programmes, shows us their most obscure side. This is not the occasion to discuss his contribution. So

far, we acknowledge the need for a monitoring exercise around the notion of food (in)security, primarily because it is around this notion, which involves all citizens, that public policies are built.

» ACKNOWLEDGMENTS

Research carried out with the support of FCT through the SFRH/BPD/97532/2013 research grant and the ALIMENTOPIA/Utopian Foodways Project, financed by FEDER Funds through the Operational Competitiveness and Internationalization Programme – COMPETE 2020 and by National Funds through FCT – Foundation for Science and Technology within the scope of the project POCI-01-0145-FEDER-016680 (PTDC/CPC-ELT/5676/2014).

Text translated with the financial support of FCT through the strategic project UID/SOC/50013/2013.

I would like to acknowledge the Portuguese NGO Helpo – active in countries such as Mozambique and S. Tomé and Príncipe – for their valuable and welcome support. Its activity in the promotion of education in the province of Nampula resulted in important aid during the fieldwork carried out there. I also thank José Manuel Sobral and João Mourato for reading and commenting on a provisional version of this text. The comments and suggestions made by the editors and the editorial board of this volume were also very important in the revision of the text.

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CITE THIS CHAPTER AS:

CALADO, V. H. 2018. “From hunger to food insecurity: technocracy and sustainability”. In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 317-340.
<https://doi.org/10.31447/ics9789726715054.13>

14.

Sustainability and its contradictory meanings in the digital media ecosystem: contributions from the Portuguese scenario

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INTRODUCTION

Sustainability is one of the buzzwords of contemporary societies (Lélé 1991; Sneddon 2000). The term was first used in the Brundtland report on the environment, published in 1987, defining the kind of “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (*apud* Redclift 2006, 67). Although it emerged within the frame of ecological debates (World Commission on Environment and Development 1987; United Nations Conference on Environment and Development 1992), its ambiguity would promote a broadening into other domains, such as education, health, economy, and justice, as can be seen in the programme of the 2030 Agenda for Sustainable Development.¹ Its adoption by the business world is seen through terms such as “financial sustainability” or “sustainable management”, relative to the association between shareholder values, social responsibility, and environmental standards, and also through the institutionalization of such perspectives as perceived in the existence of the Network for Business Sustainability and the World Business Council for Sustainable Development (Dyllick and Muff 2015).

In recent years, the use of expressions such as “media sustainability” and “sustainable journalism” seems to announce an extension of the concept of sustainability also to the media field. This expansion takes place in a period in which the convergence between the processes of digitalization, globalization, and liberalization brought about a thorough reconfiguration of the media universe and of the rationales underlying the production, dissemination, and consumption of information. In the current uses of sustainability in the context of the media field, one faces the confrontation between two fundamental aspects of journalism. On the one hand, there is the business aspect related with the media companies, its market positions, and stakeholders’ interests. The focus in this aspect resonates with the meanings of financial sustainability and sustainable management. On the other hand, there is the ethical and political aspect related with its informative function and counter-power role, aimed at inclusive, responsible, and responsive politics and at a more tolerant, plural, and vibrant civil society. Are these aspects complementary? Can the

1 The 2030 Agenda comprises 17 Sustainable Development Goals (SDGs) and Goal 16 aims to “(...) provide access to justice for all and build effective, accountable and inclusive institutions at all levels”. Among its specific objectives, Goal 16 proposes to “ensure public access to information and protect fundamental freedoms (...)” (SDG 16.10).

new media, paved by the development of ICT, help to build an unclosed process of information and social and political dialogue? What are the challenges and risks brought by this new media tendency? To what extent are technological and managerial developments in the media sector safeguarding information and communication as public instead of commercial goods? As in its ecological and social dimensions (Swyngedouw 2010; Raco 2014), the use of this concept in the media and communication realm seems to present some limitations. One of the main objectives of this chapter is, precisely, to question the extent to which the broadening of this term may have produced contradictory meanings (Redclift 2006).

Our analysis moves within a theoretical framework of sociological enquiry into the new conditions of communicational mediation to question this new but already dominant idea of sustainability in the media field. This study promotes the discussion of this concept, mapping the concrete Portuguese journalistic scenarios against a background of new political-economic imperatives. As its empirical ground, it relies on a set of four case studies. The selection of such studies seeks to cover organizations with different kinds of trajectories, regarding business models, longevity, combination of online and printed formats, and integration with international networks. The study is based upon a qualitative methodology including in-depth interviews, document analysis, and website reviews (Garcia et al. 2018).² The entities selected were approached with the common goal of identifying four dimensions of journalism: the characteristics of the media company, the editing modalities, the information producers, and the relations with the audiences (Oliveira 1988; 1992).

