THE MEDITERRANEAN DIET
from Health to Lifestyle and a Sustainable Future

Edited by

F. Xavier Medina and Helen Macbeth

in the ICAF
Alimenta Populorum
series

Cover photograph:
Vegetables associated with the phrase,
Mediterranean Diet

THE MEDITERRANEAN DIET
from Health to Lifestyle and a Sustainable Future

THE *ALIMENTA POPULORUM* SERIES
of the International Commission on the Anthropology Food and Nutrition
(ICAF)

Series Editors: Helen Macbeth and Paul Collinson

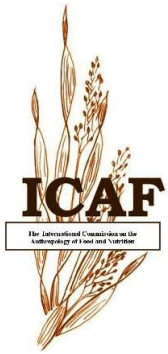
This series of free-to-access, well-illustrated e-books is directed at a broad readership across many academic disciplines, professions, governmental and non-governmental institutions, students and the general public. With its cross-disciplinary style, the books bring together diverse chapters with a wide range of perspectives on human food, nutrition and food systems. Such a multidisciplinary series is of particular value in regard to topics concerning human food because of the diversity of interest in the subject.

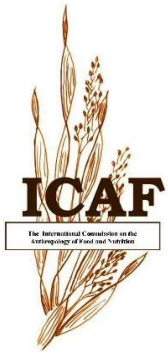
Previous volume in the Series:

BIRDS AS FOOD:
Anthropological and Cross-disciplinary Perspectives
Edited by *Frédéric Duhart* and *Helen Macbeth*
Available at:
https://archive.org/stream/BirdsAsFood.ISBN9780950051307/Birds%20as%20Food.%20ISBN%20%20978-0-9500513-0-7#mode/2up

THE MEDITERRANEAN DIET
from Health to Lifestyle and a Sustainable Future

Edited by:
F. Xavier Medina and Helen Macbeth





THE MEDITERRANEAN DIET
from Health to Lifestyle
and a Sustainable Future

First published in 2021
In the *Alimenta Populorum* series by the
International Commission on the Anthropology of Food and Nutrition
(ICAF)

The website of ICAF is www.icafood.eu

British Library Cataloguing in Publication Data
THE MEDITERRANEAN DIET from Health to Lifestyle and a Sustainable Future
Edited by F. Xavier Medina and Helen Macbeth
Size: 208 pages, circa 7.6 MB
Includes bibliographic references, 101 coloured illustrations
ISBN 978-0-9500513-1-4
Keywords: Food – Society; Food – Cultural Diversity; Environment – Food Security; Mediterranean; Dietetics and Nutrition.
Descriptive: Cross-disciplinary collection of chapters about changes in the concept of the phrase 'Mediterranean Diet' towards a greater understanding of food systems and lifestyle around the Mediterranean, their cultures, environment and sustainability.

LIST OF CONTENTS

PREFACE

The International Commission on the Anthropology of Food and Nutrition promotes cross-disciplinary discussion by bringing together contributors from different sub-disciplines within Anthropology and beyond, both from other academic disciplines and from relevant professions and organisations, in meetings about food-related topics.

This volume arises from such a meeting, within a congress held in Palermo in May 2019, organised by the UNESCO-UOC Chair on Food, Culture and Development, on the Mediterranean Diet and the Diversity of Mediterranean Food Cultures. Yet, with its diversity of chapters, this electronic book progresses beyond that meeting to reflect a specific theme of contemporary interest.

Of priority, the editors wish to thank the International Center for Advanced Mediterranean Agronomic Studies (CIHEAM) and the Forum on Mediterranean Food Cultures which successfully organised the Palermo World Conference in collaboration with many other institutions. We especially wish to thank Sandro Dernini, who played a prominent role both in the organisation of the congress and in our meeting, as well as providing some details and contacts for this book.

We are most grateful to all the contributors for their chapters and for their patience with our comments and the many delays in finalising this electronic book. Last but not least we thank the two referees for their positive support for the book and the many constructive points that they made.

FXM and HMM
February 2021

LIST OF CONTRIBUTORS

Alen Agaronov,
Harvard T.H. Chan School of Public Health,
Harvard University,
Massachusetts, USA.

Lucy Antal,
Feedback Global,
Liverpool, U.K

Paul Bizzell,
RyderMarsh OCAID Limited,
Abingdon, U.K.

Roberto Capone,
International Center for Advanced Mediterranean Agronomic Studies (CIHEAM-Bari),
Bari, Italy.

Paul Collinson,
Anthropology Department,
Oxford Brookes University,
Oxford, U.K.

Sandro Dernini,
Forum on Mediterranean Food Cultures, Rome, Italy,
International Center for Advanced Mediterranean Agronomic Studies (CIHEAM-Bari),
Bari, Italy.

Vincent Gitz,
CGIAR Research Program on Forests, Trees and Agroforestry
Center for International Forestry Research (CIFOR),
Bogor, Indonesia

Isabel González Turmo,
Department of Social Anthropology,
Universidad de Sevilla,
Seville, Spain.

Sonia Mlayah Hamzaoui,
Museum of the Medina of Tunis “Ben Abdallah”,
Heritage National Institute,
Tunis, Tunisia.

Parviz Koohafkan,
World Agricultural Heritage Foundation,
Rome, Italy.

Helen Macbeth,
Anthropology Department,
Oxford Brookes University,
Oxford, U.K.

F. Xavier Medina,
UNESCO Chair on Food, Culture and Development,
Faculty of Health Sciences
Universitat Oberta de Catalunya (UOC),
Barcelona, Spain.

Alexandre Meybeck,
CGIAR Research Program on Forests, Trees and Agroforestry
Center for International Forestry Research (CIFOR),
Bogor, Indonesia

Iain Young,
School of Medicine,
Institute of Life Course and Medical Sciences,
University of Liverpool,
Liverpool, U.K.

INTRODUCTION: LOOKING BACK, LOOKING FORWARD: Necessary Reflections on the Evolution of the Concept of the Mediterranean Diet

by F. Xavier Medina and Helen Macbeth

The meaning of words:

'When I use a word,' Humpty Dumpty said, in rather a scornful tone,
'it means just what I choose it to mean – neither more nor less.'
'The question is,' said Alice, 'whether you can make words mean so many different things.'
'The question is,' said Humpty Dumpty, 'which is to be the master - that's all.'
(Lewis Carroll 1872)

Words are important. Words are the vehicle of what we want to say. They purvey concepts, but also words are fundamental to our developing thoughts and beliefs. Yet words can have different meanings in different contexts, or even have options in the same context. Words change; they evolve. The uses of both the words 'Mediterranean' and 'Diet' have undergone changes and so has the use of the phrase, 'Mediterranean diet'. So, what is the Mediterranean diet? What do the words 'Mediterranean diet' really mean?

Mediterranean:

Since antiquity the Mediterranean has been the name of a sea, which is surrounded by (in the middle of) land (*terra*). That sea has been of great significance to the histories and cultures of peoples around it and beyond, and so, written about often (e.g., Driessen 2004). Today, frequently the word 'Mediterranean' is also used for some land area around that sea, of which the boundaries are not at all clear (Figure 0.1).

Figure 0.1: Map of the Mediterranean basin

Source: Adapted from picture licensed under the Creative Commons Attribution Share Alike 4.0 International licence. User:OgreBot/Uploads by new users/2015 February 13 12:00

Over at least the last couple of centuries, 'Mediterranean', as a noun or an adjective in English, has been used by northern Europeans and anglophones generally, to refer to land areas of southern Europe beside the Mediterranean Sea. Readers, please take a moment to consider what countries you would include as 'Mediterranean'! Would you include Portugal, which has no coast on the Mediterranean Sea? Would you immediately have thought of Egypt, Libya or Syria? A more detailed and inclusive view is needed, for there are twenty-two nation states around and within that sea (see Figure 0.2).

Figure 0.2. Political map of the Mediterranean area.

Adapted from image reproducible by permission of: https://entaovamosfalar.blogspot.com/2018/02/map-of-mediterranean-europe.html.

Perhaps to simplify the diversity, some people have referred to a 'north shore' and a 'south shore' as though the intricate pattern of shore lines and islands had just two shores. In this two-sided concept, where are the countries of the eastern Mediterranean (frequently missed or included in the southern side, although there are occasional mentions of south and east shores) or the islands in the Mediterranean Sea? Are Malta or Cyprus northern countries, when geographically on the map they are further south than parts of Tunisia or Algeria? Italy has long north-east-facing and south-west-facing coastlines as it intrudes southwards in that sea. Do Spain and Morocco count as north or south shore, when together they clearly create the western? Also consider the eastward facing coastline of Tunisia. As Roque (1994: 9) points out: 'The name "Maghreb", which means *the west*, comes from the Arab geographers and is also considered, metaphorically, as the *island of the West*.' And what about Portugal?

In summary, concepts behind place names are indeed social and cultural constructs, but use of terms such as 'north shore' and 'south shore' demonstrates how seemingly geographic terms can be used inaccurately for such social and political concepts. The history of such

phrasing may be understood, but it is important to realise how continued use of politically-loaded terms can also have real social and political consequences. There is no doubt that discussions about the 'Mediterranean area' involve several strong sociocultural constructions. We (in Europe and the 'Western World' generally) construct our concept of the Mediterranean based on certain parameters, strongly affected by geography and climate, but influenced by cultural projections and stereotypes. As González Turmo (2001: 1) points out:

> The Mediterranean is (..) an idea that has a history, a tradition of thought, some images, some evocations that have been built on a concrete socioeconomic reality. It is, in short, a construction elaborated for centuries from and for the Occident, which has, in turn, allowed these two geographical realities, Europe and the Mediterranean, to project themselves into each other.

It is mainly, as Gilmore (1982: 88) points out, a Western European intellectual reflection that initially focused solely on the study of the European Mediterranean societies, but through which 'Europeanists have gradually become aware of many affinities between their peoples and those of North Africa and the Levant. These resemblances start with environment but include many "core issues of life".' However, Giordano, who also refers to the creation of an 'Anthropology of the Mediterranean' writes:

> Any claim that it was the mild climate, the pleasant company of easy-going, amusing and generous contacts or, worse still, the proverbial fine dining that drove North-European anthropologists (British and Dutch especially, but also French) to choose the Mediterranean as the *locus amoenus* for their researches, would be tendentious. In fact, if this hypothesis were true, we would then need to wonder why these societies were not discovered any time sooner. But, as John Cole pointed up, the rationale behind this choice is far less banal and conceals political reasons.
>
> (Giordano 2012: 11)

Yet, the outer boundaries of the land area are never defined. Nevertheless, as the French anthropologist Igor de Garine tells us:

> Perhaps the distribution of the olive grove marks the interior limits of what we believe to be the Mediterranean agricultural world. There are numerous variations of nuances, from north to south and from east to west, but we can comfortably define the Mediterranean area as the one that enables cereals, vines and olive groves to be cultivated without any risk, while engaging in livestock farming, formerly nomadic, now sedentary, in which animals of ovine and caprine species predominate.
>
> (Garine 1993: 11)

Figure 0.3: Branch of olive tree, Uzes, France

Photograph © Helen Macbeth

Defining the Mediterranean region by the distribution of olive trees (Figure 0.3) has also been used by nutritionists (see below).

Diet:

In English language dictionaries, the word 'diet' refers to food intake. For example:

> 1. The usual food and drink of a person or animal.
> 2. A regulated selection of foods, especially as prescribed for gaining or losing weight or for other medical reasons.
> 3. Anything taken or provided regularly.
>
> (Readers Digest Universal Dictionary 1986)

Although the wording in different dictionaries does differ, the word today in English and many other languages is taken to mean food and drink consumed, usually with some nutritional and regular pattern

implied. Yet, the English word is derived, via the Latin *diæta*, from the ancient Greek word, *díaita* (in Greek script, *δίαιτα*). This had a meaning of 'life', 'way of life', 'mode of living', customs, and even in some contexts 'a place of living' (Liddle and Scott's Greek-English Lexicon 1949). From this can be understood, how its meaning can also encompass cultures. In the sixteenth century it was also used for rules and so assembly[1]. As we explain in the next section, the wider ancient Greek meanings have been remembered in recent research developments and discussions, when the word 'diet' is used in conjunction with 'Mediterranean'.

The Mediterranean Diet:

However, what about the phrase 'Mediterranean diet'? Interest in so-called 'Mediterranean' food and culinary patterns has a long history, as referred to by González Turmo (this volume), but in the English-speaking world, the popular phrase 'Mediterranean Diet' had become associated with a healthy dietary model (Figure 0.4) originating, less directly than is sometimes assumed, from the epidemiological work of Ancel Keys and colleagues in the Seven Countries Study (e.g. Keys 1970).

Figure 0.4:
Montage of some foods associated with the Mediterranean dietary model.

Montage © Helen Macbeth

Yet, the data regarding food items called 'Mediterranean' came from their research in a very few locations in Italy, Crete and Yugoslavia (now Croatia) during the work on the Seven Countries Study[2] (see, e.g., Marqués da Silva 2015; Agaronov this volume).

[1] As in the Diet of Worms of 1521.
[2] For an in-depth view of this and other subjects about the history of the Mediterranean Diet, see Marqués da Silva (2015).

From this and subsequent nutritional research, the so-called 'Mediterranean Diet' became famous in many populations as a regime of food intake of certain foods (especially olive oil), argued to be healthy, initially for cardiovascular issues and later in relation to other conditions, especially the cancers.

In this regard, it is interesting to observe how the *limits of the Mediterranean*, referred to above concerning olive trees, can also be defined in food-productive terms relevant to olives (Figure 0.5), which have an intrinsic relationship with the 'Mediterranean diet', as used by the nutritionists. For example, Trichopoulou (2007: 236) points out:

> The traditional Mediterranean diet is the dietary pattern found in the olive-growing areas of the Mediterranean region in the 1960s. Although different regions in the Mediterranean basin have their own diets, several common characteristics can be identified, most of which stem from the fact that olive oil occupies a central position in all of them.

Figure 0.5: Olives and olive oil displayed for sale, Crete
Photograph © Helen Macbeth

This medical definition is interesting for us, because of two main factors. First, the defining presence of a single product as 'essential' to defining the Mediterranean diet: the olive oil. And secondly, as Medina points out (this volume), because of its temporary anchorage in a past already lost (the 1960s). Trichopoulou's definition also includes the adjective 'traditional', which endows the Mediterranean diet with a

certain timeless halo, at the same time that it assumes a popular and widespread presence. In contrast, as discussed by authors, Medina (this volume) and Dernini and Capone (this volume), it is important to note that the notion of the Mediterranean diet has undergone a progressive evolution over the past more than 50 years. In this regard, the Mediterranean diet seems to have evolved from solely that of a healthy dietary pattern to a far more inclusive cultural culinary system (González Turmo 2005; Contreras, Riera and Medina 2005), particularly after being recognised and inscribed in 2010 by UNESCO as an Intangible Cultural Heritage of Humanity (Medina 2009, 2019). According to Dernini:

> The Mediterranean diet as a whole lifestyle makes the cultural identities and diversity visible, providing a direct measure of the vitality of the culture in which it is embedded. The Mediterranean diet is an expression of a Mediterranean style of life in continuous evolution throughout time, and it is constantly recreated by communities and groups in response to changes in their environment and history. As a part of the different cultures, it provides a sense of identity and continuity for the Mediterranean societies.
>
> (Dernini 2008: 311)

This evolution has started to transform the concept of the Mediterranean diet from strictly health and nutritional notions to visions more closely linked with lifestyles, environment and sociocultural perspectives. Then more recently this evolution led the conception of the Mediterranean diet to be developed as a model of a sustainable food system (Dernini et al. 2017). As Dernini and Capone also point out (this volume):

> The enhancement of the diversity of Mediterranean food cultures and the revitalisation of the Mediterranean diet, with country specific variations, as a lever for bridging sustainable food consumption and production, are interconnected and should be investigated and promoted together as safeguard measures for the achievement of a broader individual and community well-being in all Mediterranean countries.
>
> (Dernini and Capone, page 57)

Thus, an originally anglophone phrase linking a dietary pattern from regions north of the Mediterranean Sea to health has been updated to a reflection of the different food cultures, lifestyles and sustainability within a much larger region around that sea (Macbeth and Medina 2020). Nevertheless, despite the importance of this transformation as a long road travelled in a very short time, the 'scientific' perspective related to health continues to be the main axis around which all other aspects rotate (Medina 2019). The Mediterranean diet continues to be popularly observed mainly as a healthy dietary pattern. Despite the importance of the cultural and environmental visions and arguments built around it, the maintenance of the medical discourse as central may entail the risk of *folklorising* any other discourse, and of turning it into only complementary and accessory perspectives, which are less important. This risk is more significant and more present than we might have initially believed, in view of the entire journey that this concept has undergone in just the last decade and a half.

Framework of this book:

We first considered the idea for this book immediately after the 2019 celebration in Palermo of the second world conference on the Revitalization of the Mediterranean Diet (Figure 0.6), which had the title: 'Strategies towards More Sustainable Food Systems in the Mediterranean Region', with a subtitle of 'The Mediterranean Diet as a Lever for Bridging consumption and Production, in a Sustainable and Healthy Way'.

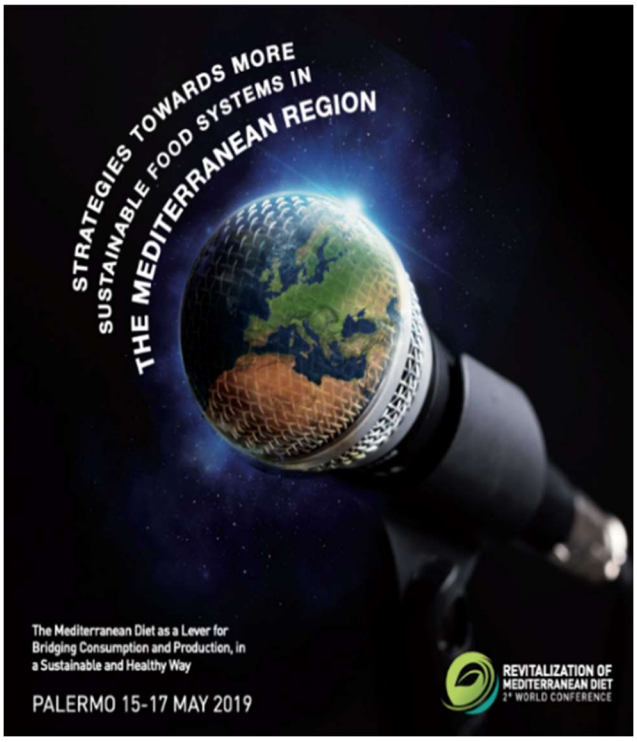


Figure 0.6:
Poster for the conference,
Strategies towards more Sustainable Food Systems in the Mediterranean Region.

One session in that conference was on 'The Diversity of Mediterranean Food Cultures and Culinary Systems as a Driver for the Revitalization

of the Mediterranean Diet in the Context of Sustainable Food Systems in the Mediterranean Region'. This was the third international meeting organised by the UNESCO-UOC Chair on Food, Culture and Development in collaboration with the International Commission on the Anthropology of Food and Nutrition (ICAF).

For this book, we wanted to create and give a multidisciplinary view on this topic beyond that of health, which was open, cross-disciplinary and hopefully understandable by all. We envisaged departing from the health dimension of the phrase in order to present the different aspects of the social, cultural and environmental perspectives on that broader use of the phrase 'Mediterranean diet'.

To do this, the authors of the different chapters which make up this collective work approach the subject from their respective disciplines and fields of work. Together the chapters reflect the dynamic progress, composed of multiple facets, of the path that the phrase 'Mediterranean diet' has travelled in the last fifty years. This has led it from positions related only to health, to include lifestyle and be considered as a diverse and complex culinary system, inscribed as an intangible cultural heritage by UNESCO and, more recently, to be observed as a model of a sustainable food ecosystem for the Mediterranean area by official institutions such as FAO[3] or CIHEAM[4].

From this perspective, the Mediterranean diet is not simply a set of healthy nutrients. It is a complex web of cultural, economic, social, biological and environmental aspects that depend on each other and lead from the ecosystem to agriculture to food production, processing and retail to consumption and so to the nutritional, economic and social welfare of the populations (Medina, 2011).

That welfare in turn affects the human input into the systems and so a certain circularity, which operates not only through the social and historical processes of law, politics and religion, but also through the health and energies of the people and the sustainability of agricultural and economic processes. With all this interaction in mind, the food systems around the Mediterranean are being researched holistically to explore options for sustainable food resources for the region. Several of the relevant perspectives on this are covered by contributors to this

[3] Food and Agriculture Organization
[4] International Centre for Advanced Mediterranean Agronomic Studies

volume, and ultimately through an interactive and circular model, the objective is sustainability of the complex whole (Macbeth et al. this volume).

Furthermore, this is concordant with the objectives of ICAF in fostering the cooperation of social and biological anthropologists with those from other disciplines and professions involved in matters related to human food and nutrition. That pattern is particularly reflected in this volume, in which the chapters concerning food habits, diversity and change in countries around and within the Mediterranean Sea are written by significant authors from different disciplines.

Thus, the first chapter of the book, by Medina, considers some aspects and concepts that are relevant to discussions about the Mediterranean diet from a sociocultural point of view. Taking into account the evolution and significant transformation of the concept of the Mediterranean diet, experienced particularly in the last almost two decades, the author shows how different interdisciplinary approaches still present important problems for correlation, mainly because the dialogue between the different academic positions is frequently difficult and, at times, non-existent. Medina points out how, despite the important intellectual path travelled by the Mediterranean diet as a concept, certain visions, mainly from the medical-nutritional perspective, continue to be static and contradictory both with cultural and environmental arguments, among which we must highlight the importance of local production and consumption.

Following some of these premises, in Chapter 2, Dernini and Capone introduce the complexity of the interdependent challenges performed regarding the Mediterranean diet. The authors note how the radical transformation of the contemporary global food scenario requires multicultural, multisectoral and cross-disciplinary rethinking on the sustainability of food cultures and systems. Current challenges need to be tackled through a renewed vision that requires diverse scales, multifaceted understanding and multidisciplinary approaches, with the anthropological focus on the people, hence the need for a better understanding of their food-related choices and drives as related to their cultural, social, economic and environmental circumstances.

In Chapter 3, an exceptional insight into the work of Keys and early researchers into the epidemiology of cardiovascular diseases is

brought to light by Agaronov, illustrating not only the interest of the original researchers of the Seven Countries Study in dietary intake, but also the relevance of lifestyles in their studies of epidemiology. Yet, in the decades that followed, researchers ignored this early emphasis on lifestyles, while specialising more and more on nutritional and biochemical aspects. These lifestyle perspectives were nevertheless remembered in the 1990s by European food anthropologists, many of whom were linked to ICAF, and were also fundamental in the work towards UNESCO's inscription of the Mediterranean Diet as Intangible World Heritage in 2010.

In Chapter 4, Macbeth and Bizzell revived some 1990s food intake frequency data in two pairs of French and Spanish populations, each pair adjacent along the border between France and Spain, one pair on the Mediterranean coast and one pair in an eastern Pyrenean valley (Figure 0.7).