In what follows, we will list, though in a necessarily concise way, the organizations included in the case studies under consideration. *Expresso* is a weekly newspaper founded in 1973, whose development is entirely connected with *Impresa*, one of Portugal's largest media corporate groups, which includes besides *Expresso*, a wide range of publications and platforms. The creation of a daily digital publication in 2014 translates a phased process of business development and investment in technological apparatuses, with expected returns from advertising and cost reductions, basing itself primarily

2 All the research data used in this work are part of a previous wider enquiry on the consequences of the process of digitalization of journalism in Portugal, which was funded by the *Entidade Reguladora para a Comunicação Social*.

on the guideline that all the journalists and editorial staff get involved in the production processes of such a publication. *Observador*, launched in May 2014, is an online daily newspaper that explicitly presents itself as geared toward exploring the potential of digital media: interactivity, multimedia, continual updating of content, interaction with readers, and a noticeable presence in social networks. Its business model, based upon advertising revenues, includes branded content produced by the newspaper but defined according to the approach and strategy presented by sponsors. *Blasting News*, an online publication created in Italy in 2013 and available in Portugal since 2014, is guided by the principles of the so-called “citizen journalism” (which *Blasting News* refers to as “social journalism”). It functions, essentially, as a news platform, managed by a small number of employees, but sustained by the content produced by millions of registered participants (around 30,000 from Portugal), whose revenues depend on the number of views of their articles. Finally, *Artecapital*, founded in 2006, is a digital magazine that covers the visual arts to disseminate information and reflection on exhibitions and topics relating to the art world. It is produced by a small collective and an array of volunteers, who share an interest in the area and search for a capital of visibility, hardly obtained in mainstream media.

The first part of this chapter offers a wide-angle view on the topic of media sustainability, pointing out the key features of the complex process of the emergence of new conditions for communicational mediation, from the end of the twentieth century to the present day. The second part addresses the profound changes this new communicational environment produced in the press, as new agents and players came to occupy the field: portal and content aggregators that also function as search engines, independent information websites and “born-digital media”. The third part deals with the new modes of production that underlie media digitalization and content development – a term that has gradually replaced the production of news, articles, and reports – in a process in which the web data of content views and shares has become the yardstick for the organization of work in digital media newsrooms. The fourth part focuses on the redefinition of the journalist profile and on the reorganization of the professional relations in the media and communication sector.

MEDIA SUSTAINABILITY IN A NEW ECOLOGICAL-COMMUNICATIONAL ENVIRONMENT

From the end of the twentieth century complex social processes have emerged to create new conditions of communicational mediation. Over this period, the internet and other technological systems that placed information on a global marketplace arose, propelled by innovation projects. In the wake of new information and communication technologies, the idea of an information society, or a global information society, imposed itself, bringing about profound cultural shifts. The autonomization of the media field and the institutionalization of research on communication, media, and journalism was bound to the model of a mass society, to the mode of production and relations of production of industrial capitalism, and of the commonly named “mass media”. However, against this new backdrop, marked by the reorganization of societies through the stimulus of IT networks, in the context of immaterial, digital, and informational capitalism, and by the multiplication of “new media” and “new new media”, research should focus on the site of mediation of communicational processes that drags us beyond co-presence. The overall media universe and, more specifically, that of journalism, is today overdetermined by the digital, global, and pro-market turn of industrialized societies. This brings about a specific set of socio-technical codifications, the most conspicuous manifestation of which is the development of digital industries and the expansion of the internet, alongside new practices and concentrations of power (Wu 2010).

The socio-scientific understanding of the technological transformations at stake requires unpacking and with it the dismantling of the naturalization of these technologies in everyday life and in common knowledge. This naturalization tends to crystallize into two rationales: the existence of a technological object or of its consequences are attributed to a natural order of things, grounded on the teleological premise that all innovation is part and parcel of a road to a better or worse version of the world; alternatively, it is explained through an individual decision, in which it is assumed that events unfold as an outcome of individuals’ rational calculations. Denaturalizing knowledge grounded on these perceptions involves a critical gaze on the linear notion of technological evolution and of its potential uses, opened up by the configuration of the technologies themselves. Instead, the argument here is that technologies are not mere instruments, but rather apparatuses that

codify meanings (Alexander 2015), which embody these meanings within complex socio-semiotic processes (Carey 1990). The technical consequences in these recent transformations appear, therefore, as products that, as a result of their autonomization, and given that they are embedded with human values and are part of more or less widespread discourses, operate as vehicles for cultural, economic, and political forces. Digital technologies and new media, when turned into industries and commodities, articulate knowledge from various fields, namely the scientific, aesthetic, and design fields, in the shape of economic and commercial projects and innovation policies. They become ventures that are simultaneously scientific, technological, economic, and cultural.

The recognition of this cultural dimension of technologies has a bearing on the way in which technological transformations are studied, and how the limits – particularly economic and technological in nature – of the crisis of digital industries and journalism are thought of. On the one hand, certain points of view contaminate research agendas, especially socio-metric research projects, with the premise that the new communicational context will open the door to a participation of the whole of society in decision processes. On the other hand, there are those who convey the idea that public space ceases to exist altogether on the internet.