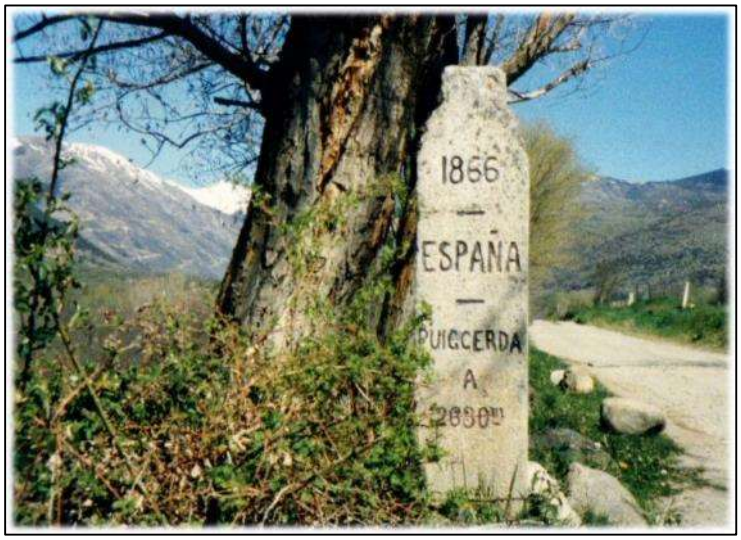


Figure 0.7: Stone marking border between France and Spain, Cerdanya Valley, Eastern Pyrenees.

Photograph © Helen Macbeth

Although studies of frequency of foods eaten (in seven consecutive days) provide quantitative data, they are not measured nutritional analyses, but they do show statistically significant differences in food intake choices. Reanalysis of these data shows not only food intake diversity between the four population samples, but also how the diet of all these populations diverged from contemporary 1990s concepts of a 'Mediterranean Diet' and even when reanalysed by MDS[5] methods. Of interest too is that differences according to nationality exceeded differences between mountain valley and coast.

Hamzaoui continues in Chapter 5 the discussion of food habits in relation to lifestyle. Comparing urban and rural examples in Tunis, she refers to the simultaneous co-existence of both traditional and

[5] MDS Mediterranean Diet Score, as developed initially by Trichopoulou et al. (1995).

modern food models. She shows how social changes in city dwellers, women's employment and the constraints of urbanisation have affected several aspects of culinary and food purchasing patterns and favoured a certain standardisation of the food system. However, more traditional aspects persist in rural areas and on festive or ceremonial occasions in the cities. The contemporary coexistence of the local and the global has the effect of slowing down the process of globalisation of the cultures of eating and drinking.

Social change is at the centre of Chapter 6 by González Turmo, who regrets how little protection the UNESCO label has achieved for the local farmers and small producers, and so for rural villages. She argues that whereas it has been a focus of much discussion, it has been a failed opportunity. Arguments which supported the declaration of the Mediterranean Diet as an 'Intangible Cultural Heritage of Humanity' have not been strong enough to be converted into actions that strengthen the food cultures around the Mediterranean. Stressing that change is inherent in society, her chapter discusses the importance of the digital revolution within all parts of all food systems from production to retail. Technology has become the most powerful motor of change in the food industry. Meanwhile, cooking at home is perceived, planned and practised in quite a distinct manner from previous generations, with ready prepared meals and quick cuisine.

Yet, around the Mediterranean, small farms, very often managed within one family, continue to be a relevant part of agriculture. In Chapter 7, in protective terms similar to those of González Turmo, Koohafkan discusses appropriate support for small-farm businesses and rural agriculture. He suggests that the aim for such small farms should be to retain the best of traditional practices while finding a way for farmers to adjust to modern agricultural circumstances in order to remain sustainable. Having been founded on past agricultural knowledge, many of these traditional systems are linked to biodiversity, and assistance to sustain them will lie in the appropriate integration between the traditional and modern processes, and not in retaining them as museum pieces. He strongly recommends support for the *in situ* agricultural sector for the food systems around the world, while including mention of Mediterranean areas. His emphasis is on

small holders, family farmers and local communities and their support, which, from cultural and environmental perspectives, is both a challenge and an opportunity.

Food production and agriculture create landscapes that, although partially linked to nature, are far from natural. What might be called the 'natural' Mediterranean landscape is already extremely rare (Figure 0.8).

Figure 0.8: 'Landscape with a Tree', painting by Dionís Baixeras (1862–1943).
Private collection in Barcelona © F. Xavier Medina. Reproduced with permission.

Yet, landscapes, like diet, are interfaces between nature and culture, as ways in which people appropriate nature and cultural constructions of nature (Figure 0.9).

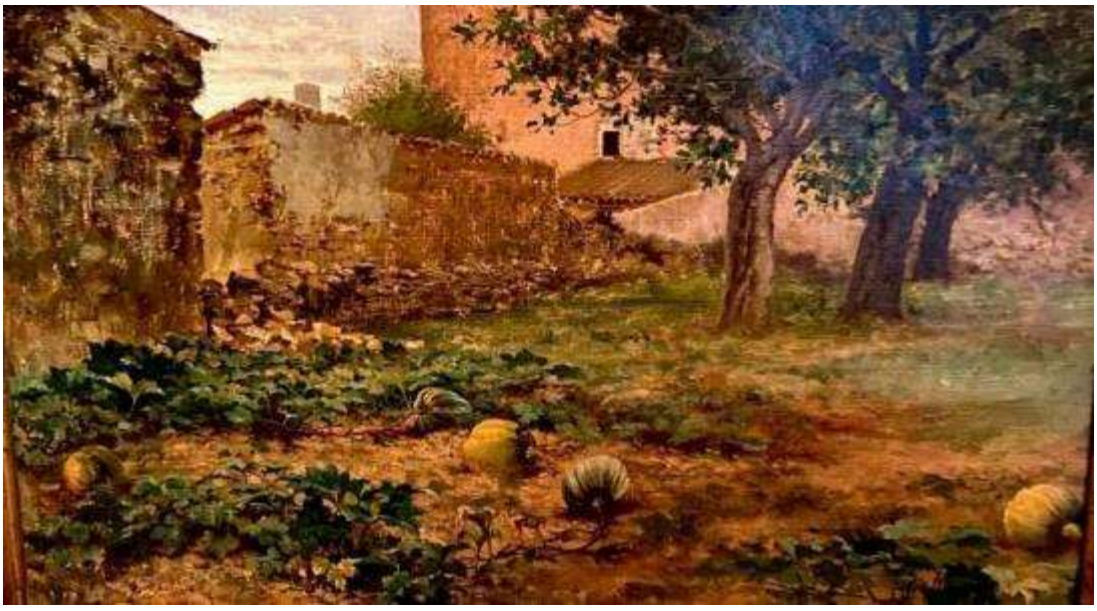


Figure 0.9: 'Pumpkin field', painting by Tomàs Moragas (1837–1906).
Private collection in Barcelona, © F. Xavier Medina. Reproduced with permission.

In Chapter 8, Meybeck and Gitz first distinguish between a physical landscape and the perception of that landscape by the

observer. They explore the links between the notions of diet and landscape in the Mediterranean context, and state that most contemporary diets are no longer determined by what is locally produced. Thus, the relation between a diet and a geographic area may frequently show a physical disconnection between the spaces of production and those of consumption. Nevertheless, the authors consider the renewed importance of the symbolic links between landscapes and diets as the potential means on which to base strategies towards more sustainable food systems in the Mediterranean region.

We began this chapter by discussing the meaning and use of words, and since the words 'sustainable' and 'sustainability' are increasingly used in Mediterranean objectives, as discussed in other chapters, we now should consider 'What is sustainability?'. We, therefore, conclude this volume with a chapter by Macbeth, Antal, Collinson and Young, who review the uses and meanings of 'sustainability' in earlier chapters and at the conference in Palermo in 2019. After this, they add further perspectives on environmental sustainability relevant to food systems in the Mediterranean basin. The chapter concludes by stressing the importance of all the forms of interaction that occur, and because of those interactions, it ends with the authors condoning the use of the word 'sustainability' as an all-embracing concept, but only after the interacting perspectives have first been perceived, unravelled and understood.

Conclusion:

In this volume we show that uses of the phrase 'the Mediterranean diet' have undergone various changes that have taken it from a concept linked, at its origin and for several decades, solely to a healthy dietary model to an aspect of culture and lifestyle, which led to its declaration as Intangible Cultural Heritage by UNESCO in 2010. Since then, the concept was further expanded in 2011, guided by the FAO and CIHEAM, focussing on sustainability and locality as the corner stones of its new identity. Although, the Mediterranean diet has thereby undergone these conceptual transformations over the years, there remain linkages and interactions between the components of all these concepts that should not be forgotten. Even when considering health, it is essential to recall the social and cultural components of a healthy

lifestyle. When considering the cultural diversities in food systems, local economics, politics and environmental differences are all significant variables. When considering the sustainability of environments and so of food systems in different environments, all are intrinsically linked to human activities, cultures and social systems. Nevertheless, for many people, health remains the primary focus of the phrase, and that remains a challenge at the very core of the protection of food systems as cultural heritage. Yet, even if, for the term 'Mediterranean diet', the focus on health has never really declined in importance, that concept of a dietary model has also been modified to suit new food trends and new medical understanding.

Now, the pandemic, Covid-19, is affecting all aspects of life around the world. There may be adverse effects on globalised systems and possible benefits to local systems, but, as the chapters in this book were written before or early in the pandemic, it has been too soon for this book to review its effects on food systems and their sustainability around the Mediterranean, as mentioned in Chapter 9. However, in many disciplines, the pandemic is generating serious discussions and new analyses of possible future conditions. Since an effective protection of the Mediterranean food systems is already needed, the possible effects of this or any new pandemic must now be included in the discussions of protection and sustainability. Reviews and proposed actions must exist within a multifaceted web structure, that includes the threat of pandemics, and every strand of the web must be understood, from soil to sale, from production to plate, not forgetting the disposal of waste.

This new reality has to be central in current and future discussions about the Mediterranean diet, their challenges and their many perspectives. Research in the social and cultural disciplines is fundamental to understanding the diversities in food systems around the Mediterranean basin, but because of the interaction between all human activities and all environmental shocks and processes, anthropological research has also been concerned with seeking out commonalities and interconnections between the viewpoints and perspectives from other disciplines.

There are grave environmental challenges in the region and future generations will undoubtedly face more. Therefore, this concern

becomes a significant and essential area of research into food systems and their sustainability around the Mediterranean, as all around the world. We, therefore, argue that this will probably be of greater importance to the survival of all humanity than the particular diets and health conditions of individuals.

References:

Contreras, J., Riera, A. and Medina, F.X. (2005) Conclusiones. In Contreras J., Riera, A. and Medina, F.X. (eds) *Sabores del Mediterráneo. Aportaciones para promover un patrimonio alimentario común,* European Institute of the Mediterranean (IEMed), Barcelona, pp. 247-269.

Dernini, S. (2008) The Strategic Proposal to Candidate the Mediterranean Diet for Inscription in the UNESCO List of Intangible Cultural Heritage In: *Med2008. Mediterranean Yearbook. 2007 in the Euro-Mediterranean Space*, IEMed/CIDOB, Barcelona, pp. 311-315.

Dernini, S., Berry. E., Serra Majem, L., La Vecchia, C., Capone, R., Medina, F. X., Aranceta, J., Belahsen, R., Burlingame B., Calabrese G., Corella D., Donini L. M., Meybeck A., Pekcan A.G., Piscopo S., Yngve, A. and Trichopoulou A. (2017) Med Diet 4.0. The Mediterranean diet with four sustainable benefits, *Public Health Nutrition*, **20(7):** 1322-1330.

Driessen, H. (2004) A Janus-faced Sea: Contrasting perceptions and experiences of the Mediterranean, *Mast Maritime Studies,* **3(1):** 41-50.

Garine, I. de (1993) La dieta mediterránea en el conjunto de los sistemas alimentarios. In González Turmo, I. and Romero de Solís, P. (eds) *Antropología de la alimentación: ensayos sobre la dieta mediterránea*, Junta de Andalucía/Fundación Machado, Seville, pp. 9-18.

Gilmore, D. D. (1982) Anthropology of the Mediterranean Area, *Annual Review of Anthropology,* **11**: 175-205.

Giordano, C. (2012) The Anthropology of Mediterranean Societies. In Kockel, U., Craith, M. N. and Frykman, J. (eds) *A Companion to the Anthropology of Europe*, Blackwell, Oxford, pp.11-31.

González Turmo, I. (2001) *La antropología social de los pueblos del Mediterráneo*, Comares, Granada.

González Turmo, I. (2005) Algunas notas para el análisis de las cocinas mediterráneas. In Contreras, J., Riera, A. and Medina, F. X. (eds) *Sabores del Mediterráneo. Aportaciones para promover un patrimonio alimentario común*. European Institute of the Mediterranean (IEMed), Barcelona, pp. 44-64.

Keys. A. (1970) Coronary heart disease in seven countries, *Circulation*, **41(4):** 1– 200.

Liddle and Scott (1949) *Greek-English Lexicon,* Clarendon Press, Oxford.

Macbeth, H. and Medina, F.X. (2020) New views about the Mediterranean diet, *Nature Food,* **1**: 141–142.

Marqués da Silva, A. J. (2015) *La diète méditerranéenne. Discours et pratiques alimentaires en Méditerranée,* L'Harmattan, Paris.

Medina, F.X. (2009) Mediterranean diet, culture and heritage: challenges for a new conception, *Public Health Nutrition*, **12(9A)**: 1618-1620.

Medina, F.X. (2011) Food consumption and civil society: Mediterranean diet as a sustainable resource for the Mediterranean area, *Public Health Nutrition*, **14(12A):** 2346-2349.

Medina, F.X. (2019) From Healthy to Sustainable: Transforming the Concept of the Mediterranean diet from Health to Sustainability through culture. In Collinson, P., Young, l., Antal, L. and Macbeth, H. (eds) *Food and Sustainability in the Twenty-First Century: Cross-Disciplinary Perspectives*, Berghahn, Oxford/New York, pp. 57-69.

Readers Digest (1986) *Universal Dictionary*, Readers Digest Association, London.

Roque, M.-À. (1994) Las culturas, elementos vitales de las civilizaciones. In Roque, M.-À. (ed.) *Las Culturas del Magreb*. Agencia Española de Cooperación Internacional, Ministerio de Asuntos Exteriores de España, Madrid, pp. 7-30.

Trichopoulou, A., Katsouyanni, K., Stuver, S., Tzala, L., Gnardellis, C., Rimm, E. and Trichopoulos, D. (1995) Consumption of Olive Oil and Specific Food Groups in Relation to Breast Cancer Risk in Greece, *Journal of the National Cancer Institute*, **87(2)**: 110–116. Available at: https://doi.org/10.1093/jnci/87.2.110. Accessed on 28/12/20.

Trichopoulou, A. (2007) Mediterranean diet, traditional foods, and health: Evidence from the Greek EPIC cohort, *Food and Nutrition Bulletin*, **28(2):** 236-240.

CHAPTER 1
OLD AND NEW DISCUSSIONS AND DISAGREEMENTS ON FOOD, HEALTH, CULTURE AND SUSTAINABILITY: THE EXAMPLE OF THE 'MEDITERRANEAN DIET'

by F. Xavier Medina

What is the Mediterranean diet? After much more than a half-century of work and research, the discussions and disagreements about the Mediterranean diet, on its development and its reality, but also on aspects still as crucial as the concept itself, are still alive and causing - even today - rivers of ink. From a very basic medical perspective, we can say that the Mediterranean diet is a healthy, plant-based, dietary pattern (Figure 1.1) that includes moderate to low amounts of animal food (Serra-Majem and Ortiz 2018).

Figure 1.1: Vegetable stall, Port-Vendres, France.

Photograph © Helen Macbeth

A longer and more specific and explanatory (and canonical) definition made by medical doctors offers us the following quotation:

> The traditional Mediterranean diet is characterized by high consumption of vegetables, fruits and nuts, legumes, and unprocessed cereals; low consumption of meat and meat products; and low consumption of dairy products (with the exception of the long-preservable cheeses). Alcohol consumption was common in the traditional Mediterranean diet, but generally in moderation and in the form of wine and, as a rule, during meals - in the spirit of the ancient Greek word 'symposium'. Total intake of lipids could be high (around or in excess of 40% of total energy intake, as in Greece), or moderate (around 30% of total energy intake, as in Italy) but, in all instances, the ratio of the beneficial

> monounsaturated to the non-beneficial saturated lipids is high, because of the high monounsaturated content of the liberally used olive oil. Finally, fish consumption has in the past been a function of the distance from the sea but has been, overall, at a moderate level.
>
> (Trichopoulou et al. 2014: 12)

I come back to this definition later. Nevertheless, there are important things to clarify: first of all, *the Mediterranean*, as a region, is a sociocultural and political construct based on a previous geographical entity (Medina 1996), around a sea of that name, with some specific climatic characteristics. With this starting point in mind, we construct our conception of the *Mediterranean* based on certain parameters, which are, as I said before, strongly defined by geography and climate. They are also defined by cultural projections, common places, misconceptions and stereotypes that are difficult to avoid. To this panorama, we have to add the frequently difficult communication between different academic disciplines, which make discussion and scientific advance difficult.

Secondly, the notion of the Mediterranean diet has undergone a progressive evolution over the past more than 50 years, from that of a healthy dietary pattern for the heart to the model of a sustainable diet (Dernini et al. 2017), always passing through culture and heritage on the way (Medina 2009, 2019). This evolution has transformed the concept of the Mediterranean diet from strictly medical and nutritional positions to visions more closely linked with society, culture and lifestyles. However, and despite the importance of this transformation, the centrality of the perspective related to health continues to be the main axis around which all other aspects rotate (Medina 2019).

The aim of this chapter is to discuss some relevant aspects and concepts that we must have in mind when we are talking about the Mediterranean diet from a social and cultural perspective. Taking into account the transformation of the concept of the Mediterranean diet, experienced particularly in the last 15 years, I shall try to show how the different views about it, already elaborated from different academic disciplines, present important problems for correlation because in some cases, the dialogue between the different positions is frequently difficult and, at times, non-existent, as will become clear below.

Brief highlights to get started:

After his researches in three countries in southern Europe and four countries elsewhere around the world in the 1950s and 1960s, Ancel Keys published 'Coronary Heart Disease in Seven Countries' (Keys 1970). Five years later, in 1975, he published jointly with Margaret Keys: 'How to Eat Well and Stay Well the Mediterranean Way' (Keys and Keys 1975) and, in 1980, he published 'Seven Countries: a multivariate analysis of death and coronary heart disease' (Keys 1980). In 1995, in the abstract of his article entitled: 'Mediterranean Diet and Public Health: Personal Reflections', he wrote:

> My concern about diet as a public health problem began in the early 1950s in Naples, where we observed very low incidences of coronary heart disease associated with what we later came to call the 'good Mediterranean diet'. The core of this diet was mainly vegetarian, and differed from American and northern European diets in that it was much lower in meat and dairy products and used fruit for dessert. These observations led to the subsequent research in the Seven Countries Study, in which it was demonstrated that saturated fat was the major dietary villain. Today, the healthy Mediterranean diet is changing and coronary heart disease is no longer confined to medical textbooks. Our challenge is to persuade children to tell their parents to eat as Mediterraneans do.
>
> (Keys 1995: 1321).

Nevertheless, in the same article and regarding an eventual definition of the Mediterranean diet, he writes:

> What is the Mediterranean diet? One definition might be that it is what the Mediterranean natives eat. But as we know and think of it now, it is a relatively new invention. Tomatoes, potatoes, and beans, for example, came from America long after Christopher Columbus discovered the New World. Today, we are interested in the Mediterranean diet as it is now and has been in recent times.
>
> (Keys 1995: 1321)

The definition of this new 'diet' has always been difficult. But what is certain is that his researches defined a new scientific interest in the health benefits of this *Mediterranean Diet* mainly regarding coronary diseases. Then, with the Mediterranean diet being recognised more and more as a healthy diet, its history has been described by others. For example, the article by Dernini et al. (2012), provides enough detailed information for it not to be repeated here, and Marqués da Silva (2015) wrote a very interesting book on the history of and the discourses about the Mediterranean diet.

As Antonia Trichopoulou (2007: 236) points out:

> For more than 50 years, the traditional Mediterranean diet has been considered health-promoting, but it was not until the mid-1990s that the topic began to receive increased scrutiny and prominence.

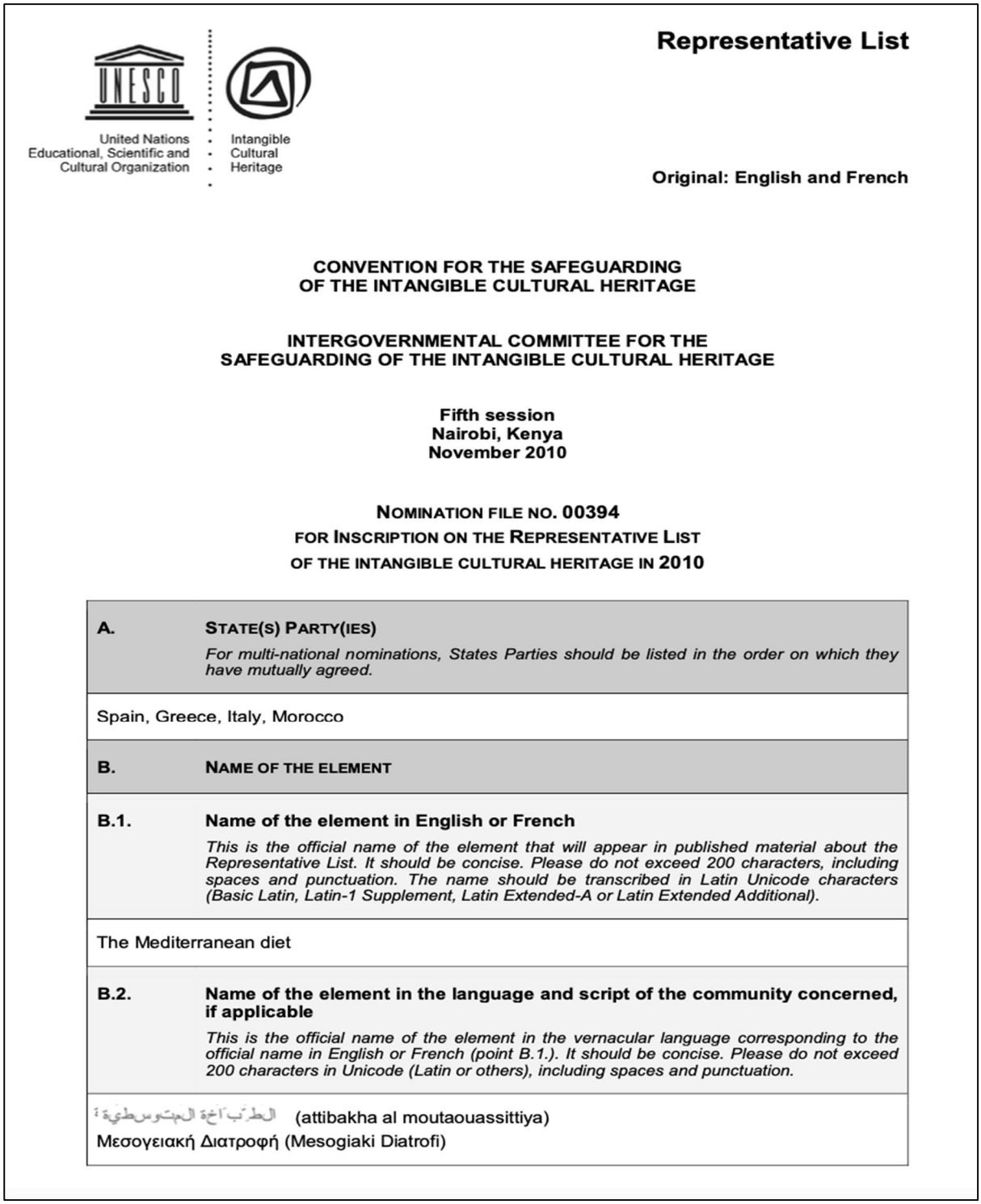
The list of meetings, congresses and publications highlighting the health benefits of the Mediterranean diet after that 1990s period have been innumerable. However, what is important in the last 15-20 years of the 20th century is that, for the first time, this representation of a *Mediterranean diet good for health* had been incorporated by the Mediterranean people themselves into their understanding (Hubert 2000: 156-157). Different meetings and publications on the topic were organised and held in Mediterranean Europe. Media success was also becoming important, accompanying the new and constant scientific discoveries related to the health benefits of the Mediterranean diet.