This chapter asserts the need to build an alternative perspective from which to consider the current situation of the media universe, the place that journalism and journalists occupy within it. The point, ultimately, is to argue for a reconfiguration of the question of sustainability. In its original sense this question emerges within the frame of an ecological conception of the media, and of the reorganizing impact of the internet. The concentration of ownership of media companies, the erosion of the practices traditionally understood as journalistic gatekeeping, the appearance of new forms of information control and censorship, and the creation of new modes of public participation came to question the viability of a democratic public sphere. In this context, international analysis and monitoring projects such as the Media Sustainability Index of the International Research and Exchanges Board, the Community Media Sustainability Policy Series of UNESCO, and the Monitoring Media Pluralism in Europe of the Centre for Media Pluralism and Media Freedom employ the concept of sustainability connecting pluralism with financial viability. In a section entitled “Economic, financial, and managerial requirements to ensure sustainable independent and pluralistic media” in a paper for UNESCO,

Robert Picard wrote that “the viability of news media organisations requires conditions that make it possible for such media to obtain and manage resources and capabilities necessary to maintain themselves and be sustainable” (Picard 2015, 3). “The focus here is on financial, structural, market and managerial factors”, he added (*ibid.*). Some authors state that politics for a “sustainable journalism” relies on the development of “high-quality, in depth coverage as well as robust business models, technology, education and organisations that take these challenges into account” (Benglez, Olausson and Ots 2017, xv).

Given that it is at the centre of the technological and industrial fields, the internet has become a defining and reorganizing element of societies. This idea implies a conception of media as environments conditioning and structuring people’s perceptions, feelings, and values. The notion of “technological development”, concomitant with such a viewpoint, runs counter to cumulative perspectives, which see a change of medium as an additive evolution. Instead, this change should rather be thought of as an ecological reconfiguration (Mosco 1999). Therefore, as a medium or as a cluster of media, the internet enables a reorganization of the previously settled communicational ecology, opening the way for a new communicational ecology within which new social worlds take shape. This reorganizing force (sometimes seen as revolutionary, especially in terms of means of production) has led some authors to abandon the old notion of the “media landscape”, replacing this last term with “ecosystem”. Jean-Marie Charon (2015) considers the latter to be a more accurate term to describe the relations between a set of agents within media that is seen as creative, fluid, and horizontally organized, and at the same time more uncertain. It is against this backdrop that we can see the main challenges to the creation of a contemporary deliberative public sphere.

NEW AGENTS AND PLAYERS: AGAINST THE BACKDROP OF AN “EDITORIAL EFFERVESCENCE”

In this new communicational context, fostered by the digital industry and by its technological innovations, it seemed, since producing, distributing, and receiving digital content online became so prevalent, that the mediation role of journalism has been, as suggested above, weakened. This new communicational ecology places greater emphasis on the process of distributing information whilst it also means change in modes of production and consumption. We

thus encounter in the vast information field, and particularly in the journalistic field, a situation of turmoil and reorganization, where new agents and new entrepreneurial logics emerge, alongside new media products and professional roles that displace the very notion of “journalism”, as well as the professional status of journalists, to undermine their role and attributions.

In Portugal, as in other countries and societies, one sees a press universe undergoing sweeping changes that have increasingly been the object of research.³ The various studies converge on the recognition that the landscape of information production and the role of journalism are going through a period of permanent adjustment and reconfiguration, somewhat akin to what Joseph Schumpeter described with the notion of “creative destruction” (Schumpeter 1942). Phrases such as “editorial effervescence” (Charon 2015) aim to register the reorganization of the field of the general press, between the “pure players” of information and content and the start-ups investing in the production of information. In this context, one should clarify the term “pure player”, given its increasingly common and undifferentiated use. It refers, generally speaking, to a company that specializes in a product or activity, with no vertical integration, and whose means and ends of production are wholly grounded on digital media. Examples in the media world would be news portals and platforms or content aggregators that also work as search engines, as well as independent information websites and born-digital media. Staying within the range of the cases addressed in this chapter, the electronic magazine *Artcapital*, the online platform *Blasting News*, and the born-digital newspaper *Observador* fit into this category of “pure players”.

The overall process, sometimes described as a “reinvention” of the print media, refers to the multiplicity and heterogeneity of initiatives of this kind, which attempt to mobilize all the potentialities of the digital world that delineate and experiment with a new arrangement of media ecology. In Portugal, as elsewhere, one can indeed speak of an editorial effervescence.

3 In various disciplines there is a growing interest in framing these changes within the context of larger shifts in communication, media, public space, and journalism. On international cases, see, for example: McManus (1994); Bardoel (1996); Pavlik (2001); Boczkowski (2004); Scott (2005); Downie and Schudson (2009); Levy and Nielsen (2010); Grueskin et al. (2011); McChesney and Pickard (2011); Anderson et al. (2012); Alexander (2015); Charon (2015); Mabweazara (2015); Deuze and Witschge (2017). On the Portuguese case, the following works are particularly relevant: Traquina (2000); Canavilhas (2006); Cardoso et al. (2006); Garcia (2009); Bastos (2010); Rebelo (2014); Camponez et al. (2015); Cardoso et al. (2015); Granado and Zamith (2015); Cardoso et al. (2016); Gomes (2016); Matos et al. (2017).

In a preliminary early stage there is a generation of new players from within the general information field, generating a steady change in content and presentation models. In this group falls the online edition of the weekly *Expresso*, whose first steps in this field can be traced back to the end of the 1990s. These examples are forever geared toward finding an economically viable business model, framed in these contexts as “sustainable” (in an abusive use of the term). A second stage comes with the creation of other news organizations such as websites and blogs. Although these platforms are located outside of conventional editorial contexts and though they are subject to little or no commercial pressure, they nevertheless need to find ways to survive through the generation of revenue that will allow them to pay their contributors and content producers. In this radically changed scenario, one should highlight the publicizing of journalistic content in portals and content aggregators showcasing content from a variety of publications.

Phenomena such as the clustering of content means that newspaper directors and managers now unceasingly worry over the conquest of online spaces. *Expresso* is a particularly eloquent example of such a case. Empirical research revealed that the relation between this publication and the portal *Sapo*⁴, the key content aggregator and provider of online advertising space in Portugal, has led to the steady favouring of *Expresso* content on that platform (Silva 2015). In a study on the convergences of Portuguese newsrooms, it is possible to discern that this portal hosts various websites and functions as an aggregator of news from a variety of publications. These platforms then compete amongst themselves for headline visibility, providing their clients with advertising spaces on newspaper websites, the sale of advertising space being indexed to the number of views of that website (*ibid.*). A newspaper like *Expresso* adopted a business model, despite its structural specificities, that came close to that of online journalism as described by Des Freedman in the following terms: “audiences largely refuse to pay for content, advertising revenue is dominated by search engines and pure-play companies, cannibalisation remains a concern [...] and traffic goes more and more to internet portals and aggregators who invest virtually nothing in original news content and simultaneously fail to expand significantly the range of source material” (Des Freedman 2010, 47).

4 Founded in 1995, *Sapo* presents itself as “an online publication” which is “permanently updated, containing news and other useful information for all Portuguese-speaking internet users” (<http://www.sapo.pt/estatuto-editorial>).

As for the newspaper *Observador*, the study also allowed noticing a trend toward the “hybridisation” of messages, anchored on a specific intertwinement between journalism, advertising, and marketing, which blurs the lines between different content. One of the results of this trend is that the messages aimed at serving commercial interests appear in the eyes of the public with a seal of credibility and disinterest that are the defining traits of journalistic messages (Fidalgo 2016). In *Observador* one can identify an emphatic turn to “branded content”. Since access to this publication is free, advertising is inevitably its main source of revenue. Even though traditional advertising, externally developed, remains one of the forms of relation with sponsors, branded content is an increasingly recurring practice. It remains the most expensive advertising segment in the publication, and also the section with the highest investment (Garcia et al. 2018). When the advertiser pays for branded content, the client determines the topic and leaves the newspaper to produce content around it. Even though this content – labelled as the OBS Lab – appears alongside common news articles, their authors are not staff journalists, but rather freelancers hired by the newspaper’s commercial department. An advertiser thus enjoys the possibility of obtaining a tailor-made campaign, often devised by journalists, and using various means and tools that take full advantage of the potential of new technologies.

In *Blasting News*, whose revenues come exclusively from advertising, there is an analogous phenomenon. In this publication, alongside other informative pieces, there are advertisements, in the form of advertorials, which are not only presented as “sponsored content” but also rely on access to the user’s profiles, so that, it is claimed, users receive information that is of greater and more particular interest to them.

NEW MODES OF PRODUCTION: THE GROWING DEPENDENCE ON “CONTENT PROFITABILITY”

One of the underlying trends within the journalistic field, established by the digitalization of the media, is the replacement of the production of news, articles, and news reports by the expansion of the production of content. The dependency on “content profitability” in terms of its capacity to generate clicks, alongside its incessant quantification, has become the main driving force in the organization of the production of information in online newsrooms.

There is, however, another crucial change: the investment in staff specialized in the production of branded content. One should note that this content may go beyond traditional text infomercials, and may appear as videos, podcasts, photo galleries, or infographics, along with other formats, such as online seminars (webinars) or conferences. Such a fast-paced departure from the field of news production toward content production has nonetheless gone hand in hand with the appropriation and permanence of vocabulary, terminology, apparatuses, and hierarchical principles from journalistic practice. Editorial statuses continue to exist, pledging to uncover the “truth” and vouching for the “primacy of facts”. Information continues to be arranged into thematic sections. The publications hold on to the daily or weekly periodicity as a standard, with differentiated editorial lines, extensions, and articulations between various platforms. The figure of the editor is still present as a mediator between journalists and directors.

Even in the case of *Blasting News*, which defines itself as a publication of “citizen journalism” and places emphasis on notions such as the “blurring of hierarchies” and the participation of all those who may wish to contribute to the production of news, some of the conventional protocols associated with the journalistic profession remain in place as the structure around which content is organized. In fact, the digital turn broke the monopoly of the production and dissemination of information held by the traditional media sector, stimulating the appearance of other modalities of information, products, and possibilities of receiving and sharing news. This fostered new “para-journalistic” practices within the frame of new niches and business models in the field of information. In the present context, not only have conventional journalistic organizations begun to include, in an increasingly systematic and conspicuous way, content produced by people other than journalists, such as integrating images, sounds, and texts that emerge from a context of citizen journalism, but, in addition, it has also become increasingly common for online platforms to disseminate output that comes from non-professionals, platforms that still identify as editorially credible. Claiming to follow journalistic criteria and to abide by the profession’s ethical and deontological rules – somewhat counter-intuitively, inasmuch as they take pride in and praise amateurism and the freedom afforded by the absence of the constraints and restrictions linked with traditional journalism – they propose to create more open, democratic, and non-hierarchical information, in tune with the user’s actual interests. It should be noted that these modalities

of content production allow the companies that use them to significantly reduce their costs. In most cases, the contributors are not paid (or will only be paid if their contribution reaches a very high volume of users) and they work with their own resources, with no assistance, financial or otherwise, from the company. This strategy, therefore, regardless of the benevolent rhetoric that envelops it – as previously mentioned, it is credited with expanding and enhancing the public sphere – ultimately comes down to the creation of an alternative business model for media companies.