One of the meetings is particularly interesting: The *Third Forum on Mediterranean Food Cultures,* held in Rome in 2005, at La Sapienza University. The process for the UNESCO recognition of the Mediterranean Diet as intangible cultural heritage was initiated at this meeting (Dernini et al. 2012). It should be noted here that this event took place the same year in which the first candidacy of the Mexican cuisine as a UNESCO World Intangible Heritage Site was rejected. However, the simple fact of its presentation had shown up an important gap in the cultural (official, transnational) consideration of food heritage (Medina 2019).

In 2007, the governments of Spain, Italy, Greece and Morocco agreed upon the preparation of the nomination to be submitted to UNESCO a transnational candidacy for recognition of the 'Mediterranean Diet' as Intangible Cultural Heritage (Figure 1.2).

Figure 1.2: Cover of the Italian dossier in support of the application that the Mediterranean Diet be declared Intangible Cultural Heritage by UNESCO.

In November 2010 (Figure 1.3), the 'Mediterranean Diet' was officially declared intangible cultural heritage by UNESCO, together with the Traditional Mexican cuisine and the Gastronomic Meal of the French (*le Répas Gastronomique des Français*).



United Nations Educational, Scientific and Cultural Organization

Intangible Cultural Heritage

Representative List

Original: English and French

CONVENTION FOR THE SAFEGUARDING OF THE INTANGIBLE CULTURAL HERITAGE

INTERGOVERNMENTAL COMMITTEE FOR THE SAFEGUARDING OF THE INTANGIBLE CULTURAL HERITAGE

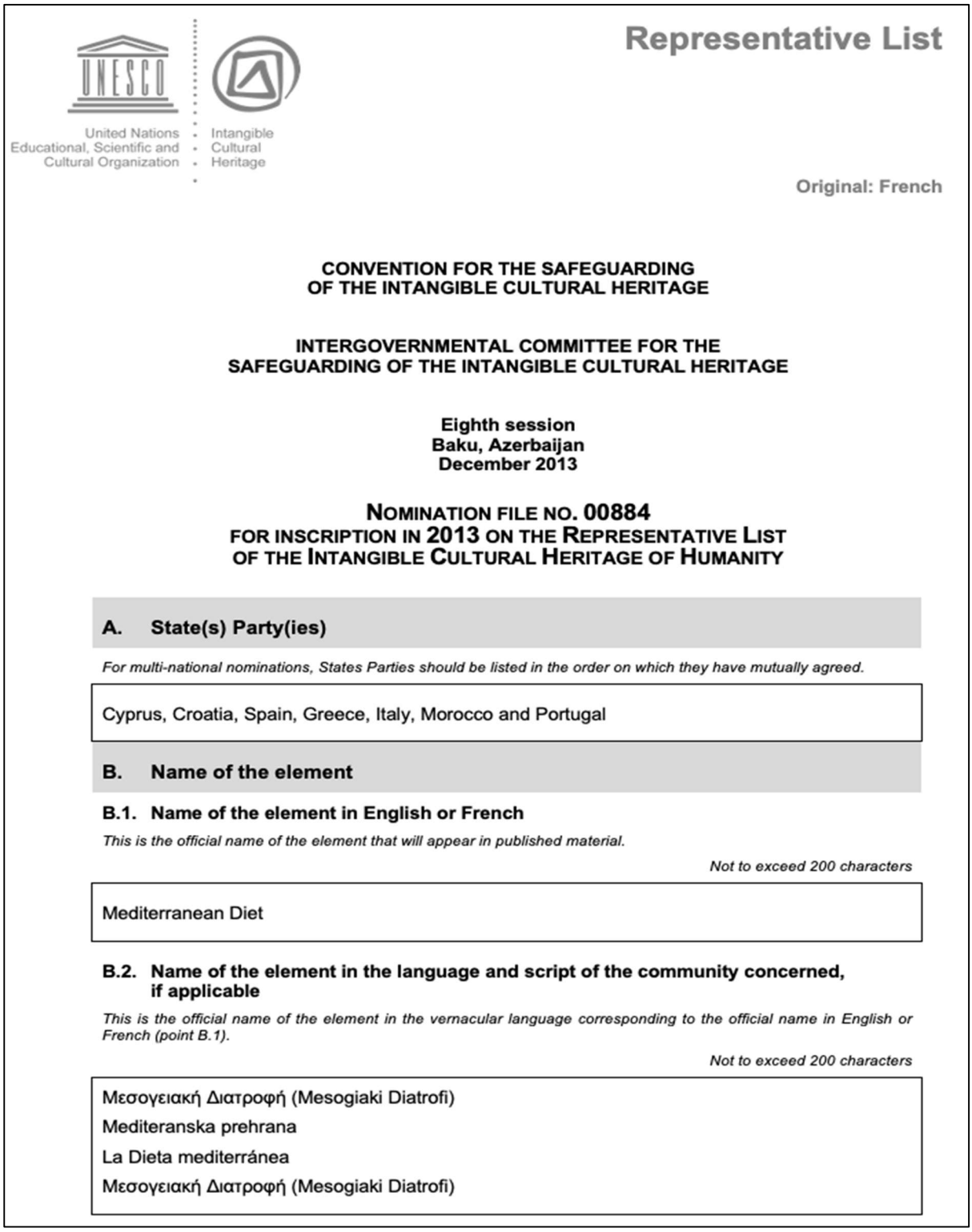
Fifth session
Nairobi, Kenya
November 2010

NOMINATION FILE NO. 00394
FOR INSCRIPTION ON THE REPRESENTATIVE LIST
OF THE INTANGIBLE CULTURAL HERITAGE IN 2010

A.	**STATE(S) PARTY(IES)** *For multi-national nominations, States Parties should be listed in the order on which they have mutually agreed.*
Spain, Greece, Italy, Morocco	
B.	**NAME OF THE ELEMENT**
B.1.	**Name of the element in English or French** *This is the official name of the element that will appear in published material about the Representative List. It should be concise. Please do not exceed 200 characters, including spaces and punctuation. The name should be transcribed in Latin Unicode characters (Basic Latin, Latin-1 Supplement, Latin Extended-A or Latin Extended Additional).*
The Mediterranean diet	
B.2.	**Name of the element in the language and script of the community concerned, if applicable** *This is the official name of the element in the vernacular language corresponding to the official name in English or French (point B.1.). It should be concise. Please do not exceed 200 characters in Unicode (Latin or others), including spaces and punctuation.*
الطبّاخة المتوسطية (attibakha al moutaouassittiya) Μεσογειακή Διατροφή (Mesogiaki Diatrofi)	

Figure 1.3: Nomination file for the inscription of 'The Mediterranean Diet' as an Intangible Cultural Heritage in 2010 for Spain, Greece, Italy and Morocco

In 2013 (Figure 1.4), three new countries were officially added by UNESCO to the already recognised ward of heritage status: Croatia, Cyprus and Portugal.



United Nations Educational, Scientific and Cultural Organization

Intangible Cultural Heritage

Representative List

Original: French

CONVENTION FOR THE SAFEGUARDING OF THE INTANGIBLE CULTURAL HERITAGE

INTERGOVERNMENTAL COMMITTEE FOR THE SAFEGUARDING OF THE INTANGIBLE CULTURAL HERITAGE

Eighth session
Baku, Azerbaijan
December 2013

NOMINATION FILE NO. 00884
FOR INSCRIPTION IN 2013 ON THE REPRESENTATIVE LIST OF THE INTANGIBLE CULTURAL HERITAGE OF HUMANITY

A. State(s) Party(ies)

For multi-national nominations, States Parties should be listed in the order on which they have mutually agreed.

Cyprus, Croatia, Spain, Greece, Italy, Morocco and Portugal

B. Name of the element

B.1. Name of the element in English or French

This is the official name of the element that will appear in published material.

Not to exceed 200 characters

Mediterranean Diet

B.2. Name of the element in the language and script of the community concerned, if applicable

This is the official name of the element in the vernacular language corresponding to the official name in English or French (point B.1).

Not to exceed 200 characters

Μεσογειακή Διατροφή (Mesogiaki Diatrofi)
Mediteranska prehrana
La Dieta mediterránea
Μεσογειακή Διατροφή (Mesogiaki Diatrofi)

Figure 1.4: Nomination file for the inscription of 2013 of 'The Mediterranean Diet' as an Intangible Cultural Heritage including Cyprus, Croatia, Spain, Greece, Italy, Morocco and Portugal.

Then, as the latest step, the Mediterranean diet was identified in 2011 by the Food and Agriculture Organization (FAO) and the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) as a joint case study regarding the sustainability of Mediterranean food systems and the assessment of the sustainability of dietary patterns (Dernini et al. 2017). This project and research are still running today.

Important to mention at this point is the earlier International Conference on 'The Diets of the Mediterranean', held in 1993 at the Harvard School of Public Health in Cambridge, Massachusetts, USA, organised by Oldways Preservation and Exchange Trust. In this meeting, the Mediterranean Diet Pyramid was presented and established, which was later to appear in many formats as a guide to healthy eating (Baer Sinnot 2017). Following the first UNESCO declaration, an update of this pyramid was published (Figure 1.5), including for the first time different sociocultural aspects related to lifestyles and consumption (Bach-Faig et al. 2011).

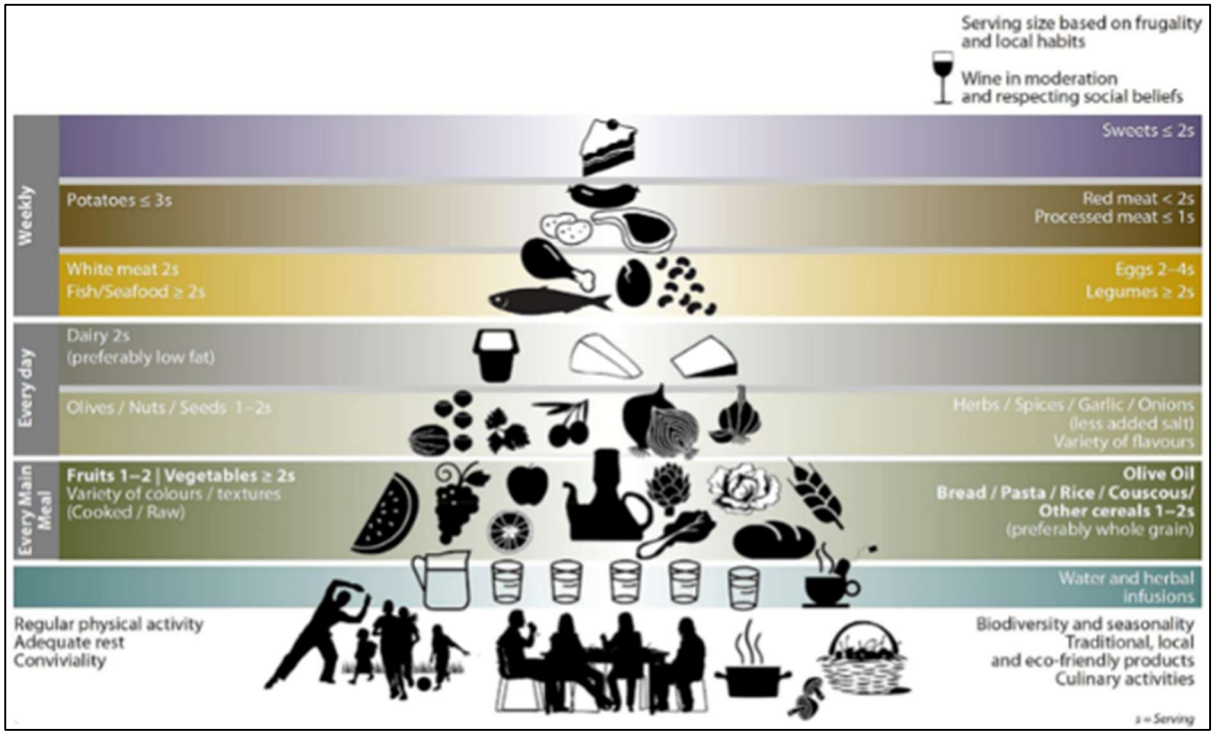


Figure 1.5: The new Mediterranean Diet Pyramid, coordinated by the Mediterranean Diet Foundation *(*Adapted from Bach-Faig et al. 2011).

The next step will be to carry out a new review (2020-2021) of the Mediterranean Diet Pyramid, including all aspects related to sustainability and updated according to environmental concerns.

After this short and partial review of the history of use of the phrase 'the Mediterranean diet' and despite efforts to increase interdisciplinary dialogue between some sectors, I shall try to analyse some aspects and concepts that, in my opinion, are still the subject of discord and disagreement. Yet, these are important aspects, since without settling them a definition of the concept of the Mediterranean diet cannot be complete, or even realistic.

Mediterranean Food? Mediterranean diet? The importance of an already established label

In a recent book chapter (Medina 2019), I explained that one of the major problems during the initial management of the candidacy for the UNESCO title was the name of the heritage item, whether 'Mediterranean Diet' or 'Mediterranean Food'. Whereas those involved in the (very powerful) spheres of public health and even agriculture strongly favoured use of the well-established and well-known term, 'Mediterranean Diet', those advocating perspectives more closely linked to the social and cultural sphere argued for use of the term 'Mediterranean Food', as being broader, more inclusive, more interdisciplinary and, above all, less ideologically linked to an established nutritional concept. The term 'Mediterranean Diet' won out.

Despite this, the definition of the 'Mediterranean Diet' in the proposal to UNESCO attempted to be as broad and inclusive as possible. According to the text presenting the awarded candidacy: 'The Mediterranean diet is an articulated cultural ensemble manifested in the following domains specified in the Convention (Article 2.2)', which means that it represents the domains of oral traditions and expressions, ritual social practices and feasts, knowledge and practices related to the natural environment and the universe, and traditional crafts (UNESCO 2010).

However, it is important here to stress that the final definition refers always to the whole declared heritage item; it refers to the entire concept of the Mediterranean diet, and not to each of its possible

tangible or intangible components individually (Serra-Majem and Medina 2015), such as olive oil, specific lifestyles, identified dishes, particular festivities, etc. Yet, these are all individual examples of the components of the item inscribed. In other words: all the items are constituent parts of the Mediterranean diet and so are of course all parts of the item recognised as an Intangible Cultural Heritage of Humanity, although none of them has been recognised as such on an individual basis.

Furthermore, those components that may or may not form part of the heritage as declared by UNESCO cannot be selected arbitrarily on the basis of a partial criterion (such as whether they are healthy). This is a key aspect to take into account since, at times, it has been discussed whether or not certain countries could form part of the Mediterranean diet group of countries based, for example, on their consumption or not of olive oil. The declared heritage item is the one defined in the official application, and none of its components can define it separately.

Back to *tradition*?

At this point, I return to the most extensive definition of the Mediterranean diet at the beginning of this chapter, where the authors talk about: 'The traditional Mediterranean diet (…)' (Trichopoulou et al. 2014: 12).

Different researchers, Ancel Keys (1995) and Dernini et al. (2012) among them, recognise that the Mediterranean diet is 'a dietary model constructed by scientists'. However, others insist on adding the adjective 'traditional' to the name, Mediterranean diet, to specify that 'many of its modern aspects can be traced to the ancient past' (Trichopoulou and Lagiou 1997: 383). Finally, it is argued that 'the most important aspect is the consumption of a list of "healthy ingredients", which are also traditional, especially olive oil, and which (…) are integral parts of the Mediterranean diet and may contribute to its health-promoting effects' (Trichopoulou 2007: 236).

More than twenty years ago, in the final years of the last century, in an article (Medina 1998) I drew attention to the 'construction' of the tradition that the Mediterranean diet itself had become. In that article, I paid attention to what the French sociologist Claude Fischler had complained about in the mid-1990s:

> We are constantly finding the same themes in the contemporary discourse of nutritionists concerning the Mediterranean diet, which always talks a great deal about all sorts of things and not just nutrition, supporting this with extra-nutritional and extra-scientific arguments in order to justify their recommendations'.
>
> (Fischler 1996: 364).

Fischler also raised the issue that one of these 'extra-nutritional arguments' is, and he gives it priority, that of the tradition and perpetuity of the Mediterranean food model, especially from the Anglo-Saxon point of view (Fischler 1996: 365 and ss.), but also from a Mediterranean perspective (Hubert 2000).

After reviewing different items relevant to the building and promotion of the Mediterranean diet (Figure 1.6), I concluded (Medina 1998: 351) that that construction has been perfectly set within a framework that leads towards an identification of healthy and wholesome foodstuffs with traditional ingredients, but the origin and consumption of these may no longer be remembered, maybe dating from the origin of civilisation, or lost in the most remote corners of the memory of the person trying to recall it.

Figure 1.6: Montage of foods associated with the Mediterranean diet
Montage © Helen Macbeth

In the above definition of the traditional Mediterranean diet, a bit later, the authors (Trichopoulou et al. 2014: 12) exemplify this as:

> (…) Alcohol consumption was common in the traditional Mediterranean diet, but generally in moderation and in the form of wine and, as a rule, during meals -in the spirit of the ancient Greek word *symposium*.

However, that construction of the Mediterranean diet was not isolated from other concepts but placed within a general and effective framework of the recuperation of the past as a symbol of naturalness and, therefore, of quality (Mintz 1996: 85).

Yet, what is this 'tradition' that is being evoked?
González Turmo writes:

> It is impossible not to wonder what we mean when we say that we are returning to tradition. But, what tradition? The tradition of food that has been cooked in houses and restaurants? that which has been named by advertising or gastronomic criticism? that which has been repeated frequently? that which rescues the consumer today from feeling lost? that which builds trust? It's a bit of everything. Yet, do not be alarmed. Tradition tends to be reinvented, voiced and professed. *Parole, parole*…
>
> (González Turmo 2019: 55)

Similarly, Bellagamba (1997: 761) points out:

> Among the anthropological notions, (that of tradition) is one of the most problematic, either because of the themes that its definition puts into play, or because of the use, often uncritical, that various authors have made of it.
>
> (cited in Boyer 1990)[6]:

This 'tradition' affects the way in which a society and/or culture builds its identity and relates to its past, including a mythical past (Medina 1998). In any case, 'it is the ethnographer's task to illuminate the processes of construction and definition that sustain it' (Bellagamba 1997: 762).

The concept of tradition has been for decades the subject of extensive scientific discussion and dissension in social sciences (primarily, but of course not uniquely, anthropology). Its definition still remains complicated. Despite this, from the medical field, there is no hesitation in using this controversial term and applying it to a diet that, as such, was invented in the second half of the twentieth century. To such authors there seems to be no problem in analysing said diet based

[6] Boyer, P. (1990) *Tradition as Truth and Communication. A Cognitive Description of Traditional Discourse*. Cambridge, Cambridge University Press.

on the ingredients that it is presumed to be composed of, frequently ignoring both its use and its evolution. It is preferred to define this 'traditional diet' based on the sum of its healthy elements, despite ignoring other elements, while leaving aside its evolution as a system. Also, when talking about the evolution of this diet, there does not seem to be any problem in associating it only with the 1960s, before the alleged arrival in southern Europe of food industrialisation and fast food:

> (…) The Mediterranean diet (is) the dietary pattern found in the olive-growing areas of the Mediterranean region in the late 1950s and early 1960s, when the consequences of World War II were overcome but the fast-food culture had not yet invaded the area.
>
> (Trichopoulou and Lagiou 1997: 383).

In this regard, it is important to note that, as it was recognised in 2010 by UNESCO as an Intangible Cultural Heritage of Humanity, the Mediterranean diet is an item of cultural heritage, and as such, it is living and constantly changing and evolving. We cannot, therefore, hope for this cultural heritage to remain unchanged over time, and neither can we hope for it to remain isolated from many different influences. This capacity for evolution is intrinsic to its cultural constitution, and as such should be accepted (Medina 2017).

Regarding this heritage item, we have to say that the primary consideration in the official inscription of an item like the Mediterranean diet as a world intangible heritage is that the item already exists, and that it is in use. Otherwise, we would be attempting to register something historical, which refers more to the memory of the past than to everyday use. This would be in the field of history, and not necessarily a living heritage, as the item is recognised today. Having this in mind, we cannot declare that a heritage item has been 'existing until' a determinate year or period. This would mean that this item no longer exists.

We return here to two of the main assertions made in this section. On the one hand, as Bellagamba (1997) pointed out (quoting Boyer), the notion of 'tradition' is quite problematic, has been frequently discussed and has often been used uncritically. On the other hand, and as Fischler (1996) also affirmed, the discourse of nutritionists concerning the Mediterranean diet often refers to much more than just

nutrition, and their recommendations are sustained on extra-nutritional and extra-scientific arguments in order to justify their scientific discourse. However, one of the important things we can observe here is the power that the use of tradition and historical depth brings to the credibility of any discourse. As I suggested in 1998:

> 'The time evoked by tradition is lost beyond memory, beyond what it is socially possible to remember and affirm, and even beyond the limits of mythical imagination. However, it is a time accepted groupally as pertinent to and even the initiator of collective memory. Thus, it is projected from the past to legitimise and justify the present, the reigning cultural action'
>
> (Medina 1998: 344).

Sustainability, locality… The last hurdles in the race?

The incorporation of sustainability into the international agri-food and nutritional agenda has been increasingly discussed over the last few decades. The concept of sustainable diets acknowledges the interdependencies of food production and consumption with food requirements and nutrient recommendations, and at the same time, expresses the notion that food, including its production, distribution and consumption, social and cultural aspects of it, health and economy, among many other aspects, cannot work separately from that of the ecosystem (Dernini et al. 2017). This is a concept that follows relevant international trends, ranging from Carlo Petrini's claim for 'good, clean and fair' food within the *Slow Food* movement, to the role of the contemporary chef (Figure 1.7). In relation to the latter, and as González Turmo (2019: 64) points out:

> Chefs, in their turn, also contribute to improving their environment. In their menus they point out that their foods are ecological, local from maybe a 0 kilometre radius, which clearly contributes both to the subsistence of the small producer and to food diversity, while saving the energy costs of global distribution. This, broadly speaking, would be the story told.
>
> (González Turmo 2019: 64)

Figure 1.7: Chef's dish of local products, Kamilari, Crete
Photograph © Helen Macbeth

Interest in the Mediterranean diet as a model of a sustainable dietary pattern has increased in recent decades (Gussow 1995; Burlinghame and Dernini 2011; Dernini and Berry 2015). However, it's important to point out that this has occurred after achieving an important change in its definition through taking cultural perspectives into account, with its declaration as intangible cultural heritage by UNESCO (Medina 2019). In this regard, the Mediterranean diet is increasingly observed as a food system or a culinary system (González Turmo 2005; Contreras et al. 2005) that can become sustainable only on the basis of local production and short distribution distances (Dernini et al. 2017). Following this, we can affirm that the Mediterranean diet should be an exceptionally important resource for the local Mediterranean societies (Medina 2011: 2348) in which, locally, it is a productively adequate and culturally coherent system (Medina 2017).