The encounter between the journalistic universe and that of content production, in a context in which, as it is nowadays, the first is subsumed by the latter, blurs the distinction between journalism's social role and its commercial logic. There is a blurring of the lines between territories and activities that grounds a sense of indistinctness, generated by the sheer quantity of by-products. Often, in the name of synthesis and overview, we see a proliferation of podcasts, videos, blogs, a profusion of hyperlinks. Hybridity also exists in this industry as a means to cater to the so-called personal taste of the individual consumer. One such case is, as the collected data show, the multiplication of newsletters that various newspapers publish – daily, weekly, or monthly, varying from the generic to the more specific or topic-oriented. Presented as a “synthesis” of the news whilst simultaneously catering to the specific interests of each reader, these newsletters offer a kind of personalized “media diet” that has proved particularly attractive to advertisers (Garcia et al. 2018).

The need to attract advertisers also pushes the prominence of figures such as social media managers and digital analysts, increasingly more present in the production of content. The imposition of web analytics as a guiding principle for the production of information does not mean that the concern with the reception of content, and the level of attention they were able to capture, were absent from earlier stages of journalism. Yet, in digital media newsrooms, the number of page views and shares seems to play a central and determining role in terms of editorial decision-making (Canavilhas et al. 2016).

In the research we verified that in the newsrooms of *Observador* and *Expresso* there are screens where statistics on the most read articles at each particular moment are projected, allowing real-time monitoring (certain aspects of) the readers' behaviour. Besides this constant presence of the monitoring screen, journalists have access to computer software that gauges the “performance” of their articles, and digital analysts make daily and weekly

reports that generate a kind of permanent “sentinel effect” over the readers and followers, as well as a simultaneous and continuous “surveillance” of the journalists and their capacity to “maintain a steady and expressive presence on the internet” (Granado 2016).

The extreme concern with, and attention to, web data enables the assessment of content produced in newsrooms as a more and more tightly fastened piece of a tripartite chain of interdependencies: content, page views/reading times, and advertising revenue. Or, to phrase it differently: better technology attracts more readers and more readers lead to an increase in circulation and advertising revenue. Within this ecology, in which the media companies’ commercial dimension makes itself increasingly felt on the daily routines of journalism, it falls on journalists to cultivate the new skills required in relation to social media and their readers/clients.

In the context of this gradual transition from a focus on the production of news to content production, it follows that journalists turn more and more into content producers. The gap widens between journalist professionals and the rules and standards that defined the trade, with significant shifts in its established *ethos*. Professional practices have absorbed new rationales and values, as the presiding culture of innovation has encouraged news products and contents that place the journalists’ work in a border zone (of the so-called “boundary work”), within an information management framework that is guided by the “digital first” motto.

New types of professionals are demanded to form a new habitat, in which they interact with engineers, designers, digital analysts, and social media managers – those who often climb the company ladder and come to occupy the higher posts within the company’s organigram, in roles previously occupied by journalists themselves. Digital technologies enter into the newsroom and the journalists’ work, pushed by their perceived potential as well as, on an everyday basis, through regular contact with professionals in this field, and through the technical adaptation of journalists themselves. To start with, the profile of the journalist required to work online includes the ability to perform tasks that go beyond the established journalistic *ethos*, such as content production, social media management, and often the skills needed to use the internet for research, selection, and treatment of information. Journalists have ceased to perform mere journalistic tasks as such. To put it another way, the tasks that fell outside of the journalistic role have been folded within the skill set that make up the emergent journalistic *ethos*.

REORGANIZATION OF PROFESSIONAL RELATIONS: THE EVER-GREATER DEMAND FOR MULTI-SKILLED JOURNALISTS

The development of new business models in the media field and in communication domains brought about significant changes in work relations. The context in which these changes took place can be seen, to a certain extent, as a foreshadowing of the current state of journalism. This result, however complementary to those previously presented, emphatically shows the contradiction pointed out in this chapter regarding the meanings of the concept of sustainability applied to the media field. The example cited of the newspaper *Expresso* is, in this sense, paradigmatic, since the wager it laid on the digital coincided, in time, with “the corporation’s financial deleveraging” (Garcia et al. 2018). This led to the reduction and control of costs (including staff costs), alongside its restructuring and reorganization, toward a more integrated or convergent model, which in turn translated into, among other measures, the alienation of publications that had shown little financial return.⁵

These measures are not purely technical responses, and they shape the type of journalism practiced. The research indicates that the greater ease in contacting sources or the greater oversight over the publishing of an article, made simpler by the internet, are balanced out by an accumulation of responsibilities on the part of the worker. The higher precarity in the sector, in parallel with the greater number of professionals in this specific labour market, means that these knowledge-sets become prerequisites and, to this extent, potential exclusionary forces for journalists who do not have them.

At the same time, as verified in the launch of *Expresso*’s online publication and the consequent standby model, the lines between different roles in the newsroom become blurred, especially between journalists who are mostly directed to writing for the print format and those who work for other platforms. In interviews, journalists of *Expresso* employ the term “Swiss army knife”, a term that has in the meantime entered everyday journalistic jargon, to refer to multi-skilled journalists, competent in handling a wide range of tools, techniques, and media (Gradim 2002). *Observador* shares a similar strategy in terms of the division of labour among its staff. In an interview, one of the workers stated that “the workload is different” when compared to “modern

5 In August 2017, *Impresa* admitted it was considering a reduction in its magazine segment, as well as the sale of some of its assets, even though it did not specify any particular publication.

newsrooms”, given the absence of a “division of labour”. All of them are given equipment so that, beyond whatever their habitual tasks are, they can take photographs or shoot videos.

The study therefore indicates that journalists have to guarantee a wide range of tasks such as the gathering, filtering, and sharing of events, as well as the registration and publishing of image and sound. They are no longer simply concerned with writing a newspiece, but with all the possible ways in which it can be presented and disseminated, such as Mark Deuze (2004) pointed out. He or she must integrate the news into multimedia content, complement the content production with functions such as layout, formatting, and publishing, as well as (as mentioned above) attend to the interaction with readers.

These tasks tend to be performed, as mentioned, under precarious work conditions. Although they follow very distinct lines, the online culture magazine *Artecapital* and the digital news platform *Blasting News* share some traits as far as labour conditions go. Firstly, there are no standing contractual relationships, as freelance or even unpaid work is dominant. In the case of *Blasting News*, remuneration for the author who shares his text on the website depends on the number of page views, and does not occur in every case.⁶ *Artecapital* also resorts to occasional low-paid collaborations, which often are justified by the authors’ affinity with the project or, as is the case in *Blasting News*, by their search for a “visibility capital”, which the magazine provides (Bourdieu 1980; Heinich 2012).

Against a background of the atomization of social relations in the world of labour, escaping precarious conditions is the result of specific individual or personal strategies. The existing conditions are thus made tolerable against the promise of a more promising future, and the exercise of an occupation one believes in, or the simple immediate need of an income (Young and Carson 2016; Corrigan 2015; Gill 2011).

6 With a thousand views in each segment, a “Blaster” (the term used to describe the authors of texts published on the platform) receives 3.5 euros. Only with a minimum of 10,000 organic views and 11,700 social media views, assuming they are writing about one of the highest-paid topics, can an author expect to receive 50 euros. This plateau is crucial as only when it is reached can the contributor ask for financial compensation, as specified in their contract with *Blasting News*. Furthermore, this payment will only take place if the “Blaster” requests it, on specific dates of each month, and the actual payment may take over 60 days to come through. The company established a revenue cap, which means that 150 euros is the highest amount a “Blaster” may receive for a published article.

CONCLUSIONS

In the confluence between the processes of digitalization, globalization, and liberalization, the media universe and the logics underlying the production, dissemination, and consumption of information have been profoundly reorganized. Shifts in form and format, pushed on by new digital technologies, did not however bring about any change in terms of the ownership structure. On the contrary, the crisis scenario, which made itself felt, for instance, in the decrease in sales numbers for the printed press and/or in the increase of the number of competitors in the sector, namely by open access digital media, has not attenuated the trend toward the concentration of media in large business conglomerates. It is within this economic framework, then, that new business and organizational models, as well as new products, routines, and production relations emerge.

In this process, journalism's communicational complexity has been reduced to a sum of sellable technical products, which has had a substantial impact on the Portuguese situation. One of the underlying trends is that the production of news, articles, and reports has increasingly given way to content production, which often goes well beyond the bounds of journalism. The instances of branded content, or even the organization of events in partnership with commercial companies promote a confluence between journalism and advertising, which nowadays takes places under the vector of the subsumption of the first by the latter, which leads to a permeability between the social role of journalism and commercial interests and logics. The unevenness of this relationship is equally clear in the importance attributed to page views data, taken as an index of consumer interest (and, therefore, of the interest of the advertiser). Their centrality is such that it brings about changes in the very organization and equipment of the workspace, which now includes, as we have mentioned, screens with real time statistics on content consumption.

The attempt to capture the reader's attention has led to an added sophistication of the journalistic piece, in terms of both production and distribution. This means new professional posts, such as digital analysts, social media managers, designers, and infographic designers, given their respective expertise in measuring and reading data on the circulation and reception of content, alongside the production of aesthetically-appealing information.