These premises, however, clash with views focused primarily on health, from which, as mentioned above, the Mediterranean diet is observed more as a list of healthy ingredients than as a sociocultural food and culinary system. From the perspective of health, the Mediterranean diet can also be seen as an artificially exportable item that can increase the health of different societies around the world. As Trichopoulou points out:

> (…) People could try to adjust their diets to the principles of the traditional Mediterranean diet, as outlined above. After all, this diet is not only health promoting, as the overwhelming evidence indicates, but also delicious, as many of those who have tried variations of it readily acknowledged.
>
> (Trichopoulou et al. 2014: 112-3).

In this same article, de Lorgeril claims there is a 'modernized Mediterranean diet concept', that takes into account only those variables related to health, independent from other aspects (cultural, geographical, production or consumption, etc.):

> The *modernized* Mediterranean diet concept opens the way to a scientifically-founded protective dietary pattern which could be independent from the Mediterranean geography, climate and cultures. Future research – for instance when constructing a modern Mediterranean diet score in observational epidemiologic study – will have to integrate that new knowledge.
>
> (Trichopoulou et al. 2014: 112-13).

Along similar lines, Lacatsu et al. (2019) say:

> Besides cardiovascular, metabolic, cognitive, and possibly antineoplastic benefits, the Mediterranean diet seems to be associated with good adherence scores in some extra-Mediterranean populations and with an improved quality of life. Henceforth, it is advised today by a large majority of medical professionals all over the world. At the same time, the erosion of traditions and cultures in the Mediterranean-neighboring populations makes its survival back home an ever more difficult matter. Efforts in these apparently disjunctive directions of both Mediterranean and non-Mediterranean populations are required, in order to make the entire human race benefit from this complex network of food-associated habits that began in times of old as a mixture of lifestyle, religion, and lay culture and which ended up as an emerging medical prescription for health.
>
> (Lacatsu et al. 2019: online)

We seem to forget, however, that collective or individual food habits are always constructed in a sociocultural manner. In this sense, as González Turmo (1996) indicates:

> Food choices, although depending on the person who buys and cooks in each household, are rarely free, even when they can appear to be one of the human activities where one's own opinions and tastes have the greatest independence. The attitudes and behaviour (...) cited are, in fact, conditioned by factors (of cultural experience), which are outside the voluntary will of each of us.
>
> (González Turmo 1996: 13)

Furthermore:

> No food can be artificially included and maintained over time if it does not fit well into local cultural habits and processes. These matters emphasise the value of a biosocial, cross-cultural and cross-disciplinary approach to dietary studies.
>
> (Macbeth and Medina 2020: 141).

In this regard, and without denying that certain combinations of ingredients may have a beneficial effect on health biochemically, it should also be noted that no individual ingredient can enter a culinary system without finding a culturally suitable place in it. We learned this after the historical introduction of different foods into our diets. Some of them (such as the tomato, Figure 1.8), despite their current great popularity, had great difficulty being accepted when first introduced, a delay which sometimes lasted centuries.

Figure 1.8: Tomatoes
Photograph © F. Xavier Medina

Therefore, while it is easy for an individual to consume a certain product for a few days or weeks, even months, as a medical prescription or for scientific research, it is much more difficult for them to integrate such a product permanently into their diet if it is not part of their

cultural food environment and daily life. It is in this regard that we speak about ‘adherence’.

Thus, we can say that someone has improved their health by integrating a handful of walnuts (Figure 1.9) in their daily intake, or by including the use of olive oil in their diet. But this is only eating nuts or consuming olive oil. It is not the Mediterranean diet. And there is a big difference between one thing and the other.

Figure 1.9: Walnuts
Photograph © Helen Macbeth

Conclusions:

Throughout this chapter I have discussed some relevant aspects and concepts that must be kept in mind when we consider the Mediterranean diet from a social and cultural perspective.

Even though the whole concept of the Mediterranean diet has experienced a transformation in the last two decades, particularly after the preparation of the UNESCO candidacy and its declaration in 2010, the different views on the Mediterranean diet created and developed from different academic disciplines keep causing important problems for the holistic approach. This fact affects the basic definition of what is being talked about and, therefore, the interdisciplinary dialogue about it. The differences in definition and criteria from the very beginning had affected the title of the heritage item itself. The use of an already established label widely related to health affects future ideas about it, even though its definition has been substantially modified in the UNESCO cultural declaration. Yet, we can observe how the different views of the Mediterranean diet overlap, even without reaching a satisfactory dialogue and sometimes causing important contradictions. Among these contradictions is, for example, wanting to call the Mediterranean diet ‘traditional’ based on the healthy medical results of some of its ingredients, or wanting to export it artificially around the world.

At the present time, there seem to exist (or continue to exist) two ways of understanding the Mediterranean diet. One of them follows the cultural guidelines of the UNESCO declaration, seems to go in the direction of a consideration of the Mediterranean diet as a food (or culinary) system, of mainly local expression and linked to sociocultural, productive and consumption guidelines and furthermore has further been sponsored by official institutions such as FAO and CIHEAM in regard to environmental and sustainability issues. For the other, there is a 'laboratory' perspective which prioritises only the positive effects on health that some of the 'Mediterranean' foods or a combination of them may have.

Despite the importance of the conceptual transformation of the Mediterranean diet in the last few decades, the centrality of the perspective related to health continues to be the main axis around which all other aspects rotate. The discussion continues to be relevant and difficult. The vested interests seem to remain many.

References:

Bach-Faig A., Berry E. M., Lairon D., Reguant, J. Trichopoulou, A., Dernini, S., Medina, F. X., Battino, M., Belahsen, R., Miranda, G., and Serra-Majem, L. (2011) Mediterranean diet pyramid today. Science and cultural updates, *Public Health Nutrition,* **14(12A):** 2274-2284.

Baer-Sinnott, D. (2017) How the Mediterranean Diet Pyramid came to life. In Oldways Cultural Food Traditions (Blog), May 2nd, 2017: Available at: https://oldwayspt.org/blog/how-mediterranean-pyramid-came-life. Accessed on 19 August, 2020.

Bellagamba, A. (1997) Tradizione. In Fabietti, U. and Remotti, F. (eds) *Dizionario di Antropologia*, Zanichelli, Bologna, pp. 761-763.

Burlingame, B. and Dernini, S. (2011) Sustainable Diets: The Mediterranean Diet Example, *Public Health Nutrition*, **14(12A):** 2285–2287.

Contreras, J., Riera, A., and Medina, F. X. (2005) Conclusiones. In Contreras, J., Riera, A., and Medina, F. X. (eds) *Sabores del Mediterráneo. Aportaciones para promover un patrimonio alimentario común,* IEMed, Barcelona, pp. 247-269.

Dernini, S., Berry. E. M., Bach-Faig A., Belahsen, R., Donini L. M., Lairon, D., Serra-Majem, L. and Cannella, C. (2012) A Dietary Model Constructed by Scientists. In *Mediterra 2012. The Mediterranean Diet for Sustainable Regional Development,* International Center for Advanced Mediterranean Agronomic Studies (CIHEAM) and Presses de Sciences Po, Paris, pp. 71-88.

Dernini, S. and Berry, E.M. (2015) Mediterranean Diet: From a Healthy Diet to a Sustainable Dietary Pattern, *Frontiers in Nutrition*, **2(15):** 1–7.

Dernini, S., Berry. E., Serra Majem, L., La Vecchia, C., Capone, R., Medina, F. X., Aranceta, J., Belahsen, R., Burlingame B., Calabrese G., Corella D., Donini L. M., Meybeck A., Pekcan A.G. Piscopo S., Yngve, A., and Trichopoulou A. (2017) Med Diet 4.0. The Mediterranean diet with four sustainable benefits, *Public Health Nutrition*, **20(7):** 1322-1330.

Fischler, C. (1996) El modelo alimentario mediterráneo: mito y/o realidad. In Medina, F. X. (ed.) *La alimentación mediterránea. Historia, cultura, nutrición*, Icaria, Barcelona, pp. 361-376.

González Turmo, I. (1996) Introducción. Modelos ideales y realidad en alimentación. In González Turmo, I. and Romero de Solís, P. (eds) *Antropología de la alimentación: Nuevos ensayos sobre la dieta mediterránea*, Fundación Machado, Seville, pp. 13-20.

González Turmo, I. (2005) Algunas notas para el análisis de las cocinas mediterráneas. In Contreras, J., Riera, A., and Medina, F X. (eds) *Sabores del Mediterráneo. Aportaciones para promover un patrimonio alimentario común,* IEMed, Barcelona, pp.44-64.

González Turmo, I. (2019) *Cocinar era una práctica. Transformación digital y cocina.* Trea, Gijón.

Gussow, J.D. (1995) Mediterranean Diets: Are They Environmentally Responsible? *American Journal of Clinical Nutrition*, **61(6):** 1383–1389.

Hubert, A. (1998) Autour d'un concept: "l'alimentation méditerranéenne", *Techniques and Culture*, **31-32:** 153-160.

Keys, A. (1970) Coronary Heart Disease in Seven Countries, *Circulation*: **51-52 (suppl.):** 186-195**.**

Keys, A. (1980), *Seven Countries: A Multivariate Analysis of Death and Coronary Heart Disease*, Harvard University Press, Cambridge, Mass.

Keys, A. (1995) Mediterranean Diet and Public Health: Personal Reflections, *American Journal of Clinical Nutrition,* **61 (suppl.):** 1321S-1323S.

Keys, A. and Keys, M. (1975) *How to Eat Well and Stay Well the Mediterranean Way*, Doubleday. Garden City, N.Y.

Lăcătușu, C. M., Grigorescu, E. D., Floria, M., Onofriescu, A. and Bogdan-Mircea, M. (2019) The Mediterranean Diet: From an Environment-Driven Food Culture to an Emerging Medical Prescription, *International Journal of Environmental research and Public Health*, **16(6):** 942. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6466433/ . Accessed on 26 August 2020.

Macbeth, H., and Medina, F. X. (2020) New Views on the Mediterranean Diet, *Nature Food*, **1(2):** 141-142.

Marqués da Silva, A. J. (2015) *La diète méditerranéenne: Discours et pratiques alimentaires en Méditerranée* (vol. II), L'Harmattan, Paris.

Medina, F. X. (1996) Alimentación, dieta y comportamientos alimentarios en el contexto mediterráneo. In Medina, F. X. (ed.) *La alimentación mediterránea: Historia, cultura, nutrición*, Icaria, Barcelona, pp. 21-44..

Medina F. X. (1998) Mediterranean food: the return of tradition, *Rivista di Antropologia*, **76 (suppl. 1):** 343–351.

Medina, F. X. (2009) Mediterranean Diet, Culture and Heritage: Challenges for a New Conception, *Public Health Nutrition*, **12(9A):** 1618-1620.

Medina, F. X. (2011) Food consumption and civil society: Mediterranean diet as a sustainable resource for the Mediterranean area, *Public Health Nutrition*, **14(12A):** 2346–2349.

Medina, F. X. (2017) Five Relevant Points on Food, Culture and Mediterranean Diet. In Meybeck, A., Redfern, S., Hachem, F., Capone, R. and Dernini, S. (eds) *Development of voluntary guidelines for the sustainability of the Mediterranean diet in the Mediterranean region,* Food and Agriculture Organization//CIHEAM, Rome-Valenzano, pp.83-88.

Medina, F. X. (2019) From Healthy to Sustainable: Transforming the Concept of the Mediterranean Diet from Health to Sustainability through Culture. In Collinson, P., Young, I., Antal, L. and Macbeth, H. (eds) *Food and Sustainability in the Twenty-First Century: Cross-Disciplinary Perspectives*, Berghahn, Oxford-New York, pp. 57-69.

Mintz, S. W. (1996) *Tasting Food, Tasting Freedom. Incursions into Eating, Culture and the Past*, Beacon Press, Boston, Mass.

Serra-Majem, L. and Medina, F. X. (2015) The Mediterranean Diet as an Intangible and Sustainable Food Culture. In Preedy, V.R. and Watson, D.R. (eds) *The Mediterranean Diet: An Evidence-Based Approach*, Academic Press-Elsevier, London, pp. 37-46.

Trichopoulou, A. (2007) Mediterranean diet, traditional foods, and health: Evidence from the Greek EPIC cohort, *Food and Nutrition Bulletin*, **28(2):** 236-240.

Trichopoulou, A., Costacou. T., Bamia, C. and Trichopoulos, D. (2003) Adherence to a Mediterranean diet and survival in a Greek population, *New England Journal of Medicine*, **348:** 2599–2608.

Trichopoulou, A., Martínez-González, M. A., Tong, T., Forouhi, N. G. , Khandelwal, S., Prabhakaran, D., Mozaffarian, D. and de Lorgeril, M. (2014) Definitions and potential health benefits of the Mediterranean diet: views from experts around the world, *BioMed Central Journal (BMC) Medicine*, **12:** 112. Available at: https://link.springer.com/content/pdf/10.1186/1741-7015-12-112.pdf . Accessed on 29 January 2021.

UNESCO (2010) *Mediterranean Diet. Transnational Nomination: Greece, Italy, Morocco, Spain*, Candidature of the Mediterranean Diet, UNESCO, Paris.

CHAPTER 2
A CHANGE OF ROUTE IN THE MEDITERRANEAN, REVITALISING THE 'MEDITERRANEAN DIET' TOWARDS MORE SUSTAINABLE FOOD SYSTEMS: A CROSS-DISCIPLINARY APPROACH

by Sandro Dernini and Roberto Capone

Introduction:

The second World Conference on the Revitalization of the Mediterranean Diet entitled 'Strategies towards More Sustainable Food Systems in the Mediterranean. The Mediterranean Diet as a Lever Bridging Production, Transformation and Consumption in a Sustainable and Healthy Way' was held in Palermo, in May 2019[7]. Its three-days' long programme in five different historical locations at the heart of Palermo city centre (Figure 2.1), was articulated in eighteen thematic sessions, three side events and the forum 'The Two Shores', on the blue economy and on the circular economy, preparatory to the 5+5 Summit in Marseilles.

Figure 2.1:
The Chiesa di Santa Caterina from the Cathedral, Palermo.

Photograph © F. Xavier Medina

[7] http://www.iamb.ciheam.org/en/news_and_events/one?event=summary-report-of-the-2nd-world-conference-on-the-revitalization-of-mediterranean-diet-on-strategies-towards-more-sustainable-food-systems-in-the-mediterranean-region&id=345

It was a moment of reflection, collaborative (Figure 2.2) and multidisciplinary, in repositioning the Mediterranean diet in the specific context of the food system of the country of reference. Its purpose was to allow a better understanding of the benefits of the Mediterranean diet as a lever for bridging sustainable food consumption and production, towards more sustainable food systems, food choices and lifestyles.

Figure 2.2 Final group picture, closing session of the second World Conference on the Revitalization of the Mediterranean Diet, Palermo 2019

Photograph © the World Conference on the Revitalization of the Mediterranean Diet

As an outcome of the conference, the International Center for Advanced Mediterranean Agronomic Studies (CIHEAM), the Food and Agriculture Organization of the United Nations (FAO) and the Union for the Mediterranean (UfM) expressed their interest in developing a joint proposal, as a collaborative effort, for the establishment of a Multi-stakeholder Sustainable Food System Platform in the Mediterranean (the SFS MED Platform), through a broader participation and engagement of all interested stakeholders, by linking sustainable consumption and production (SCP) through the Mediterranean diet as a healthy and sustainable lever.

Around the Mediterranean, there is a widespread awareness of the social, cultural, health and economic dimension of 'food', shared by all

Mediterranean people, despite the fact that there are no commonly-agreed boundaries that define the Mediterranean as a region.

The Mediterranean is currently seen mostly as a dividing sea between the two shores, but culturally diverse countries are still found to be united to a certain extent within the Mediterranean dietary heritage, acknowledged in 2010 by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as an Intangible Cultural Heritage of Humanity (UNESCO 2010), without this distorting the identity of each of them (Serra-Majem and Medina, 2015).

The Mediterranean diet is the testimony of the strong conjunction between people, who are living around the same sea, their territories and their ways of life (Trichopoulou and Lagiou 1997). It is also an expression of the diversity of Mediterranean food cultures and their different food production, processing and culinary systems (González-Turmo 2012), but, it has not yet been fully recognised as a resource for the sustainable development in the Mediterranean region, as well as for the well-being of Mediterranean people (Dernini 2006, 2011; Medina 2011).

In recent years, within the international debate on the sustainability of food systems and sustainable diets (Berry et al. 2015; High Level Panel of Experts on Food Security and Nutrition 2017), interest in the Mediterranean diet, acknowledged worldwide to be one of the healthiest diets in the world, has also started to be recognised as a sustainable local dietary model (Burlingame and Dernini 2011, 2012, 2019; Food and Agriculture Organization/ CIHEAM 2012; CIHEAM/Food and Agriculture Organization 2015; Meybeck et al. 2017; Dernini et al. 2019; Dernini 2019), with particular regard to its lower environmental impact (Tilman and Clark 2014).

The concept of the Mediterranean diet has undergone a progressive evolution, from a healthy dietary model to a sustainable dietary model (Dernini and Berry 2015, 2016). The Mediterranean diet is in continuous evolution and, therefore, it should be understood as a lifestyle in continuous evolution, related through time closely to the particular historic and geographic mosaic that is the Mediterranean. By remembering that the ancient Greek word *'díaita'* means equilibrium,

lifestyle, the Mediterranean diet is more than just a diet, it is a whole lifestyle pattern with physical activity playing an important role.

The diversity and variety of the foods characteristic of the Mediterranean diet can drive a variety of demands, thus influencing food production. The diversity of Mediterranean food systems is at the origin of one of the most biodiverse and rich dietary patterns in the world, and home to a complex and intricate patchwork of cultures, climates and cuisines that are under threat due to the homogenisation of lifestyles, because of globalisation and the loss of awareness, meanings, understanding and appreciation (González-Turmo 2012).

Current data show a decline in adherence to the Mediterranean dietary patterns in all Mediterranean countries, which is critically eroding the Mediterranean dietary heritage (International Obesity Task Force 2005; Garcia-Closas et al. 2006; Belahsen and Rguibi 2006; da Silva et al. 2009; Vareiro et al. 2009; CIHEAM / Food and Agriculture Organization 2015). The Mediterranean diet is becoming less the diet of choice in most Mediterranean countries, despite the fact that scientific evidence since the early epidemiological has supported its health and nutritional benefits as well as the cohort studies conducted now for 50 years (Keys 1970; Willett et al. 1995; Trichopoulou et al. 2009; Serra-Majem et al. 2009; Estruch et al. 2013; Castro-Quezada et al. 2014; Gotsis et al. 2015; Serra-Majem and Trichopoulou 2016). Paradoxically, this impressive quantity of scientific publications on the health benefits of the Mediterranean diet has not resulted in changing current food consumption patterns in Mediterranean countries. Current drastic changes in the Mediterranean are strongly compromising the wide variety of local-food products associated to different food cultures and food systems, at the fundamental to the Mediterranean dietary heritage.

In the light of the new challenges posed by the ongoing and unprecedented COVID-19 crisis, which is putting a strain on food supply chains[8] more than previously, there is a need for interregional dialogues on both shores of the Mediterranean to redesign the future of tomorrow's food systems, and to trigger collective, multi-stakeholder actions for the transformation of food systems, from production to consumption and vice versa.

[8] http://www.fao.org/3/ca8308en/ca8308en.pdf

Current challenges:

The Mediterranean is historically the meeting region of ancient millenarian histories from which the modern Western culture was born and, at this particular historical moment, it is the region, in which growing ecological, economic and social challenges coexist with unresolved international tensions.

Across the Mediterranean region, there is an 'inequalitarian drift' in the current relations between Northern Mediterranean countries and Southern-Eastern ones, where many difficulties are encountered due to existing economic, social and cultural disparities (CIHEAM 2016). Significant discrepancies in development levels between countries, together with regional conflicts, raise more challenges for the sustainable future of the Mediterranean. Indeed, the region is facing unprecedented global challenges that are intertwined and affect the sustainability of food systems (CIHEAM / Food and Agriculture Organization 2015; U.N. Environment Programme / Mediterranean Action Plan 2017). Thus, the definition of this sustainability is based on:

Economic sustainability: For this, the challenges include population growth, increased demand for food, poverty and unemployment (especially among young adults), food insecurity with the increased shock to the economy due to the pandemic of COVID-19, and the crisis of hundreds of thousands of agri-food small and medium-sized enterprises, migration from rural areas and other countries, urbanisation, predominance of imported food, low profitability for smallholders, food sovereignty, lack of efficient rural sustainable development policies (particularly for women and youths), food loss and waste.

Environmental sustainability: The challenges include over-exploitation of natural resources, adverse impacts of environmental degradation by climate change (such as water scarcity, desertification, drought, land degradation, the loss of biodiversity), lack of good practices for resilience, coastal development and sprawl, chemical contamination, marine litter, marine noise, invasive non-indigenous species, over-exploitation of much of the commercially-exploited fish stock and

under-use of Mediterranean biodiversity (wild and cultivated products). It has also recently been forecast that the Mediterranean will be among those regions most impacted by climate change with an anticipated acceleration of land degradation and desertification (Mediterranean Experts on Climate and Environmental Change 2019), that raise still more challenges for the sustainable future of the Mediterranean region (U.N. Environment Programme/Mediterranean Action Plan 2005, 2017).

Social and cultural sustainability: The challenges include food insecurity, migration from rural areas and from other countries, conflict areas, malnutrition (undernutrition, hidden hunger and obesity), growing public health expenditures, erosion of the Mediterranean dietary heritage, food cultures and traditional, indigenous knowledge, emerging new unsustainable globalised lifestyle behaviours, progressive urbanisation, changing food procurement and food waste (CIHEAM / Food and Agriculture Organization 2015).

All Mediterranean countries are passing through a '*nutrition transition*' in which problems of undernutrition (wasting, stunting, underweight) and micronutrient deficiencies coexist with problems of overnutrition (overweight, obesity) and diet-related chronic non-communicable diseases (Aounallah-Skhiri et al. 2011; Belahsen 2014, Nasreddine et al. 2018). This nutrition transition is alarming as it negatively affects the livelihood of all people in the region. In many Mediterranean countries, eating habits are changing towards a 'Westernised' style of dietary patterns. The urbanisation of society, the integration of women into the labour market, long working hours of employed individuals and retail development are considerably modifying dietary behaviours (Belahsen and Rguibi 2006; Hachem et al. 2016).

This growing nutrition transition is also having a direct effect on the erosion of the Mediterranean diet, which, as noted by several surveys, is increasingly being followed to a lesser degree by Mediterranean populations. This is having undesirable impacts not only on health and nutrition but also on cultural, social, economic and environmental sustainability in the territories. Population growth with demographic changes, urbanisation and globalisation, are all driving

increased food demand and influencing food choices, which have resulted in profound changes in the patterns of food consumption and lifestyles around the Mediterranean region (U. N. Environment Programme / Mediterranean Action Plan 2005; CIHEAM / Food and Agriculture Organization 2015).

The Mediterranean diet is associated with its characteristic food products, inextricably linked to the Mediterranean agrarian and sea landscapes, with their diversified ecological, cultural, social and economic dimensions (González-Turmo 2012). The symbolic value of food and its identification and differentiation has led to the creation of strong links between local food and local heritage and identity - the construction of *cuisines de terroir(s),* and local-food production knowledge and skills - through the establishment of systems modelled on the geographical indication of provenance (Bowen and Mutersbaugh 2014). These products of origin-linked quality are strongly connected to the sustainability of the Mediterranean diet and the preservation of biodiversity. Exacerbation of the depletion of the gene pool, due to erosion of agricultural biodiversity as a result of globalisation trends and climate change, is reducing the sustainability of local production systems, along with the ability to safeguard the Mediterranean dietary heritage based on indigenous food species and varieties.

The Mediterranean is among the richest regions in biodiversity in the world, home to a multiplicity of ecosystems and species. It has in fact been identified as a 'hotspot' of biodiversity, an area featuring exceptional concentrations of endemic and historically imported species, but which are sadly experiencing unprecedented loss of habitat (Myers et al. 2000). This loss of agricultural diversity occurring around the region has negative repercussions on the food and nutritional security and livelihood of the local populations. The loss of indigenous knowledge on the use of local crops in favour of a small number of recently imported non-native species and varieties has affected traditional food production systems and biodiversity across the Mediterranean (Padilla et al. 2012).

The variety of its food dimensions and traditions have influenced and are still influencing food systems in the Mediterranean. The Mediterranean diet is now considered to be a complex web of cultural

aspects that depend on each other and lead from nutrition to the economy, through the law, history, politics or religion. From a local Mediterranean point of view of consumption, Mediterranean foods and Mediterranean diet are an underestimated sustainable local resource for the Mediterranean region (Dernini 2006; Medina 2015; Medina and Aguilar 2019).

Historical contextualisation of the revitalisation of the Mediterranean diet as a model of a sustainable diet:

In 2002, on the occasion of the first EuroMediterranean Forum on 'Feeding Minds – Fighting Hunger: Dialogues Among Mediterranean Civilizations', held in Lamezia Terme (Calabria, Italy[9]), national representatives, officers of FAO and UNESCO, anthropologists of food, nutritionists and other specialists, from all over the Mediterranean region, met to discuss the Mediterranean diet's notion in the context of the Mediterranean.

From there, a continuous collaboration was initiated by the Forum on Mediterranean Food Cultures with the International Commission on the Anthropology of Food and Nutrition (ICAF), the Sapienza University of Rome, the CIHEAM-Bari, the Mediterranean Diet Foundation of Barcelona, and The University of Las Palmas de Gran Canaria, to enhance the Mediterranean diet as an expression of the diversity of the Mediterranean food cultures and culinary systems.

In 2003, on the occasion of the second EuroMediterranean Forum on 'Dialogues Between the Civilizations of the Mediterranean on Food Security: The Role of Food Culture for a Sustainable Rural Development'[10], held in Corigliano Calabro (Calabria, Italy), a joint proposal for the constitution of the Euro-Mediterranean Food Cultures Network, was developed with the scope to facilitate, through a pluridisciplinary intercultural approach at a Mediterranean level, the exchange of expertise on the interlinkages between food cultures, the Mediterranean diet and food security and nutrition.

In 2005, following the International Conference 'The Food Tradition in the Mediterranean Monotheistic Religions', held at the

[9] http://medfoodcultures.org/220/158/products/1_forum_euro_med_feeding_minds_fighting_hunger_lamezia_terme_italy.html)

[10] http://medfoodcultures.org/239/168/products/2_forum_euro_med_calabria.html

Rector Hall of the University of Rome 'La Sapienza', the third Euro-Med Forum on Food Cultures 'Dialogues between Civilizations and People: The Food Cultures'[11] was organised. On this occasion, 'The Call for a Common Action in the Year of the Mediterranean' was issued to acknowledge the pivotal role of 'food' in the sustainable future of the Euro-Mediterranean Partnership, by being aware that in the Mediterranean there are social, cultural, health and economic interdependent dimensions of 'food', shared by all Mediterranean people.

The Call recommended…

- That 'food' be acknowledged as a common basis in the Mediterranean to increase the intercultural and inter-religious dialogues between civilisations and people towards mutual understanding and social cohesion;
- That 'food' be acknowledged as a vehicle for learning about diversity and transmission of knowledge of the other;
- That the right for everybody to eat according to their own beliefs be acknowledged;
- That 'food' be considered as a 'total social fact' as well as an important element to be taken into account in the dialogue and social communication in the Mediterranean area and abroad;
- That participants should act together to revitalise local capacities to reduce the increasing erosion of the diversity of Mediterranean food cultures and heritage, as well as to reinforce the sustainability of the agri-food systems of all Mediterranean countries and the food security in the entire region;
- That research in the field of cultural processes and transformations be maintained;
- That more attention be given to the cultural and historical aspects of 'food culture' and to their articulation in different geographical, environmental, historical, ecological, cultural, religious contexts, within a dynamic prospective of long term, and also from an actual perspective, including industrial promotion, biotechnology processes;
- That a common definition of the traditional Mediterranean diet (equivalent to Mediterranean Food or Food Culture) be established as

[11] http://medfoodcultures.org/241/185/products/3_forum_on_mediterranean_food_cultures_rome.html

a priority, in order for all Mediterranean countries to present a common perspective and strategy.[12]

Anthropologists from the International Commission on the Anthropology of Food (ICAF): Igor de Garine, Vito Teti, Françoise Aubaile, F. Xavier Medina, Valerie de Garine, Alfonsina Bellio, Fulvio Librandi, Davide Scotta, Monica Fidotti and Emerita Cretella, attending the conference, in reference to the concept of 'Mediterranean diet', highlighted the need to focus attention on 'food culture', its cultural processes and transformations, and their articulation in different geographical, environmental, historical, ecological, cultural, religious contexts, in a dynamic prospective of taking their changes into consideration, from the past and continuing in the present. It was stressed the need not to have some 'mythical' ideas about the past and transferring there artificially our actual interests, by building some kind of 'Arcadia', while forgetting all the difficulties about food achievement and transformation in the Mediterranean area. It was highlighted the need of rediscovering the 'pleasure' of food and conviviality, as a way to 'be together' in a Mediterranean way. It was emphasised that food is a 'total social fact', an important element to take into account regarding dialogue and social communication in the Mediterranean area and abroad.[13]

In 2009, the third International Conference 'The Mediterranean Diet Today: a Model of Sustainable Diet' [14], was held in Parma, with the purpose of producing an international scientific consensus position on a new revised Mediterranean Diet Pyramid, updating the previous model published in 1994 with a copyright by the Oldways Preservation & Exchange Trust (Willett et al. 1995). It was important to move from the current concept of the Mediterranean diet as just a model of healthy eating, which reduces mortality and morbidity, to an updated concept of the Mediterranean diet(s) as a sustainable well-being model, with country-specific, and culturally appropriate versions (Bach-Faig et al. 2011; Dernini et al. 2012).

[12] 2005 Open Call for a Common Action in the year of the Mediterranean (available at http://medfoodcultures.org/241/185/products/3_forum_on_mediterranean_food_cultures_rome.html)
[13] Available at http://www.medfoodcultures.org/241/297/products/recommendations_of_the_icaf_anthropologists_attending_the_conference_concerning_the_concept_of_mediterranean_diet.html
[14] http://medfoodcultures.org/245/264/products/3_ciiscam_conference_parma_italy.html

In 2010, as a follow-up at FAO in Rome, the Scientific Symposium 'Biodiversity and Sustainable Diets: United against Hunger' was organised by FAO and Biodiversity International, with the collaboration of the National Research Institute on Food and Nutrition (INRAN), the CIHEAM-Bari, the Federation of European Nutrition Societies (FENS) and the International Union of Nutritional Sciences (IUNS), in which a common position was reached on the definition of 'sustainable diets':

> Sustainable Diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources.
>
> (Burlingame and Dernini 2012: 7).

In 2011, FAO and CIHEAM identified the Mediterranean diet as a case study for the characterisation and evaluation of the sustainability of food consumption and diets in the Mediterranean region.

The International Conference 'Does the Mediterranean Diet still exist? Nutrition – Health – Quality – Sustainability – Innovation - Evolution'[15] was held at the EXPO of Milan, in 2015. On this occasion '*The Med Diet 2015 EXPO Call: Time to Act Now*'[16] was issued by the CIHEAM, and the *'Med Diet 4.0*' was presented as a multidimensional conceptual framework 'to characterise the Mediterranean diet as a model of a sustainable diet, with multiple sustainability benefits and country-specific variations' (Dernini et al. 2017).

Also, in 2015, at the EXPO of Milan, the Sustainable Food Systems Programme (SFSP) of the United Nations 10-year Framework of Programmes on Sustainable Consumption and Production Patterns (10YFP), now called 'One Planet' was established, with FAO and CIHEAM part of its governance.

In 2016, the First World Conference of the Mediterranean Diet on 'Revitalizing the Mediterranean diet from a Healthy Dietary Pattern to

[15] http://medfoodcultures.org/306/294/products/expo_2015_milan_does_the_mediterranean_diet_still_exist_14_may_2015_milan.html

[16] http://medfoodcultures.org/306/299/products/2015_med_diet_expo_open_call_time_to_act_now.html

a Healthy Mediterranean Sustainable Lifestyle'[17] was held in Milan. On this occasion, '*The Call for Action on the Revitalization of the Mediterranean Diet*' was issued and endorsed by 37 institutions[18]. The aim was to act together to reduce the increasing erosion of the Mediterranean dietary heritage, through the development of academic and research institution platforms for an interdisciplinary dialogue on how to revitalise the Mediterranean diet, while improving the sustainability of the Mediterranean food systems, by maintaining the close linkages to the Mediterranean diet, as a food system driver. The Mediterranean diet was strongly highlighted as a significant part of Mediterranean food systems, from consumption to production, and not any more just a diet. It was highlighted as an expression of the diversity of Mediterranean food cultures and culinary systems, a way of living of the Mediterranean people, a complex web of cultural aspects, that depend on each other, from nutrition to the economy and the natural environment, strongly linked to local territories. The need was stressed again to reach a consensus on how to assess the adherence and the sustainability of the Mediterranean diet, at the country level and how to reconstruct a sustainable eating culture and lifestyle, more suited to the times, and for all Mediterranean people.

In 2017, under the One Planet SFS Programme, a FAO/CIHEAM International Workshop 'Development of Voluntary Guidelines for the Sustainability of the Mediterranean diet in the Mediterranean region' was held, at the CIHEAM-Bari, with a twofold purpose (Food and Agriculture Organization / CIHEAM 2017):

1) To produce a discussion paper on 'Development of voluntary guidelines for the sustainability of the Mediterranean diet in the Mediterranean region', and
2) To finalise the proposal for the development of a 'Mediterranean Multi-stakeholder Platform on Sustainable Food Systems', within the One Planet SFS Programme. One objective of this workshop was to finalise a proposal for the development of a Mediterranean

17 http://medfoodcultures.org/304/291/products/first_world_conference_on_the_revitalization_of_the_mediterranean_diet_6_8_july_2016_milan.html

18 http://medfoodcultures.org/304/292/products/2016_call_for_action_for_the_revitalization_of_the_mediterranean_diet.html

Multistakeholder Platform on Sustainable Food Systems, under the One Planet SFS Programme.

Then, in 2019, as an affiliated project of the One Planet SFS Programme, the Second World Conference of the Mediterranean Diet was organised in Palermo[19].

The Mediterranean diet as a sustainable diet model, context-specific for the Mediterranean, with country-specific variations:

Currently, the Mediterranean diet is less and less followed by Mediterranean populations who show increasingly unsustainable food consumption. Paradoxically, the currently impressive number of scientific publications on the health benefits of the Mediterranean diet has not led to any change of current food choices for Italian and Mediterranean citizens. Therefore, there was a strategic need for a change of perception on the benefits of the Mediterranean diet, not just on the health/nutrition side but for all its other sustainable benefits, environmental, economic and social, in order to involve a broader spectrum of actors.

In the Med Diet 4.0 multidimensional framework (Dernini et al. 2017), from the social dimension of the sustainability two distinct dimensions closely associated with the Mediterranean diet were extrapolated, one for society and culture and another one for health. Then by highlighting the interlinkages between sustainability with food security and nutrition from the four dimensions of environment, economy, society/culture and health, four sustainability benefits of the Mediterranean diet are valorised in parallel (Figure 2.3):

1) Recognised and well-documented major health and nutrition benefits, in the prevention of chronic diseases and in reducing public health costs as well as in the overall improvement of well-being;
2) Low environmental impacts and richness in biodiversity, appreciation of biodiversity value, reduction of pressure on natural resources and mitigation of climate change;
3) High positive local economic returns, sustainable territorial development, reduction of rural poverty, and high performance in reduction of food waste and loss;

[19] http://www.iamb.ciheam.org/en/news_and_events/one?event=summary-report-of-the-2nd-world-conference-on-the-revitalisation-of-mediterranean-diet-on-strategies-towards-more-sustainable-food-systems-in-the-mediterranean-region&id=345

4) High social and cultural value of food, growth of mutual respect, identity recovery, social inclusion and consumer empowerment.

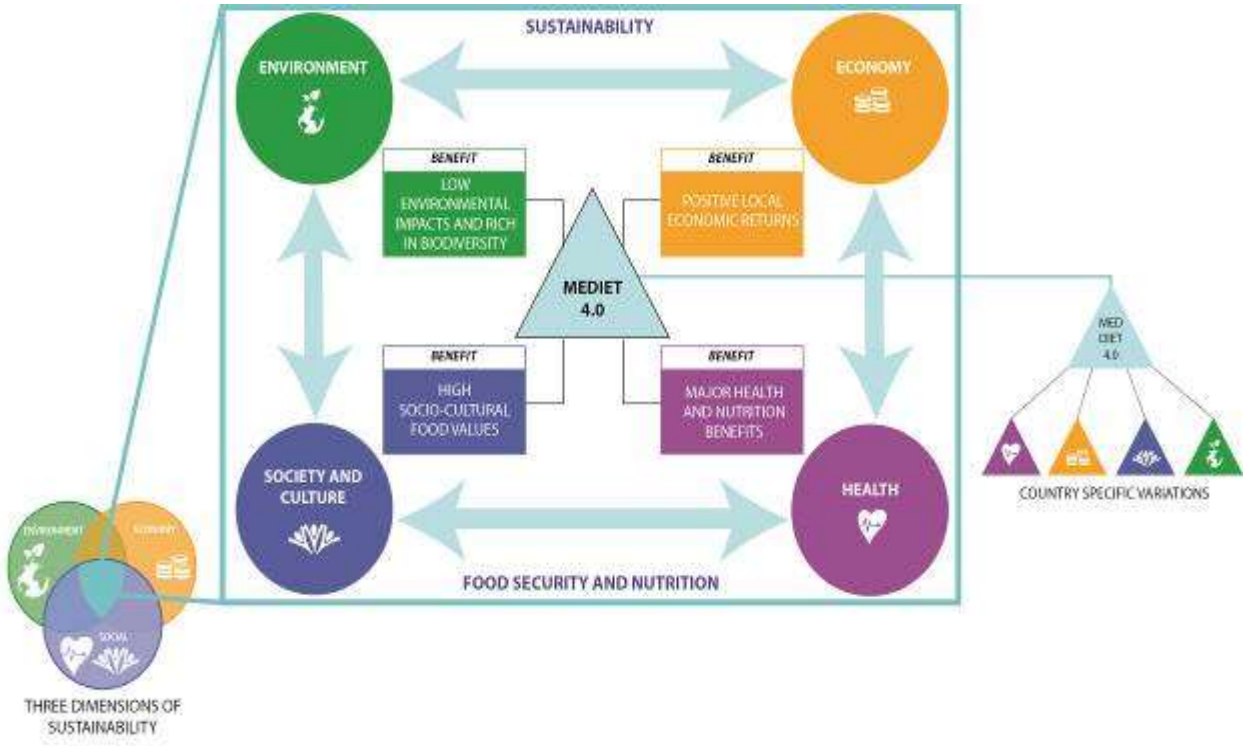


Figure 2.3: The four sustainable benefits of the Mediterranean diet within the Med Diet 4.0 Framework (*Source: Adapted from Dernini et al. 2017***)**

In keeping with the 2010 agreed definition of 'sustainable diets' (Burlingame and Dernini 2012), the above four sustainable benefits of the Mediterranean diet were highlighted and incorporated into the one single comprehensive Med Diet 4.0 framework. By taking into consideration the diversity of Mediterranean food cultures and systems, expressed within the notion of the Mediterranean diet, this conceptual multidimensional framework was conceived as simple main frame to be adapted to allow appropriate country-specific variations (Figure 2.3).

As food systems and food cultures are highly complex, featuring interconnected and interdependent components and embracing various challenges and issues, in the development of the Med Diet 4.0 framework it was taken into account the importance to develop a conceptual framework highlighting interconnectivities among various sustainability dimensions, drivers and impacts, context-specific for the Mediterranean (fig. 2.4).

Food challenges are all interrelated and require specific context approaches, with a better understanding of country specific variations, interdependent impacts, and related appropriate solutions for reversing current unsustainable dietary shifts and achieving nutritional well-being, food security and sustainability (fig. 2) (Dernini et al. 2019).

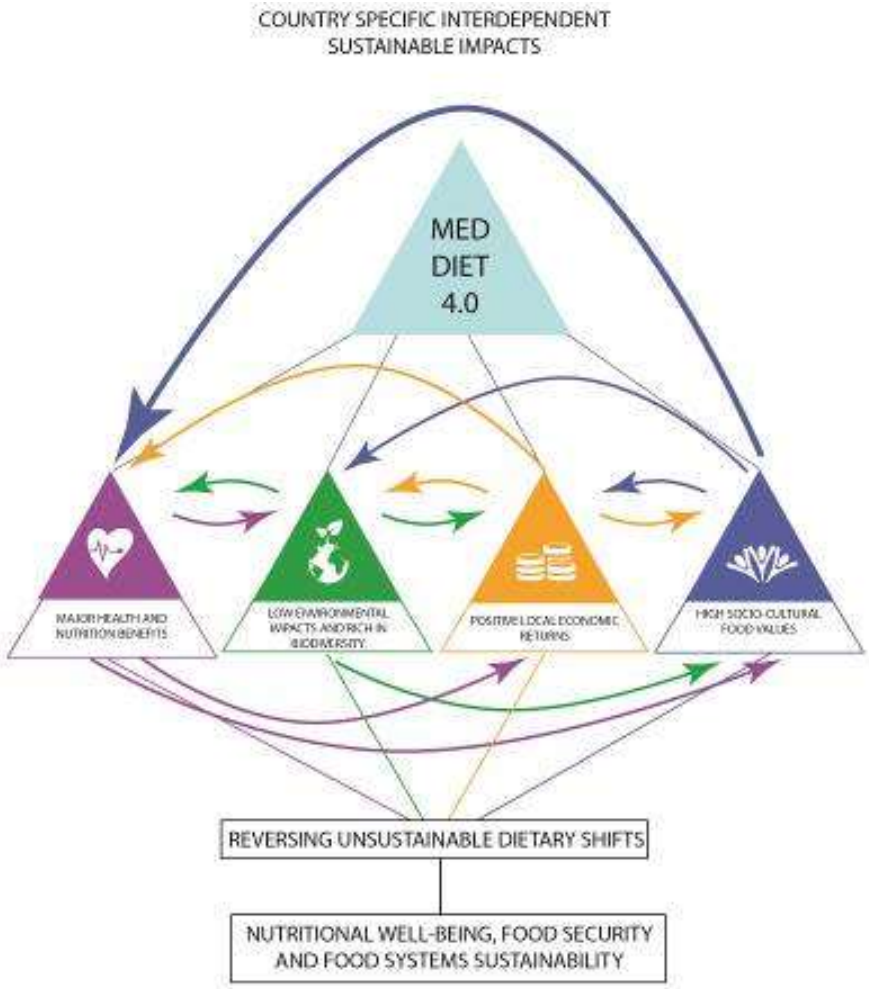


Figure 2.4: Country-specific interdependent Mediterranean diet sustainable impacts (*Source: Dernini et al. 2019***)**

Current challenges need to be properly understood in their interconnections and interdependencies, within a holistic framework, context-specific for the Mediterranean, bringing more transdisciplinary knowledge on the ground, while taking into account the widely differing cultural and developmental dimensions across the Mediterranean. It requires appropriate data, not all presently available at country level, to assess impacts and interdependent interactions among them.

The SFS MED Platform:

The Mediterranean Multistakeholder SFS Platform (SFS-MED Platform) by catalysing a wider and inclusive participatory multi-stakeholder dialogue in the Mediterranean for a sustainable transformation of food systems, by linking SCP through Mediterranean diet as a lever, is expected to trigger collective concrete actions on the ground.

The Platform, through a holistic sustainable food systems approach, context-specific for the Mediterranean, by contributing in accelerating the 2030 Agenda in the region, is foreseen in order to provide an innovative, multi-sectorial, and science-based response for coping with current multiple and intertwined challenges facing the Mediterranean populations.

The challenges involved with building truly sustainable food systems are multidimensional and interrelated, and thus require a holistic approach: examining food systems as a whole rather than in separate pieces, valuing outcomes over processes, and embracing a variety of voices instead of single perspectives, while each sector and each country can tailor its own solutions.

Therefore, the adoption of a context-specific integrated holistic approach will allow a better understanding of food systems as a whole, and would address all elements across the entire food system, rather than separately, by taking into account all the impacts and trade-offs that need to be assessed.

The SFS-MED Platform will take into account the multi-dimensional nature and differences of food systems in the Mediterranean region, on both Northern and Eastern/Southern shores. The Platform will provide a Mediterranean context-specific SFS approach, at the regional, country, territorial or site level, that requires a holistic systemic approach by examining food systems as a whole rather than in separate pieces, linking sustainable consumption and production (SCP), through the Mediterranean diet, as a lever in a healthy and sustainable way.

In this context, the SFS-MED Platform, conceived as a collaborative, multi-stakeholder endeavour, offers the unique opportunity to bring together different mandates for mobilising stronger partnerships towards more resilient sustainable food systems

in the Mediterranean, by revitalising the Mediterranean diet as a lever for bridging food consumption and production in a healthy and sustainable way.

Conclusion:

A change of route is needed to revitalise the Mediterranean diet, as a sustainable healthy lever bridging sustainable food consumption and production, towards more sustainable food systems in the Mediterranean region.

Global commitment for a shift towards more sustainable diets and more sustainable food systems has increased significantly in the international community over the recent years, as part of the collective efforts for achieving the ambitious goals of the 2030 Agenda.

The systemic transdisciplinary approach on the Mediterranean diet proposed at the Palermo Conference could play a very important strategic role for an effective enhancement (revitalisation) of the Mediterranean diet in the Mediterranean region at country level, in the context of the overall improvement of the sustainability of food systems, from production to consumption and vice versa.