It falls on journalists themselves to cultivate these new competencies, lest they become incapable of performing an activity that, for the majority of them,

did not involve much in the way of technical skills. With the communicational context fostered by the digital industry and its technological innovations, driven by a reorientation of the logics of production, dissemination, and consumption for digital supports, and by the fact that the internet allows virtually anyone to produce, distribute, and access digital content, we witness a destabilization and dislocation of the concept of “journalism” and of the profession of “journalist”, alongside an overall dispute over its frontiers and fields of application (Garcia 2009; Fidalgo 2016). In other words, tasks that were initially deemed non-journalistic have now been folded into the set of functions that make up a more versatile, multi-skilled definition of journalism. It is no longer a matter of simply writing the copy for a news piece, conducting an interview, or doing a report, but rather a case of becoming part and parcel of an advertising campaign, of integrating other content into the news (such as photographs, multimedia content, hyperlinks), of performing tasks such as layout, formatting, and editing or even handling interaction with the readers. The diffuse notion of a crisis of journalism can be reframed, therefore, beyond the strictly economic or purely technological spheres, against the wider cultural backdrop of a far-reaching crisis of meaning in journalism.

We could verify that the nonstop follow-ups and updates on an event delineated by the internet means that there is no longer a “temporal break”. This fosters a kind of “on-the-spot” journalism that often ends up resorting to other media as sources. One is therefore forced to do more in less time, and often for a lower or even nonexistent salary and precarious work bonds, such as internships or freelance work. The two phenomena are closely interlinked, since precarity tends to operate as a guarantee that these norms will be followed, in the name of a more promising future: to do volunteer work on a cultural magazine may help in making the necessary professional contacts; the article published on the news platform operates as a means of advertising for its author.

As far as the analysis of the four case studies allows us to see, the polysemy and comprehensiveness of the concept of sustainability applied to media and journalism, confronts, rather than harmonizes, different understandings on how to solve or face the challenges posed today by digitalization in this area. On the one hand, proposals stemming from concerns about the economic and financial sustainability of news media companies determine their migration to the digital sphere in order to reduce costs with their material and human resources or to encourage the creation of new types of content, in which the

difference between news and advertising becomes blurred. On the other hand, these results call into question the sustainability of a democratic public sphere, as this is founded, among other features, on the autonomy of both news genres and news producers. Although we can point out some attempts at complementarity between the two aforementioned aspects implied in the ideas of media sustainability and sustainable journalism, the business aspect, the ethical aspect, and political aspect, the empirical analysis presented on the media field in Portugal points to a clear primacy of commercial interests, especially visible in the market orientation of technological products. In the light of our understanding of the problem and the evidence from the case studies, the concept of sustainability is inconsistent in the context of the media field, because it absorbs opposite meanings without synthesizing them, without offering a complementary solution.

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CITE THIS CHAPTER AS:

GARCIA, J. L. et al. 2018. "Sustainability and its contradictory meanings in the digital media ecosystem: contributions from the Portuguese scenario". In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 341-361.

<https://doi.org/10.31447/ics9789726715054.14>

POSTSCRIPT

The contribution
of social sciences
to building a more
sustainable
common future

João Ferrão

Publications on sustainability and sustainable development are countless and very diversified. So what does this book tell us that is new on this subject? What value-added does it bring to the multiple debates on concepts that are so frequent in the academic, political, and media agendas in the last three decades?

This book provides a comprehensive and refreshing approach from the viewpoint of the social sciences. It aims to rehabilitate, broaden, and strengthen two key concepts for critically re-thinking contemporary societies, different desirable futures, and possible transition pathways to achieve them.

The book brings together contributions that stem from projects developed autonomously, unrelated to each other, from very different perspectives, disciplinary areas, themes, and methodologies. This plurality of viewpoints and objects of study could have had high costs in terms of lack of coherence and unity. However, explicitly or implicitly, the various chapters share a series of unifying elements that award an interesting and innovative related variety, to retake a concept that is now widely used in some areas of the economy. The reading of this book allows, therefore, a diversified, but cohesive, panoramic view departing from the social sciences and based, in my opinion, on seven main aspects.

First, the authors acknowledge the overly polysemic and ambiguous nature of the concept of sustainability, the contradictory character of the objectives, and the often allegedly neutral formulation of the idea of sustainable development, its role in legitimising unacceptable situations, the theoretically inconsistent use with which both have been applied, and the huge distance separating the objectives from the results achieved. They thus encompass the wear and tear that the two concepts tend to suffer – turning into vague ideas or mere politically correct words – and the disenchantment of many of their advocates – faced with exercises of wishful thinking of dubious effectiveness and questionable utility.

This critical analysis of the nature of the concepts of sustainability and sustainable development and the way they are often used and appropriated does not discourage the authors but rather inspires them to re-conceptualize them from innovative and broader perspectives. This is the second aspect that deserves to be highlighted in this book. Although following different paths and using different arguments, the authors aim to contribute to the construction of a new paradigm of sustainability and sustainable development. Maintaining as a central reference the principles of justice and intergenerational distribution present in the initial formalization of sustainable development enshrined in

the so-called Brundtland report (1987), several authors point out that a new paradigm of sustainable development is possible only outside the rationalist, anthropocentric, technocentric, and post-political readings that continue to prevail in much of scholarly production. But they also stress that a new paradigm of sustainable development cannot fail to challenge the current processes of globalization, liberalization, financialization of the economy, and growth without limits. It is therefore a question of looking at sustainable development as a political project and at sustainability as a programmatic concept of societal transformation, redefining ends and means, priorities and values, social norms and practices.