The Mediterranean diet should be seen as an expression of the diversity of Mediterranean food cultures and their different food and culinary systems, as well as an outstanding resource for promoting more sustainable development in the Mediterranean, and a cultural food system heritage 'lever' for bridging sustainable consumption and production in a healthy and sustainable way. Therefore, the Mediterranean diet should be studied as a part of Mediterranean Cultures, extending the concept to equate to a Mediterranean Cultural Food System or Mediterranean Culinary System (Medina 2015, 2017).

The enhancement of the diversity of Mediterranean food cultures and the revitalisation of the Mediterranean diet, with country specific variations, as a lever for bridging sustainable food consumption and production, are interconnected and should be investigated and promoted together as safeguard measures for the achievement of a broader individual and community well-being in all Mediterranean countries.

There is a need for an overall regional vision of Mediterranean food cultures and food systems on both shores of the sea, in dealing

with these multiple and interdependent challenges facing the livelihoods of all Mediterranean people.

The complexity of the interdependent challenges in the Mediterranean, within the radical transformation of the contemporary global food system scenario, requires multicultural, multisectoral and transdisciplinary rethinking on the sustainability of food cultures, which would be capable of generating new collaborative forms of dialogues and actions, at all levels, in order to achieve a wiser human use of human and natural resources.

Current challenges need to be tackled through a renewed vision that requires diverse scales, multifaceted understanding and transdisciplinary approaches, with their focus that must be on people, hence the need to better understand their food-related choices and drives as related to their cultural, social, economic and environmental circumstances.

However, the process is inherently complex and, therefore, a change of route towards an integrated holistic approach to the food system transformation is needed to avoid narrow technical fixes of certain constraints throughout the food system, while recognising any trade-offs which countries are facing in achieving multiple objectives. Tackling the food system transformation, from consumption to production and vice versa, is a very complex process.

In all countries, decision-making affecting the evolution of food systems is very fragmented. One of the main challenges the food system transformation faces is a very limited understanding not only of the performance of food systems but also of the trade-offs between the different objectives to be achieved through food system transformations.

Today there is more evidence that foods and food patterns act synergistically to influence the risk of several diseases, and, therefore, there is need to have more research on the assessment of the overall Mediterranean dietary patterns instead of only its nutrients and food groupings.

The global scenery in which is placed the complex reality of the Mediterranean, with its interdependent issues, requires an interdisciplinary and intercultural rethinking able to express a new paradigm of development for the Mediterranean.

Within the new challenge posed by the ongoing and unprecedented COVID-19 crisis, there is a stronger need for a better understanding of the links between a food system and the health status of the population, by connecting the nutritional well-being of the individual and the community to the sustainability of natural resources, and reaffirming the notion that the health of humans cannot be isolated from the health of ecosystems (Burlingame and Dernini, 2011, 2012, 2019).

References:

Aounallah-Skhiri, H., Traissac, P., El Ati, J., Eymard-Duvernay, S., Landais, E., Achour, N., Delpeuch, F., Romdhane, H.B. and Maire, B. (2011) Nutrition transition among adolescents of a south-Mediterranean country: dietary patterns, association with socio-economic factors, overweight and blood pressure. A cross-sectional study in Tunisia, *Nutrition Journal,* **10(1)**: 38.

Bach-Faig, A., Berry, E.M., Lairon, D., Reguant, J., Trichopoulou, A., Dernini, S., Medina, F.X., Battino, M., Belahsen, R., Miranda, G. and Serra-Majem, L. (2011) Mediterranean diet pyramid today. Science and cultural updates, *Public Health Nutrition,* **14(12A)**: 2274–2284.

Belahsen, R. and Rguibi, M. (2006) Population health and Mediterranean diet in southern Mediterranean countries, *Public Health Nutrition,* **9**: 1130–1135.

Belahsen, R. (2014) Cultural diversity of sustainable diets. Nutrition transition and food sustainability, *Proceedings of the Nutrition Society,* **73(3)**: 385-388.

Berry, E.M., Dernini, S., Burlingame, B., Meybeck, A. and Conforti, P. (2015) Food security and sustainability: can one exist without the other? *Public Health Nutrition,* **18(13)**: 2293-2302.

Bowen, S. and Mutersbaugh, T. (2014) Local or localized? Exploring the contributions of Franco-Mediterranean agrifood theory to alternative food research, *Agriculture and Human Values,* **31:** 201–213.

Burlingame, B. and Dernini, S. (2011) Sustainable diets: the Mediterranean diet as an example, *Public Health Nutrition,* **14(12A**): 2285–2287.

Burlingame, B. and Dernini, S. (eds) (2012) *Sustainable diets: Directions and solutions for policy, research and action,* Food and Agriculture Organization, Rome.

Burlingame, B. and Dernini, S. (eds) (2019) *Sustainable diets: Linking nutrition and food system,* CAB International, Wellingford, Oxforshire/Boston, MA.

Castro-Quezada, I., Román-Viñas, B. and Serra-Majem, L. (2014) The Mediterranean diet and nutritional adequacy: a review, *Nutrients,* **6(1):** 231-248.

Da Silva, R., Bach-Faig, A., Raido Quintana, B., Buckland, G., Vaz de Almeida, M.D. and Serra-Majem, L. (2009) World variation of adherence to the Mediterranean diet in 1961-1965 and 2000-2003, *Public Health Nutrition,* **12(9A)**:1676-1684.

Dernini, S. (2006) Towards the Advancement of the Mediterranean Food Cultures*, Public Health Nutrition,* **9 (1A)**:103-104.

Dernini, S. (2011) The erosion and the renaissance of the Mediterranean diet: A sustainable cultural resource, *Quaderns de la Mediterrania,* IEMED, **16**: 75-82.

Dernini, S., Berry, E. M., Bach-Faig, A., Belahsen, R., Donini L.M., Lairon D., Serra-Majem, L., and Cannella, C. (2012) A dietary model constructed by scientists: The Mediterranean diet. In, *Mediterra 2012: The Mediterranean diet for sustainable regional development*, CIHEAM–Sciences Po, Les Presses, Paris, pp. 71-88.

Dernini, S. and Berry, E.M. (2015) Mediterranean diet: from a healthy diet to a sustainable dietary pattern, *Frontiers in Nutrition,* **2 (15)**: 1-7.

Dernini, S. and Berry, E.M. (2016) Historical and Behavioral Perspectives of the Mediterranean diet. In Romagnolo, D.F. and Selmin, O.I. (eds) *Mediterranean diet in Health and Disease,* Humana Press, Springer, New York, pp. 29-41.

Dernini, S., *Berry, E.M., Serra-Majem, L., La Vecchia, C., Capone, R., Medina, F.X., Aranceta-Bartrina, J., Belahsen, R., Burlingame, B., Calabrese, G., Corella, D., Donini, L.M., Lairon, D., Meybeck, M., Pekcan, A. G., Piscopo, S., Yngve, A., and Trichopoulou, A.* (2017) Med Diet 4.0: the Mediterranean diet with four sustainable benefits, *Public Health Nutrition,* **20(7)**: 1322-1330.

Dernini, S., Lairon, D., Berry, E.M., Brunori, G., Capone, R., Donini, L.M., Iannetta, M., Mattioni, D., Piscopo, S., Serra-Majem, L., Sonnino. A. and Stefanova, M. (2019) The Med Diet 4.0 Framework: A multidimensional driver for Revitalizing the Mediterranean dieta s a sustainable model. In Burlingame, B. and Dernini, S. (eds) *Sustainable diets: Linking nutrition and food system,* CAB International, Wellingford, Oxforshire/Boston, MA, pp.187-198.

Dernini, S. (2019) Sustainable Diets: A Historical Perspective. In Ferranti, P., Berry, E.M. and Anderson, J.R. (eds) *Encyclopedia of Food Security and Sustainability,* vol. 2, Elsevier, Amsterdam, pp. 370–373.

Estruch, R., Ros, E., Salas-Salvadó, J., Covas, M.I., Corella, D., Arós, F., Gómez-Gracia, E., Ruiz-Gutiérrez, V., Fiol, M., Lapetra, J. and Lamuela-Raventos, R.M. (2013) Primary prevention of cardiovascular disease with a Mediterranean diet, *New England Journal of Medicine,* **368(14)**:1279-1290.

Food and Agriculture Organization/CIHEAM (2012) *Towards the development of guidelines for improving the sustainability of diets and food consumption patterns: the Mediterranean diet as a pilot study*. A discussion paper, Food and Agriculture Organization, Rome.

Food and Agriculture Organization/CIHEAM (2017) *Development of voluntary guidelines for the sustainability of the Mediterranean diet in the Mediterranean region,* Proceedings of a Technical Workshop, Food and Agriculture Organization, Rome.

Garcia-Closas, R., Berenguer, A., Carlos, A. and González, C. (2006) Changes in food supply in Mediterranean countries from 1961 to 2001, *Public Health Nutrition,* **9(1):** 53-60.

González-Turmo, I. (2012) The Mediterranean diet: consumption, cuisine and food habits. In *Mediterra 2012*, CIHEAM/Sciences Po, Paris. pp. 115-132.

Gotsis, E., Anagnostis, P., Mariolis, A., Vlachou, A., Katsiki, N. and Karagiannis, A. (2015) Health benefits of the Mediterranean diet: an update of research over the last 5 years, *Angiology,* **66(4):** 304-318.

Hachem, F., Capone, R., Yannakoulia, M., Dernini, S. and Hwalla, N. (2016). The Mediterranean diet: A sustainable consumption pattern. In *Mediterra 2016. Zero waste in the Mediterranean.* Food and Agriculture Organization/CIHEAM/Sciences Po, Les Presses, Paris/Rome, pp. 243-261.

High Level Panel of Experts on Food Security and Nutrition (2017) *Nutrition and Food Systems*, Report of the High Level Panel of Experts on Food Security and Nutrition (HLPE), Rome.

CIHEAM (2016) *Mediterra 2016: Migration and inclusive rural development in the Mediterranean*, CIHEAM–AFD-Sciences Po, Les Presses, Paris.

CIHEAM/Food and Agriculture Organization (2015) *Mediterranean food consumption patterns: diet, environment, society, economy and health*, A White Paper Priority 5 of the Expo Milan 2015 Feeding Knowledge Programme, Food and Agriculture Organization, Rome.

International Obesity Task Force (2005) *EU platform on diet, physical activity and health, EU platform briefing paper*, International Obesity Task Force (IOFT), Brussels. Available at: http://ec.europa.eu/health/ph_determinants/life_style/nutrition/documents/iotf_en.pdf

Keys, A.B. (1970). Coronary Heart Disease in Seven Countries, *Circulation* **41(1):** 1-200.

Medina, F.X. (2011) Food consumption and civil society: Mediterranean diet as a sustainable resource for the Mediterranean area, *Public Health Nutrition* **14(12A)**: 2346-2349.

Medina, F. X. (2015) Assessing sustainable diets in the context of sustainable food systems: socio-cultural dimensions. In Meybeck, A., Redfern, S., Paoletti, F. and Strassner, P. (eds) *Assessing Sustainable Diets within the Sustainable Food Systems. Mediterranean diet, Organic Food: New Challenges*, Food and Agriculture Organization, CREA and International Research Network for Food Quality and Health, Rome, pp. 163-165.

Medina, F.X. (2017) Five Relevant Points on Food, Culture and Mediterranean diet. In Meybeck, A., Redfern, S., Hachem, F., Capone, R. and Dernini, S. (eds) *Development of Voluntary Guidelines for the Sustainability of the Mediterranean diet in the Mediterranean Region*, Food and Agriculture Organization, Rome. pp. 83-87.

Medina, F.X. and Aguilar A. (2019) Sustainable diets: Social and cultural perspectives. In Burlingame B. and Dernini S. (eds) *Sustainable Diets: Linking nutrition and food systems*, CAB International, Boston, pp. 131-136.

Mediterranean Experts on Climate and Environmental Change (2019) *Risks associated to climate and environmental changes in the Mediterranean region. A preliminary assessment by the Mediterranean Experts on Climate and Environmental Change,* MedECC Network Science-policy interface. Available at: https://ufmsecretariat.org/wp-content/uploads/2018/12/UfM-Sectorial-Report-Risks-associated-to-climate-and-environmental-changes-in-the-Mediterranean-region.pdf.

Meybeck, A., Redfern, S., Hachem, F., Capone, R. and Dernini, S. (eds) (2017) *Development of voluntary guidelines for the sustainability of the Mediterranean diet in the Mediterranean region,* Food and Agriculture Organization/CIHEAM, Rome.

Myers, N., Mittermeier, R. A., Mittermeier, C. G., Da Fonseca, G. A. and Kent, J. (2000) Biodiversity hotspots for conservation priorities, *Nature,* **403(6772),** 853-858.

Nasreddine, L.M., Kassis, A.N., Ayoub, J.J., Naja, F.A. and Hwalla, N.C. (2018) Nutritional status and dietary intakes of children amid the nutrition transition: the case of the Eastern Mediterranean Region, *Nutrition Research,* **57**:12-27.

Padilla, M., Capone, R. and Palma, G. (2012) Sustainability of the food chain from field to plate: the case of the Mediterranean diet. In Burlingame B. and Dernini S. (eds) *Sustainable diets: Directions and solutions for policy, research and action,* Food and Agriculture Organization, Rome, pp. 230-240

Serra-Majem, L. and Medina, F.X. (2015) The Mediterranean diet as an Intangible and Sustainable Food Culture. In Preedy, V.R. and Watson, D.R. (eds) *The Mediterranean diet: An Evidence-Based Approach*, Academic Press-Elsevier, London, pp. 37-46.

Serra-Majem, L., Bes-Rastrollo, M., Román-Vinas, B., Pfrimer, K., Sánchez-Villegas, A. and Martínez-González, M.A. (2009) Dietary patterns and nutritional adequacy in a Mediterranean country, *British Journal of Nutrition*, **101(S2)**: S21-S28.

Serra-Majem,L. and Trichopoulou, A. (2016) Updating the benefits of the Mediterranean diet: from the Hearth to the Earth. In Romagnolo, D.F. and Selmin, O.I. (eds) *Mediterranean diet in Health and Disease,* Humana Press, Springer, New York, pp. 3-14.

Tilman, D. and Clark, M. (2014) Global diets link environmental sustainability and human health, *Nature,* **515(7528):** 518-522.

Trichopoulou, A. and Lagiou, P. (1997) Healthy traditional Mediterranean diet: An expression of culture, history and lifestyle, *Nutrition Reviews*, **55**: 383-389.

Trichopoulou, A., Bamia, C. and Trichopoulos, D. (2009) Anatomy of health effects of Mediterranean diet: Greek EPIC prospective cohort study, *British Medical Journal,* **338:** b2337.

UNEP/MAP (2005) Mediterranean Strategy For Sustainable Development: A Framework for Environmental Sustainability and Shared Prosperity. Tenth Meeting of the Mediterranean Commission on Sustainable Development (MCSD), Athens.

UNEP/MAP (2017) Regional Action Plan on Sustainable Consumption and Production in the Mediterranean. UN Environment/MAP, Athens. Available at: https://wedocs.unep.org/bitstream/handle/20.500.11822/20731/unepmap_SCPAP_eng_web.pdf?sequence=1&isAllowed=y.

UNESCO (2010) *Inscription of Mediterranean diet on the representative list of the Intangible Heritage of Humanity,* Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage, UNESCO, Paris.

Vareiro, D., Bach-Faig, A., Raidó Quintana, B., Bertomeu, I., Buckland, G., Vaz de Almeida, M.D. and Serra-Majem, L. (2009) Availability of Mediterranean and non-Mediterranean foods during the last four decades: comparison of several geographical areas, *Public Health Nutrition,* **12(9A)**: 1667-75.

Willett, W.C., Sacks, F., Trichopoulou, A., Drescher, G., Ferro-Luzzi, A., Helsing, E. and Trichopoulos, D. (1995) Mediterranean diet pyramid: a cultural model for healthy eating, *American Journal of Clinical Nutrition,* **61(6):** 1402S-1406S.

CHAPTER 3
HOW TO SAFEGUARD THE MEDITERRANEAN DIET THE MEDITERRANEAN WAY

by Alen Agaronov

The Mediterranean Diet is commonly characterised as a heart-healthy, plant-based eating pattern that stands in stark contrast to its Western counterparts. However, this perspective also dates from one of the most significant cases of field research of the twentieth century. From the late 1950s to early 1970s, American physiologist Ancel Keys led a multidisciplinary team through a series of expeditions to study why an increasing number of Western men were dying of heart attacks. Spanning seven countries, they called it the Seven Countries Study. Following laboratory, physiological and survey-based research in parts of Italy, Greece, Yugoslavia and four non-Mediterranean countries, investigators produced strong evidence that eating patterns specific to the Mediterranean region were associated with lower cardiovascular disease (CVD) (Keys et al. 1970. Their research built a strong platform for contemporary nutritional epidemiology (Willett 2012) and resulted in the global recognition of what is now known as the Mediterranean Diet (Ferro-Luzzi et al. 1984).

The pioneering nature of the Seven Countries Study has put the Mediterranean Diet at the centre of a lot of questioning. Elisabetta Moro traces the word diet to its Greek form, '*díaita*' (2016: 656), which, as discussed in the Introduction to this volume, does not refer just to a medically prescribed eating pattern (Saulle and La Torre 2010). Inscribed on to the Representative List of Intangible Cultural Heritages of Humanity, UNESCO recognises the Mediterranean Diet as 'a way of life' (UNESCO 2013: 6).

Debates over its meaning are directly linked to the Seven Countries Study. Moro contemplates the post-colonial sentiments of a Mediterranean Diet that was somehow 'discovered' by Western scientists, suggesting (2016: 656) it should be considered 'invented'. Several controversial voices take this literally and show scepticism about the study's implications for eating animal products (Taubes 2007; Teicholz 2014). These contestations appear even more granular

within the field of epidemiology. Researchers like Murphy and Parletta (2018) acknowledge the importance of 'fresh air and a relaxing lifestyle' (2018: 28) but focus on what is exportable outside of the Mediterranean region, namely plant foods. Vague disputes over this worldview still narrowly centre around food (Klonizakis et al. 2018), even if they appear progressive, like the 'Mediterranean Diet for the 21st Century' (Stamler 2013) that updates guidance on consuming white flour, alcohol, simple sugars and salt. Debates over the origins and credibility of the Mediterranean Diet give it the title of an 'alimentary imaginary' (Stano 2015: 115).

Purpose:[20]

Research surrounding the meaning of the Mediterranean Diet commonly refers to its roots in the Seven Countries Study. Yet, even the most rigorous research into tracing its meaning omits the lived experience of investigators when in the field. This chapter, however, explores the meaning of the Mediterranean Diet in the context in which it was constructed by the original Seven Countries Study investigators in the Mediterranean basin region from the late1950s to early 1970s.

First, I look at the origins of the Seven Countries Study, paying close attention to investigator biographies and their spontaneity and immersion during early fieldwork that led up to the study's formulation and early conceptions about the Mediterranean Diet. I then dive deeper into the sophistication of epidemiology, particularly CVD epidemiology, from the 1950s to the 1970s, to examine the extent to which its flirtation with informality, adventure and leisure shaped how meaning was ascribed to the Mediterranean Diet. Finally, I search for reasons why the Seven Countries Study still produces split narratives about the Mediterranean Diet, as an eating pattern on one hand and a way of life on the other, and how these narratives have subsequently been adopted. In doing so, I try to demonstrate why it is relevant to contemporary debates to revisit the histories of an earlier form of fieldwork that sometimes resembled a hybrid between a numbers-driven epidemiology and an experience-driven anthropology (Trostle 2005; Weiss 2001), compared to more remote and hands-off research.

[20] **Please note that in this chapter all further superscript numbers refer to Endnotes, not to Footnotes.**

Approach:

To carry this out, I dig into the oral histories of the Mediterranean Diet by examining video-documented interviews derived from The Virtual Museum of the Mediterranean Diet, a project purposed with the collection, digitisation and preservation of the Mediterranean Diet (MedEatResearch). I focus on secondary interviews with the principal investigators of the Seven Countries Study who led data collection in the 1950s and 1960s and the second-generation investigators who conducted follow-up studies in the 1970s. This includes narratives from their friends, family, neighbours and domestic workers. I primarily worked with video-documented interviews recommended by museum curators from a video bank of over 150 videos and transcribed into English. Whenever possible, I contacted interviewees by email, phone or videoconferencing for follow-up questions. All ideas and quotes in this chapter that pertain to interviews and communications are assigned a superscript number corresponding to a citation in the Endnotes section. Remaining information is cited under References.

Provided its image as an 'imaginary' (Stano 2015: 120), the methods I use in this chapter assume that events leading up to the construction of the Mediterranean Diet can be understood without someone's full knowledge (Bruner 1986; Polkinghorne 1988). In practical terms, I paid close attention to how people positioned themselves in relation to the Seven Countries Study in their stories and whether they made any subconscious interruptions, asides or emphases that were telling of the origin and meaning of the Mediterranean Diet. The archival collections of the History of CVD Epidemiology Project at the University of Minnesota also offered me books, articles, reports, photographs, films and videos to further immerse myself into findings that emerged from interviews, according to methods described by Borkan (1999). Archives particularly gave voice to stakeholders in the Seven Countries Study whose interviews were unavailable in The Virtual Museum of the Mediterranean Diet.

Come See for Yourself:

It is now hard to believe that there was once a time when the cause of heart disease was still a mystery and dying from a heart attack was accepted as an inevitable consequence of ageing. Ancel Keys recalls

seeing endless heart patients die at the Mayo Clinic with little explanation for the underlying cause (Keys 1999). A turning point came in 1951, when Keys chaired the first Committee on Food and Nutrition for the United Nations Food and Agriculture Organization in Rome. The meeting centred around undernutrition following the second world war. Keys disrupted the proceedings by citing news about rising cases of heart attacks in American men. The attendees remained silent with the exception of Italian physician, Gino Bergami, who made a comment from his seat in the audience, 'Heart disease is not a big problem in Naples' (Keys 1999: 43).

This physician's comment stayed with Keys while on sabbatical at Oxford University, with his wife and chemist, Margaret. Although the war had long ended, food rationing in England had not. Keys writes in his memoirs, 'It was cold in Oxford, we were tired of food rationing, and I remembered Bergami's claim' (Keys 1994: 16). After enduring several more months of Oxford's 'hardly adventuresome' (Blackburn 2012: 762) academic ambiance, he contacted Bergami, who warmly invited the Keys to Naples. The two purchased a car, loaded it with lab equipment, and took a four-day road trip to Italy. On their way, the Keys stopped in France to see friends, who treated the couple to so much food that upon leaving the two desperately searched for a toilet. Finally crossing the border into Italy, they shed their winter coats and stopped at a bar in Domodossola. Albeit not summer weather, Keys enjoyed a cappuccino while revelling in the sunlight, writing, 'So this was Italy!' (Keys 1994: 50).

Bergami's claim proved to be partially correct. Joined by Flaminio Fidanza and Paul Dudley White the Keys found few cases of coronary heart disease during their tour of hospitals, apart from upper class men in private clinics. Keys attributed the latter to the consumption of animal products following his own experience dining at an exclusive member's club. He writes (Ibid.: 16-17), 'The pasta was loaded with meat sauce and everyone added heaps of parmesan cheese. Roast beef was the main course. Dessert was a choice of ice cream or rich pastry'. He and Margaret went on to persuade some of the diners to come in for an examination at Bergami's clinic, where they found their serum cholesterol levels to resemble those of men in their home state of Minnesota. The Keys also studied local steelworkers whose

cholesterol levels were remarkably low in comparison. The Keys note how the Neapolitan working class particularly loved to eat hot soups made from beans and vegetables with a little bit of pasta and dressed in olive oil. Mediterranean Diet scholar, Elisabetta Moro, suggests (2016: 658) that this early comparison of two groups gave the Keys 'a flash of inspiration'.

The lead-up to their moment of inspiration is often credited to Ancel Key's accomplishments in nutritional science, such as developing food rationing kits for U.S. paratroopers, pioneering the study of starvation, and performing some of the earliest work on smoking, cholesterol and meat fat. This work awarded Ancel and Margaret that sabbatical in Oxford for 'a change in scene' (Keys 1999: 41). More importantly, however, the sabbatical afforded them a second change in scene, to Naples. In picturesque terms, the Mediterranean Diet entered the equation as soup enters their stomachs and Vitamin D penetrates their skin. This was by no means the start of what is formally known as the Seven Countries Study, and the Keys still had to go through the motions of rigorous science. Using new technology, they collected every dish prepared by ten local families for a week, then mixed and freeze-dried the meals before shipping them to the States to examine their chemical contents under laboratory conditions, in order to compare blood cholesterol levels in relation to eating patterns in the region.

Nevertheless, it's hard to overlook the transition from Oxford to Naples when considering the inspiration for the Mediterranean Diet. In Oxford, the Keys' residence was unheated and snow even blew into the kitchen from beneath the door. Keys spends over eight pages in his memoirs commenting on the freezing conditions in Oxford and how he and Margaret 'could not adjust' (Keys 1994: 42), whereas 'Living in Naples was nothing like being in Oxford' (Ibid: 52). He recalls an outing in Naples where a tourist guide demonstrates how a newspaper catches fire from raising it over a vent in the rocks.

The Neapolitan climate not only contrasted with Oxford's, but also with the climate of their lab back in Minnesota, which first-generation investigator Mario Mancini describes as 'a huge room with no windows and only artificial lighting' and further situated beneath the University of Minnesota's stadium bleachers'.[1]

Following initial data collection, the Keys took a big detour on their way back to Minnesota, stopping in Madrid, Copenhagen, Austria and Switzerland. They made stops to explore ancient caves, pick raspberries, relax in a spa, and eat juicy peaches in 100-degree Fahrenheit weather until taking their car aboard the SS. Britannic from Liverpool to New York. 'Those were the good old days', Ancel reminisces, when caves were open to visitors, garlic was not in pill form, and tourists need not make reservations for hotels.

Although these side-ventures were not recorded as research, they provided experiences which bridged the fields of epidemiology and anthropology. Back in the USA, it is said that Keys' 1953 talk at Mount Sinai Hospital in New York was positively received in part due to Franz Boas, father of American modern anthropology and father of an internist at the hospital.

Or, perhaps the origins of Keys' interest in the Mediterranean Diet date even further back, to his childhood in Berkeley. He writes in his memoirs:

> Growing up in Berkeley, I was exposed to Italian cookery in Italian restaurants in the San Francisco Bay region where many emigrants from southern Italy had settled. Spaghetti and macaroni had become standard items in California cookery, and olive oil and garlic were abundantly used. The mild climate of coastal California, similar to that of the European countries bordering the Mediterranean, meant that fresh vegetables and fruits were available all times of the year. After leaving for work in other parts of the U.S. and Denmark and England, I missed the foods of California, and it was with pleasure that Margaret and I visited Naples in 1951; both the sunny Mediterranean climate and the food reminded me of California.
>
> (Keys 1994: 99)

A More Romantic Epidemiology:

The Keys later returned to Italy to survey residents in early preparation for a pilot of the Seven Countries Study. They travelled from Minnesota by steamship and, in the evenings, Margaret switched into a dress and Keys into a tuxedo and they dined and danced to live music. Their precise research questions remained a mystery for the time being,[10] and

as Keys notes, ‘You can’t be rushing when your destination is a week or more away’ (Keys 1994: 61).

Their informal research travels continued. In Sardinia the couple found lower levels of serum cholesterol in men compared to men in Bologna. Ancel suspected this was to do with Bologna's brick architecture after noting the number of overweight Bolognese firefighters without any work to do. Making their way to Finland, Ancel painfully watched people smear butter on top of cheese. In Japan, he and Margaret had to eat unfamiliar breakfast foods. They dined at the ‘world’s best fish restaurant’ (Ibid.: 79) in Hong Kong and enjoyed the beer in Bangkok before finding themselves stranded in Teheran.

The adventures of Ancel and Margaret Keys mark the closing of a period when so-called ‘Marco Polos’ (Blackburn 2012: 754) made their way around the world to perform informal research based on anecdotal evidence, often out of convenience during personal travels. Prominent American cardiologist Paul Dudley White joined the Keys on many such trips. Nicknamed ‘the dashing duo’ (Ibid.: 762), Keys and White spent much of the 1950s travelling worldwide to eyeball cholesterol, diet and lifestyle. Stories of their country-hopping was gossiped about and intrigued future investigators of the Seven Countries Study. First generation investigator Henry Blackburn remembers a visiting missionary at his medical school saying that he’s never seen a case of heart disease in his 25 years working in the Congo (which is eerily similar to Bergami’s claim about Naples to Keys in 1951). After hearing this news, Blackburn admits he was ‘ready to fall into this picture’.[2] What Blackburn is referring to is the ‘Romantic period’ (Ibid.: 766) of CVD epidemiology.

Blackburn developed this term to demarcate an adventurous time during the first half of the 1950s, when the Seven Countries Study was yet to be formalised and investigations were only leading up to its pilot phase. Valuing heroic individualism and imagination, the Romantic period is marked by curious personalities casually basing themselves in various places for short periods of time, ‘involving their friends to open doors, using quick and dirty but purposeful methods, and drawing modest conclusions’ [from] ‘obviously contrasting population samples’,[14] as Blackburn explains to me in an email. He characterises research that came before the formal Seven Countries Study as

'ethnography and anthropology, but with bigger numbers and perhaps a little more quantitative methods'.[2] First generation investigator, Alessandro Menotti, calls it 'geographic pathology' – sporadic observations by 'weird characters, travellers, pioneers, Europeans who moved to faraway lands who collected data without any specific purpose'.[3] Dutch pioneers Cornelis de Langen, Isadore Snapper and Johannes Groen, followed by the Keys and Paul Dudley White constructed 'the basis'[3] of CVD epidemiology.

It is possible that the essence of this Romantic period's spontaneous and personal approach to research spilled into the formal Seven Countries Study as the study increasingly grew into a family affair. Martha Keys helped her mother in the field and Caroline Keys contributed to writing evidence-based recipes for cookbooks.[4] Menotti points to this 'symbiosis' and how the Seven Countries Study ultimately 'created a family'.[3] A close colleague of Ancel Keys, Jeremia Stamler, explains that the Mediterranean Diet is about 'bringing families and friends together to share common moments of delectable and healthful pleasure…'.[5] In the same spirit, Henry Blackburn's memoirs begin with a foreword by Darwin Lebarthe about a conversation between Lebarthe and two other epidemiologists:

> 'This is *real* epidemiology.' 'And it's fun!' 'Yeah… if it isn't fun it isn't epidemiology!' 'Right!' [*emphasis* in original].
>
> (Labarthe: Foreword in Blackburn 2003)

Blackburn clarifies that the 'fun' in epidemiology is not exclusive to exotic travels, but 'the genuine excitement the investigators were finding in a branch of study only recently formalised… the intellectual fun: the joy found in discovery… a departure from a regression, which hints of buried treasure' (Backburn n.d.). He also draws a clear line between the Seven Countries Study and the 'informal peripatetic visits' by Ancel and Margaret Keys and Paul Dudley White that preceded it. He writes to me in an email that the Romantic period came to an end around 1956 or 1957. Thereafter the field adopted more 'systematic counting'[14] and 'valid and repeatable methods'[14] that yielded 'clear, measured results'.[14] He refers to this as the 'Classical period'.[14] Blackburn insists their study began during this period when epidemiology was met with 'rigorous quantification'.[14]

However, it is unclear whether the Romantic period indeed came to a full close immediately before the Seven Countries Study entered its formal phase, or whether the initiation of the study's formal phase required there to be a more sophisticated period for epidemiology, or even the idea of such a period, partly because the study itself paved the way for what Blackburn refers to as the Classic period.

During the World Health Organization's first Expert Committee on the Pathogenesis of Atherosclerosis in 1954, Keys was discredited by a rival colleague who was sceptical of the loose evidence on which Keys based his early theories of diet and heart disease. Blackburn credits this exchange for motivating Keys to push to gather more 'definitive evidence' (Blackburn 2012: 765) for what would soon become the Seven Countries Study and a pioneering effort to sophisticate the field of CVD epidemiology at large. However, stories suggest that this transition did not happen overnight.

Menotti exclaims that despite standardising all criteria, measurements and procedures ahead of time, 'We were pioneers. There were enormous operative difficulties in the field from every point of view, because, not everything – but almost everything – was improvised!' [3] The unprecedented proximity to data that came with the investigators' fieldwork in the Mediterranean region for extended periods of time was also an aspect left unchanged from the Romantic period. Beyond surveys and electrocardiograms, the exchange of stories between investigators in the field also kept the study alive. Keys commonly put lab members on the spot by forcing a story out of them at various banquets, and as Menotti notes, 'their success depended on the story that [they] would tell'.[3] Likewise, though he doubts its accuracy, Menotti recalls Ancel telling a story about him seeing farmers drink glasses of olive oil for breakfast in Naples.[3] Keys too writes of an encounter he had in the field, where he came across a 106-year old man holding a hoe being guided into the field to begin working (Keys 1999). Keys didn't have a chance to verify his age, but this circulation of data, stories, anecdotes and myths is what gives the Seven Countries Study its romance.

Perhaps most telling of the state of the transition from a Romantic to a Classical period, or from early shoe-leather epidemiology to chair epidemiology, is a story from the Keys' move to Pioppi in Italy's

Cilento region. In line with nutrition scholar Antonia Trichopoulou, the Keys believed in the philosophy that 'you have to live in the Mediterranean to understand [the Mediterranean Diet's] deep meaning'. [11] However, the Keys also wanted to take some of the West along with them. A lesser-known secret ingredient to the Seven Countries Study is Ancel's unorthodox computer skills, which expedited their statistical analysis of data.[1] Keys paid $1,500 US dollars to ship his computer in pieces from Minnesota to Pioppi, where he continued his writing after retirement (Keys 1999). This primitive relocation of a heavy and massive technological device across the North Atlantic, from the Mid-West to a hamlet in the Mediterranean, is symbolic of the slow shift from a field-based epidemiology to a quasi-remote statistical epidemiology.

The Art of Living:

The first mention of any Mediterranean-style of eating was in the Keys' (1975) book, *How to Eat Well and Be Well the Mediterranean Way*. The entire second half of that book contains recipes for Mediterranean cuisine, while the first half explains the science in layman's terms. One sentence in the 488-page text catches my eye:

> The Mediterranean kitchen offers such a wealth of gustatory delights, so many happy surprises at the dinner table, so much pure eating pleasure in dishes for the most part both economical and easy to prepare, that it would warrant enthusiastic praise even if there were no evidence that it is particularly 'healthful' [emphasis in original].
>
> (Keys and Keys 1975: 41)

Buried in this text, the Keys remind readers that the Mediterranean has more to offer than food and healthy eating, which does not mean sacrificing life's pleasure. However, this message appears to have become compromised over time. Keys never mentioned the Mediterranean in his scientific publishing, but this did not stop other researchers from doing so. Citing Keys' academic texts – but not his and Margaret's cookbook – Anna Ferro-Luzzi and colleagues made first mention of 'the Mediterranean diet' (1984) in their article on blood

cholesterol in an issue of the *American Journal of Clinical Nutrition*, paving the way for the phrase in clinical scholarship.

Computational advancements also gave researchers like her the power to take multiple points of information about a person into account simultaneously, turning the Mediterranean Diet from a two-word 'life style' into a single-word 'lifestyle' – an omnibus term for eating habits, exercise and other biomedical behaviours. This also allows fine-tuning the Mediterranean Diet's components into numerical arrangements. In an attempt to conform to strict word limits in medical journals, academics further compacted the Mediterranean Diet into an ironic two-letter acronym, 'MD' (Toledo et al. 2013). Even Ferro-Luzzi is frustrated by its medicalisation and the fixation on olive oil and wine without context, 'Have you ever tried to eat alone?' she asks.[6] Scholar Marino Niola adds, **'**Eating a tomato while standing in front of the refrigerator [is not] the Mediterranean Diet' (Niola 2016: 26).

Ancel writes (1999: 100) that the idea of writing a cookbook on Neapolitan cuisine 'came naturally', but *The Mediterranean Way* was notably written when the Keys retired to Italy and their son Nino confirms that it was 'definitely published out of inspiration of living in Pioppi'.[7] The Keys spent 35 years in Pioppi surrounded by orchards and a greenhouse. Their cook and gardener describe Ancel's structured day as involving carpentry, landscaping, meals and writing.[12, 13] Henry Blackburn says the term did not appear in their first book, '[but] in the second [book]... it's on every page… Mediterranean life and Mediterranean peoples and Mediterranean pattern'.[2]

The Mediterranean Diet garnered its fair share of metaphors over the years. UNESCO recognises it as a 'way of life' (UNESCO 2013: 6). Food scholar Pedro Graça describes it as 'a way of [relating to or living] with food'.[8] Anthropologist Marino Niola offers three definitions: 'a rule of life' (Niola 2016: 15), 'a life form' (Ibid.: 23) and 'an art of living' (Ibid.: 15). Alessandro Menotti insists that the origin of the name remains 'a mystery… as often happens with big ideas – they are collective'.[3]

Yet, investigators are careful not to suggest the Mediterranean Diet was 'invented'. Following such a provocation in an interview, Blackburn called it a 'colonial idea'.[2] In principle, he attributes the

Mediterranean Diet to the people living in the different regions that make up the Mediterranean basin, but he still gives credit to Keys for characterising it and '[bringing] it to the fore'.[2] The official website for the study (*Seven Countries Study* 2020), also overseen by Blackburn, further clarifies that there is no single Mediterranean Diet, but rather, *the* Mediterranean Diet (written with a lower-case 't') is a compilation of foods in the region that – statistically speaking – contribute to a lower risk of heart disease. Alessandro Menotti reemphasises that the Mediterranean Diet is not a 'menu' but a 'model'[3] – a statistical model – that is reproducible with different foods. He paraphrases Keys who famously said that if the team spent more time in Japan it could have been named the Yellow Sea Diet. 'From our data, the Japanese were more Mediterranean than the Mediterraneans',[3] Menotti concludes.

Second generation investigator David Jacobs tries to make sense of the confusion. He describes the case of Ancel Keys as 'extreme',[9] in that 'he was a good scientist and science writer and a good popular writer, but uncomfortable in person in both spheres',[9] suggesting that Keys was talented at communicating to two audiences, but his messages had to travel far distances. In sending his message to scientists through academic journals and the public through cookbooks, two co-living narratives of the Mediterranean Diet appeared.

Blackburn acknowledges the importance of both forms of science communication, but in an email, he is quicker to point to their academic publishing as the more credible and 'original' of the sources.[14] He feels that popular science writing, like the Keys' cookbook, still needs some of 'the credibility of good science'.[14] However, the cookbook aside, Blackburn also cautions against holes in Keys' personal memoirs (Keys 1999), noting that Keys wrote them towards the end of life with the help of Blackburn and others. By treading lightly on Keys' latter romanticisation of the Mediterranean Diet in popular cookbooks, Blackburn avoids falsely discrediting their rigorous research.

Exercising such caution and defensiveness is common for living investigators when speaking about the Seven Countries Study. Even the foreword to the cookbook in 1975 begins by blatantly stating, 'The reader should approach this volume knowing that Ancel Keys is a very great scientist' (Keys and Keys 1975: xi). Following Keys' death in 2014, living investigators are continuing to shield posthumous attacks

on the credibility of their research. Several white papers on the Seven Countries Study try to rectify false narratives about Keys and reemphasise the great lengths that investigators went to avoid bias (Pett et al. 2017). It is reasonable for investigators to rightfully emphasise the rigour that went into studying the Mediterranean Diet,[14] it also distances the Mediterranean Diet from any of its pleasures, including the adventurous and pioneering fieldwork that led to its creation.

Investigators, when asked about leisure time in the field, have been particularly adamant about the study's high level of rigour. Few studies document both the front and back ends of the research process as well as the Seven Countries Study. Plentiful photographs and videos show investigators performing research in the Mediterranean basin (University of Minnesota 2020). Somewhat unexpectedly, these archives also catch investigators during their leisure time. Photographs show researchers and colleagues sunbathing in Dalmatia, making films and picnicking in Nicotera and wine tasting, sailing and even napping in Sardinia (Figures 3.1-3.6). This glimpse into the informal operations of the Seven Countries Study is vital to science but seldom recorded.

However, the response I get back when inquiring about these archives is defensive, 'Field work is brutal in its demands,' an email reads, 'The trials together and problem solving in the field create a team spirit much more cohesive than do the rare days on the beach…'[14] (Figure 3.1). Henry Blackburn disregards their informal activities and writes, 'Some [of the photos] depicted our teams' rare day off from a crushing survey schedule "between the grapes and the olives' harvest".'[14] Such patterns of duplicity between leisure and work also appear in memoirs and monographs; enjoying cream sherries is matched with grinding bouts of surveying, and sailing is justified with clearing the road of boulders (Blackburn 1995). In a more extended email, Blackburn offers context to an image of the team sailing that I inquired about (Figure 3.3):

> The signature photo from my 1958 8mm movie you attached [to the email] was of the teams' departure on a sole free day for a picnic on the Dalmatian coast, showing my first wife, a French lady, next to the visiting head of our Italian Survey team. I stayed in my hotel coding a week's collection of survey ECGs![14]

Figure 3.1:
Uncommon breaks in the intense schedule of field surveys were relished by the Seven Countries Study staff, Dalmatia 1958.

Source: CVD History Archive, School of Public Health, University of Minnesota.

Figure 3.2:
Field team tries the local wine during early informal explaorations leading up to the Seven Countries Study, Sardinia 1954.

Source: CVD History Archive, School of Public Health, University of Minnesota.

Figure 3.3:
Sunday sailing ballade of the Dalmatian Seven Countries Study survey team, Dalmatia 1958.

Source: CVD History Archive, School of Public Health, University of Minnesota.

Figure 3.4:
Margaret Keys and two colleagues take a post-prandial nap in the sun during an early informal survey leading up to the Seven Countries Study, Sardinia 1954.

Source: CVD History Archive, School of Public Health, University of Minnesota.

There is little doubt that the Seven Countries Study was the most rigorous epidemiological study of its time, and Blackburn was not alone in sacrificing play for work. Keys and Margaret were once locked inside of a medical school for working too late while friends went out to a club (Keys 1999). Unpredictable things also came up in the field: heavy equipment broke, electricity was unreliable and fruit flies ruined data samples (Blackburn 1995).

Perhaps most importantly, Blackburn was correct to point out to me that some of the photos I discovered date before 1957 (Figures 3.2 and 3.4) and only depict informal preliminary research or pilot studies that led up to the formal start of the Seven Countries Study. He cautioned that this was 'not field work'[14] and questioned its 'relevance' to the Mediterranean culture.[14]

However, placing strict boundaries over where research formally began and brushing aside any depictions of leisure means stripping the Mediterranean Diet as it is defined by UNESCO. It is little surprise then that Blackburn himself only learned of the Mediterranean Diet's inscription as a UNESCO Intangible Cultural Heritage during an interview – five years late.[2]

Reading between the lines, what Blackburn appears to be saying is that labour should not be taken out of the equation, or, as he puts it to me, 'don't discount hard work together, as well as relaxation, as attractive aspects of epidemiology'.[3] His remarks that the photographs in this chapter appear too 'one-sided' [14] fit this idea as well as the titles to Volumes I and II of his memoirs, *If it Isn't Fun… (It Isn't Epidemiology)* (Blackburn 2001) and *It Isn't Always Fun* (Blackburn 2003). Like with any research, 'the fun is often in the search' (Blackburn n.d.).

Blackburn is not blind to cultural aspects of the Mediterranean Diet and has in fact become an outspoken critic of the 'medicalization' (Harlow 2008: 514) of epidemiology and the strategic direction of the National Institutes of Health. However, he must still perform the role of an epidemiologist to rightfully protect the image of the study and the pioneering form of epidemiology that Keys had worked so hard to establish.

Indeed, Keys had a professional film crew document their field work in Nicotera and Crete in 1957 (University of Minnesota 2014).

The film is fairly contrived. In one scene, a pair of grape stompers is interrupted by a professor in a white lab coat. The men climb down from the barrels to have their hearts examined. As the professor listens with his stethoscope, he speaks into a microphone held up to his face by an unnamed commentator. This level of dramatisation is repeated in another scene where five tall men, all wearing the same style suit, tower over a patient in his bed, presumably collecting a medical history at the patient's home. In another scene, heaps of printed electrocardiogram paper scattered around a lab make for effective stage design.

A photograph (Figure 3.5) also shows the film crew and the locals staged around the photographer, with the director at the centre kneeling down with a slate board. David Jacobs notes how 'Keys pulled this scientific system through, from beginning to end … he led us in many ways to understand this way of doing science and of thinking.'

Figure 3.5:
The American TV team of Mr. Steven Swartz accompanied Ancel Keys and Paul Dudley White to the pilot survey in Calabria, Nicotera 1957.

Source: CVD History Archive, School of Public Health, University of Minnesota.

However, though this film is intended to show lay audiences how the team conducted research in the field, it also projects what investigators like to think science should look like, with the rest left on the cutting room floor.

A Torn Heart:

Blackburn remarks:

> What does research mean to me?... It's the only way to live. Even if you're not a scientist, you should be asking questions and getting information and trying to come to conclusions. The happy thing about *this* research is that you're doing – you think, usually

> – good science with [using] good methods, asking reasonable questions. Sometimes important questions. You're doing good work among people because you're helping people. So you combine the science with doing good things for people and for your society. So it's a very happy way to spend a life.[2]

I entered this research intending to better understand the meaning that investigators in the Seven Countries Study ascribed to the Mediterranean Diet. However, Henry Blackburn's remarks, stated above, suggest that I need to look at this question in reverse. Researchers did not ascribe the Mediterranean Diet meaning as much as the Mediterranean Diet gave the researchers meaning. The meaning I speak of did not come in the form of food – although sometimes – but in the form of research itself. Research, as Blackburn insists, is 'the only way to live'. Indeed, Elisabetta Moro points out that for the ancient Greeks, the Mediterranean Diet meant, among other things, 'research' (2014 cited in Moro 2016: 16).