The third aspect concerns how the various chapters contribute to the construction of a new paradigm of sustainable development and, consequently, to more sustainable processes, systems, relationships, and actions. In some cases the scope of the concept of sustainable development is broadened and made more comprehensive and inclusive by looking beyond its three canonical pillars (environmental sustainability, social inclusion, and economic growth) and the recently added fourth (governance), or even the 17 sustainable development goals of the United Nations (2015) Agenda 2030. In others, alternative visions of sustainability and sustainable development are adopted from perspectives that, although with no fully coincident focuses, share the objective of seeking to replace the rationalist, anthropocentric, technocentric, and post-political readings still prevailing today, as previously mentioned: thick and deep green, ecocentrism, ecoeconomy, biocentrism, amongst others, exemplify this epistemological and theoretical turn. In others still, the concepts of sustainability and sustainable development are interspersed with inter- or transdisciplinary scientific agendas, some recent (e.g. climate change), others emerging (animal studies, ignorance studies, etc.).

The reconceptualization and construction of a new paradigm of sustainable development introduces elements of epistemological and theoretical disruption, but also integrates previous legacies. This is a fourth important element to highlight in this publication, in which several authors reconstitute the genealogy of recent concepts – circular economics, food security, media sustainability, etc. – from contributions that go back directly to the mid-twentieth century and sometimes, indirectly, to concerns already present in works of the nineteenth century. In the same sense, the geohistorical approach adopted in some case studies demonstrates the importance attributed by the social sciences to the understanding of emerging realities in

their relationships of connection and tension with previous social, cultural, and political contexts.

The broadened and enriched vision of sustainability and sustainable development underlying the various chapters of this book ascribes a crucial role to some cross-cutting concepts. We will emphasize three: transition, coevolution, and societal transformation. Several chapters focus on the processes and conditions of transition to sustainability in different domains: agricultural systems, energy-efficient and low-carbon systems, dietary patterns and sustainable eating habits, good governance, climate change transformative adaptation practices, etc. Also the concept of coevolution – between different actors, but equally between humans and nonhumans – pervades several of the chapters of this book, reflecting the relational approach adopted by many of the authors. Finally, the concept of societal transformation – including the components of social and institutional innovation – emerges naturally as an essential medium in a publication in which the need to build new paradigms of sustainability and new models of sustainable development is the element shared by all the authors. The fifth element to be emphasized is therefore the indispensable role of the social sciences in understanding values, norms, actors, social and institutional practices, and forms of governance that can stimulate transition regimes, forms of coevolution, and modes of societal transformation towards desirable futures, because they will be more sustainable, and possible futures, because they will be socially more accepted.

The sixth aspect to be emphasized, partly incorporated in the previous one, relates specifically to the role, responsibility, and capacity of action of the various types of actors, from international organizations to citizens, from companies to scientists, from policy makers and public sector employees to social movements and activists. The mobilization and empowerment of these actors for societal change is crucial. But within a debate that views sustainability as a collective design and sustainable development as a political project, it is particularly interesting to see how several authors see this debate as a way to go beyond prevailing perspectives in studies on inequalities or human rights. They do this by defining broader references, such as planetary life and the rights associated with all the species that inhabit the planet Earth and the various biophysical systems that sustain it.

Finally, and as the seventh aspect, it is worth highlighting the concern shown by several authors in proposing suggestions for new research agendas and a new generation of public policies in very diverse fields. From agriculture

to digital technologies in the field of energy or the fight against corruption, from food safety to the role of pets in children's lives, from adapting to climate change to the digital media ecosystem.

Is the concept of sustainability an oxymoron, and is the idea of sustainable development just wishful thinking? And have both been used too often to legitimise questionable decisions or in a theoretically thin, inadequate, and even inconsistent manner? This book, and the gaze from the social sciences it reveals, shows that it is not an inevitability to answer affirmatively to the questions posed. Conversely, it is inevitable to consider sustainability as a mobilising collective design and sustainable development as the central objective of a transformative political project. As long as they are based on rigorous and critical perspectives and social and institutional practices of change, these two concepts are crucial for building a liveable planet and a more just society, that is to say, a more sustainable common future.

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CITE THIS CHAPTER AS:

FERRÃO, J. 2018. "Postscript. The contribution of social sciences to building a more sustainable common future". In *Changing Societies: Legacies and Challenges*. Vol. III. *The Diverse Worlds of Sustainability*, eds. A. Delicado, N. Domingos and L. de Sousa. Lisbon: Imprensa de Ciências Sociais, 363-367.

<https://doi.org/10.31447/ics9789726715054.15>

In 2016, the Institute of Social Sciences (University of Lisbon) decided to prepare a three volume publication in English based on its 2015/2020 Strategic Programme: *Changing Societies: Legacies and Challenges*. Each volume focuses on one of the programme's main research areas: *Inclusion, Citizenship and Sustainability*. The publication foregrounds the Institute's work and, through the 48 texts included, disseminates its researchers' innovative contributions to the social sciences. This publication is a clear sign of the ICS community's remarkable collaborative vitality. This high quality research, now accessible to a vast international readership, highlights the virtues of interdisciplinarity in science practice, one of the pillars of ICS-ULisboa.

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