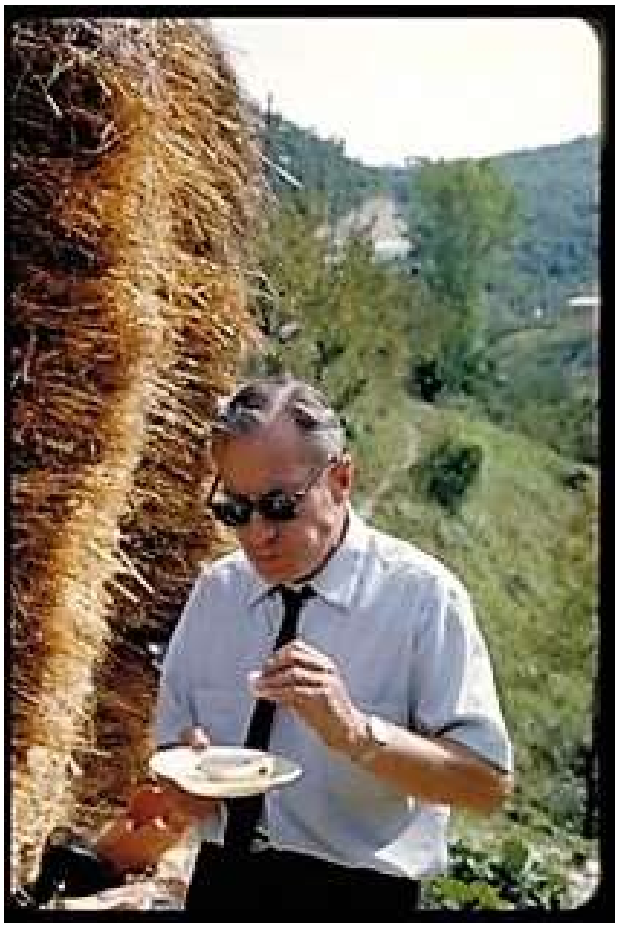


Figure 3.6:
Catered picnics were frequent during or en route to Italian surveys; here enjoyed by Ancel Keys, Italy 1963.

Source: CVD History Archive, School of Public Health, University of Minnesota.

Much like Blackburn, Ancel Keys (Figure 3.6) also led an inquisitive life, running away from home at a young age to spend evenings gazing at the stars and questioning his ignorance of astronomy (Keys 1999). In an interview, David Jacobs regards Keys as a 'holistic scientist'[9] who enjoyed carrying around a stethoscope and '[playing] doctor'.[9] He broadcast his ideas not only to change the minds of 'pure scientists',[9] but to search for 'identity and public recognition'.[9] However, Jacobs explains, Keys was brought up during a time when reductionist science ruled and people looked to scientists for instructions on how to live. Jacobs rejects this simplified, top-down view of science and he feels that Keys struggled to play this role while leading life by passion. [9] He continues:

> Science is more an art, than a science, in a way. I think [Ancel] was torn by those two things… his contributions, really, were tempered by his ability to being torn by the cultural force, which said, 'Be a good scientist', which means 'reduce everything to something simple', versus his innate sense of the beauty of nature, the beauty of the Mediterranean gardens, orchards, methods of preparation, niceness of the people, that thing.[9]

Jacobs' remarks explain why investigators in the Seven Countries Study practise caution when revealing their artistic side. However, over-performing their roles as scientists also risks casting a shadow over the Mediterranean's heart and over-highlighting a regimented dietary pattern for a healthy heart. Alessandro Menotti proudly remarks that methods have since changed and their pioneering study is basically irreproducible: 'Do it! Nobody could redo it!'[3] However, if research is, reusing Blackburn's words, 'the only way to live',[2] then the type of research that went into the Seven Countries Study must have been a very pleasurable one and local to the Mediterranean basin, and it deserves reproducing and safeguarding.

I ask Henry Blackburn in an email about what pleasurable epidemiology might look like, and the jazz musician's response is both nostalgic and forward-thinking:

> The difference then was in the newness, adventure into the unknown, travel, closeness of people and nature and ideas, and excitement! Those are not as prevalent in much of modern

> chronic disease [epidemiology], just as modern music doesn't feel or capture the spirit as does music of the romantic period. Not that new methods are unexciting and new questions unchallenging and new goals less meaningful. It's the expected evolution of a science or art. It takes youth, new methods, ideas, and strategies to rekindle the adventure, the romance; There's where you come in.[14]

How to Safeguard the Mediterranean Diet the Mediterranean Way:

Epidemiology has a 'profound capacity to illuminate – or obscure – the stories that our bodies tell' (Krieger 2011, p. 275). In an effort to be taken more seriously by the scientific community, investigators in the Seven Countries Study performed what was expected of them and spent as much time defending their ideas as defending the pioneering methods they were using to prove their ideas to be true. To get their voices heard, investigators donned white lab coats, but tucked away their scientific imagination from the public eye. This occurred in the context of a post-war Mediterranean region; early in its stages of globalisation, the war especially forced people in the region to act out the necessity and adopt farming practices, which rendered them stuck in time for decades and created a habitat for research on slow living. Scientific breakthroughs like the Mediterranean Diet do not simply happen; they are produced between action and imagination. The Mediterranean Diet was constructed through a combination of forces inside the investigators' bodies, their vision for a pioneering form of epidemiology, the sunny context they found themselves in, and a curiosity to search for something that they were not sure existed.

The Mediterranean Diet suffers from a wide frame of reference (Medina 2009). As such, texts play an influential role in shaping its legacy. Investigators in the Seven Countries Study wrote for two audiences, resulting in controversy over the meaning and origins of the Mediterranean Diet. It is common for scientists to carefully orchestrate both their front-stage and back-stage activities (Hilgartner 2000), but it is more complicated when both ends are exposed. Investigators in the Seven Countries Study openly published academic articles and hybrid pop-science cookbooks and even made their personal memoirs and archives publicly available. This is in stark contrast to more recent

popular science writing in nutritional epidemiology, which has grown more reserved (Willett and Skerrett 2017). Nevertheless, this does not stop investigators from choosing what goes in front of and behind the curtain. Researchers in the Seven Countries Study built hierarchies between different texts and made demarcations between what is popular science versus what is pure science, granting them the freedom and the convenience to determine when their own scientific writing is credible and when it is not, such as by judging their use of specialised language or closeness to the 'original' (Hilgartner 2000: 525) text. This turns their romantic melodrama into more of a 'technoscientific drama' (Möllers 2016: 352) that helps investigators establish their credibility as pioneering scientists.

Conclusion:

In this chapter I have attempted to show how the Mediterranean Diet and its origins in the Seven Countries Study are likewise one and the same. One of the primary strategies to safeguard intangible heritages like the Mediterranean Diet is research (Medina 2009). Macbeth and Medina (2020) suggest that, given ecological unrest in the Mediterranean basin region, the techniques and practices for safeguarding the Mediterranean Diet need greater 'flexibility' (Ibid: 142). I reinterpret their call for flexibility to mean that researchers should remain open to new ways of studying the Mediterranean Diet, without getting too nostalgic, nor romantic.

To explore what research is most helpful for safeguarding the Mediterranean Diet, it is necessary to revisit the relationship between the Mediterranean way of life, the local ecologies in the Mediterranean basin and research process itself, and hence, rekindle the fuzzy relationship between life, place and research. This means looking back at the research that went into its construction while asking questions about what types of research can make safeguarding the Mediterranean Diet possible looking forward. Historian and biographer of Ancel Keys, Sarah Tracy, points to Keys' unprecedented level of collaboration across multiple fields in the sciences (Tracy 2016). In the same key, Johan P. Mackenbach (2007) argues that disciplines in the social sciences and humanities like sociology and history are necessary to get behind 'why' (Ibid.: 108) the Mediterranean Diet works, and not simply

'how' (Ibid.: 108) it works in the body. This suggests that keeping research on the Mediterranean Diet relevant means partnering epidemiology with other disciplines, while perhaps parting with others. James Trostle (2005) and Mitchell G. Weiss (2001) call this 'cultural epidemiology' and Thomas Glass (2006: 261) calls this making culture 'the third leg' of the epidemiological stool. The story of the Mediterranean Diet calls for epidemiological research that is more nourishing and less nutritional – a cultural nutritional epidemiology. This won't be easy nor fast and may require restructuring research institutions from what Henry Blackburn describes as their current culture of 'publish or perish' (Harlow 2008: 514). In other words, to safeguard life in the Mediterranean basin, research must be performed 'the Mediterranean Way'.

Endnotes:

Secondary Video-Documented Interviews

1. Mancini, M. (2015) 'A Lesson with Ancel Keys on the Mediterranean Diet'. Interviewed by Elisabetta Moro for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*, 20 April. Available at: https://mediterraneandietvm.com/en/mario-mancini-a-lesson-with-ancel-keys-on-the-mediterranean-diet (Accessed: 15 November 2020).

2. Henry Blackburn, H. (2015) 'How to Live Happily? Doing Research with Ancel Keys to Improve the Public Health'. Interviewed by Elisabetta Moro and Rossella Galletti for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*, 5 November. Available at: https://mediterraneandietvm.com/en/henry-blackburn-how-to-live-happily-doing-research-with-ancel-keys-to-improve-the-public-health (Accessed: 15 November 2020).

3. Menotti, A. (2015) 'Studies on the Mediterranean Diet: Seven Countries Study'. Interviewed by Elisabetta Moro for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*, 23 June. Available at: https://mediterraneandietvm.com/en/alessandro-menotti-studies-on-the-mediterranean-diet-seven-countries-study (Accessed: 15 November 2020).

4. Keys, C.D.A. (2015) 'The Daughter of the Mediterranean Diet'. Interviewed by Elisabetta Moro and Rossella Galletti for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*, 25 April. Available at: https://mediterraneandietvm.com/en/caroline-keys-dandrea-the-daughter-of-the-mediterranean-diet (Accessed: 15 November 2020).

5. Stamler, J. (2014) 'Research, Health, Welfare and Food'. Interviewed by: Elisabetta Moro for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social*

Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa, 20 January. Available at: https://mediterraneandietvm.com/en/jeremiah-stamler-research-health-welfare-and-food (Accessed: 15 November 2020).

6. Ferro-Luzzi. A. (2017) 'The Mediterranean Diet Enters the Scientific Lexicon.' Interviewed by Elisabetta Moro for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*, 10 April. Available at: https://mediterraneandietvm.com/en/anna-ferro-luzzi-the-mediterranean-diet-enters-the-scientific-lexicon (Accessed: 15 November 2020).

7. D'Andrea, N. (2015) 'The memories Related to the Mediterranean Diet'. Interview by Elisabetta Moro and Rossella Galletti for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*, 5 May. Available at: https://mediterraneandietvm.com/en/nino-dandrea-the-memories-related-to-the-mediterranean-diet (Accessed: 15 November 2020).

8. Graça, P. (2018) 'A Contemporary and Political Vision of Food'. Interviewed by Elisabetta Moro for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*, 22 September. Available at: https://mediterraneandietvm.com/en/pedro-graca-una-visione-politica-e-contemporanea-del-cibo (Accessed: 15 November 2020).

9. Jacobs, D. (2015). 'The New Frontiers of the Nutritional Research'. Interviewed by Rossella Galletti for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*, 5 December. Available at: https://mediterraneandietvm.com/en/david-jacobs-the-new-frontiers-of-the-nutritional-research (Accessed: 15 November 2020).

10. Kromhout, D. (2017). 'Studies of the Second Generation of the SCS'. Interviewed by Elisabetta Moro for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*. Available at: https://mediterraneandietvm.com/en/daan-kromhout-studies-of-the-second-generation-of-the-scs (Accessed: 15 November 2020).

11. Trichopoulou, A. (2015) 'Do Not Betray Tradition.' Interviewed by Elisabetta Moro for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*. Available at: https://mediterraneandietvm.com/en/antonia-trichopoulou-do-not-betray-tradition (Accessed: 15 November 2020).

12. Morinelli, D. (2013) 'The Cook of the Mediterranean Diet.' Interviewed by Elisabetta Moro and Rossella Galletti for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*, 5 August. Available at: https://mediterraneandietvm.com/en/delia-morinelli-the-cook-of-the-mediterranean-diet (Accessed: 15 November 2020).

13. Ripoli, A. (2016). 'The Man Who Looked After the Gardens of the Doctors of the Mediterranean Diet'. Interviewed by Valerio Calabrese, Daniela Palma and Donatella Valente for *Museo Virtuale della Dieta Mediterranea, MedEatResearch*, *Center for Social Research on the Mediterranean Diet of the University of Naples Suor Orsola Benincasa*, 5 August. Available at: https://mediterraneandietvm.com/en/angelo-ripoli-luomo-che-ha-curato-i-giardini-dei-medici-della-dieta-mediterranea (Accessed: 15 November 2020).

Personal Communications

[14.] Personal communications with Henry Blackburn over email between 30 January 2018 and 11 October 2020.

References:

Blackburn, H. (1995) *On the Trail of Heart Attacks in Seven Countries*, Country Press, Middleborough.

Blackburn, H. (2001) *If It Isn't Fun: A Memoir from a Different Sort of Medical Life: Volume I: The First 30 Years, 1942-72*, Shoreline Graphics, St. Clair Shores.

Blackburn, H. (2003) *It Isn't Always Fun: A Memoir from a Different Sort of Medical Life: Volume II: The Second 30 Years, 1972-2002*, Shoreline Graphics, St. Clair Shores.

Blackburn, H. (2012) 20th-Century "Medical Marco Polos" in the Origins of Preventive Cardiology and Cardiovascular Disease Epidemiology, *The American Journal of Cardiology*, **109(5)**: 756-767.

Blackburn, H. (n.d.) *Credo: 'If It Isn't Fun, It Isn't Epidemiology'*, viewed 23 December 2020, < http://www.epi.umn.edu/cvdepi/essay/credo-if-it-isnt-fun-it-isnt-epidemiology>.

Borkan, J. (1999) Immersion/Crystallization. In Crabtree, B.F. and Miller, W.L. (eds) *Doing Qualitative Research,* SAGE Publications, Thousand Oaks, pp. 179-194.

Bruner, J.S. and Austin, G.A. (1986) *A Study of Thinking*, Transaction Publishers, Piscataway.

Ferro-Luzzi, A., Strazzullo, P., Scaccini, C., Siani, A., Sette, S., Antonietta, M.M., Mastranzo, P., Dougherty, R.M., Iacono, J.M. and Mancini, M. (1984) Changing the Mediterranean Diet: Effects on Blood Lipids, *The American Journal of Clinical Nutrition*, **40(5)**: 1027-1037.

Glass, T.A. (2006) Commentary: Culture in Epidemiology – The 800 Pound Gorilla? *International Journal of Epidemiology*, **35(2)**: 259-261.

Harlow, B.L. (2008) A Conversation with Henry Blackburn, *Epidemiology,* **19(3)**: 513-517.

Hilgartner, S. (2000) *Science on Stage: Expert Advice as Public Drama*, Stanford University Press, Palo Alto.

Keys, A. (1970) Coronary Heart Disease in Seven Countries. *Circulation* **41(1)**: 186-195.

Keys, A. (1994) The Inception and Pilot Surveys. In Kromhout, D., Menotti, A. and Blackburn, H.W. (eds) *The Seven Countries Study: A Scientific Adventure in Cardiovascular Disease Epidemiology*, RIVM, Bilthoven, pp. 15-27.

Keys, A. (1999) *Adventures of a Medical Scientist: Sixty Years of Research in Thirteen Countries*, Shoreline Graphics, St. Claire Shores.

Keys, A. and Keys, M. (1975) *How to Eat Well and Stay Well: The Mediterranean Way*, Doubleday, New York.

Klonizakis, M., Alkhatib, A. and Middleton, G. (2018) Commentary on: "Implementing a Mediterranean-Style Diet Outside the Mediterranean Region", *Current Atherosclerosis Reports,* **20(9)**: 45.

Krieger, N. (2011) *Epidemiology and the People's Health: Theory and Context*, Oxford University Press, Oxford.

Labarthe, D. (2003) Foreword. In Blackburn, H. *It Isn't Always Fun: A Memoir from a Different Sort of Medical Life: Volume II: The Second 30 Years, 1972-2002*, Shoreline Graphics, St. Clair Shores.

Macbeth, H. and Medina, F.X. (2020) New Views About the Mediterranean Diet. *Nature Food*, **1(2):** 141-142.

Mackenbach, J.P. (2007) The Mediterranean Diet Story Illustrates That "Why" Questions are as Important as "How" Questions in Disease Explanation, *Journal of Clinical Epidemiology*, **60(2)**: 105-109.

Medina, F.X. (2009) Mediterranean Diet, Culture and Heritage: Challenges for a New Conception., *Public Health Nutrition*, **12(9A)**: 1618-1620.

Möllers, N. (2016) Shifting in and Out of Context: Technoscientific Drama as Technology of the Self, *Social Studies of Science*, **46(3)**: 351-373.

Moro, E. (2016) The Mediterranean Diet from Ancel Keys to the UNESCO Cultural Heritage. A Pattern of Sustainable Development Between Myth and Reality, *Procedia-Social and Behavioral Sciences*, **223:** 655-661.

Murphy, K.J. and Parletta, N. (2018) Implementing a Mediterranean-style Diet Outside the Mediterranean Region, *Current Atherosclerosis Reports,* **20(6)**: 28.

Niola, M. (2016) Being and Well-Being. The Mediterranean Way. In Abitabile, C. and Giarè, F. (eds) *The White Paper on the Mediterranean Diet*, CREA and the Italian Ministry of Agricultural, Food and Forestry Policies, Rome, pp. 15-31.

Pett, K.D., Kahn, J., Willett, W.C., and Katz, D.L. (2017) *Ancel Keys and the Seven Countries Study: An Evidence-based Response to Revisionist Histories*, White Paper Commissioned by The True Health Initiative*,* 1 August.

Polkinghorne, D.E. (1988) *Narrative Knowing and the Human Sciences*, SUNY Press, Albany.

Saulle, R. and La Torre, G. (2010) The Mediterranean Diet, Recognized by UNESCO as a Cultural Heritage of Humanity, *Italian Journal of Public Health*, *7***(4)**: 415-415.

Seven Countries Study (2020) *What is the Seven Countries Study?* Available at: https://www.sevencountriesstudy.com. Accessed on 10 November 2020.

Stamler, J. (2013) Toward a Modern Mediterranean Diet for the 21st Century, *Nutrition, Metabolism and Cardiovascular Diseases*, **23(12)**: 1159-1162.

Stano, S. (2015) From Nutrients to Foods: The Alimentary Imaginary of the Mediterranean Diet, *ESSACHESS-Journal for Communication Studies*, **8(2)**: 115-132.

Taubes, G. (2007) *Good Calories, Bad Calories*, Knopf, New York.

Teicholz, N. (2014) *The Big Fat Surprise: Why Butter, Meat and Cheese Belong in a Healthy Diet*, Simon and Schuster, New York.

Toledo, E., Hu, F.B., Estruch, R., Buil-Cosiales, P., Corella, D., Salas-Salvadó, J., Covas, M.I., Arós, F., Gómez-Gracia, E., Fiol, M. and Lapetra, J. (2013) Effect of the Mediterranean Diet on Blood Pressure in the PREDIMED Trial: Results from a Randomized Controlled Trial, *BMC Medicine*, **11(1)**: 207.

Tracy, S.W. (2016) Interdisciplinary Interprofessionalism at Mid-Century: Ancel Keys, Human Biology, and the Laboratory of Physiological Hygiene, 1940–1950, *Nursing History Review*, **24(1)**: 81-89.

Trostle, J.A. (2005) *Epidemiology and* Culture, Cambridge University Press, Cambridge.

UNESCO (2013) *Nomination File No. 00884 for Inscription in 2010 on the Representative List of the Intangible Cultural Heritage of Humanity. Convention for the Safeguarding of the Intangible Cultural Heritage*, Baku. Available at <https://ich.unesco.org/en/RL/mediterranean-diet-00884>. Accessed on 15 November 2020.

University of Minnesota (2020) *Heart Attack Prevention: A History of Cardiovascular Disease Epidemiology.* Available at <http://www.epi.umn.edu/cvdepi>. Accessed on 10 November 2020.

University of Minnesota (2014) *Italy and Crete Pilot Survey 1957,* streaming video. Available at <http://www.epi.umn.edu/cvdepi/video/italy-and-crete-pilot-survey-1957>. Accessed on 15 November 2020.

Weiss, M.G. (2001) Cultural Epidemiology: An Introduction and Overview, *Anthropology and Medicine,* **8(1)**: 5-29.

Willett, W. and Skerrett P.J. (2017) *Eat, Drink, and Be Healthy: The Harvard Medical School Guide to Healthy Eating*, Simon and Schuster, New York.

Willett, W. (2012) *Nutritional Epidemiology*, Oxford University Press, Oxford.

CHAPTER 4
CHALLENGING A DIETARY CONCEPT WITH FOOD INTAKE FREQUENCY: 1990s Data from Spanish and French Populations in an Eastern Pyrenean Mountain Valley and on the Mediterranean Coast

by Helen Macbeth and Paul Bizzell

Introduction:

From the Mediterranean Sea to the Atlantic Ocean, the border between France and Spain runs mostly across high Pyrenean peaks (Figure 4.1). The coastal road that crosses the border beside the Mediterranean winds around hills descending picturesquely to the sea. An exception exists in the Cerdanya Valley, encircled by high mountain ranges, where the border crosses flat fields on the valley floor (Sahlins 1989). The main road entrances to the valley from the North (France) and from the South (Spain) are through long modern tunnels. Spanish RENFE and French SNCF trains meet at the Tour de Carol rail station. Following study of 100 years of local marriage records as one measure of transfrontier mobility (Macbeth and Bertranpetit 1995; Macbeth et al. 1996) food habits were studied on both sides of the border, qualitatively and quantitatively, in 1991 and 1992 to consider population diversity or similarity (Macbeth 1995, 2002).

Figure 4.1: Pyrenean peaks at sunset, viewed from the Cerdanya valley
Photograph © Helen Macbeth

Research included a seven-day food intake frequency study, the results of which showed diversity between French and Spanish sectors of the valley, but furthermore that neither conformed to popular

anglophone concepts of a 'Mediterranean Diet'. To research this aspect further, in 1995 the quantitative research was duplicated in French and Spanish population samples either side of the border along the Mediterranean coast. Thus, food intake data from the 1990s existed on four sample populations either side of the Franco-Spanish border, two populations on the Mediterranean coast and two populations in the Cerdanya Valley. At the time there had been no mountain-coastal comparison, although fortunately the data had been retained, despite difficulties caused by changes in computer technologies and programs.

In 2020, we revisited the topic, and re-analysis of these 1990s food intake frequency data from all four population samples is central to this chapter. The data showed differences in food intake frequency between all populations, and also, through combining the data of sample populations in different ways, Spanish-French differences on the one hand and mountain-coastal differences on the other were shown. Relevant to this volume, is the extent of divergence from the contemporary popular concepts of the 'Mediterranean Diet'.

The populations studied in the Cerdanya Valley:

In the Cerdanya Valley (Figure 4.2), research of food habits started in 1991 with informal and semi-formal interviews on each side of the border within a 20 kilometres radius of Puigcerdà on the Spanish side and of Bourg-Madame on the French side. The centres of the towns of Puigcerdà and Bourg-Madame lie about 2 kilometres apart and their outer boundaries meet at the border.

Figure 4.2. The Cerdanya valley, from Spain looking across the border to France
Photograph © Helen Macbeth

All those interviewed could speak either French or Spanish. Although on the Spanish side Catalan was the home language for many, nearly everyone was completely bilingual with Catalan and Spanish and many trilingual with French. On the French side few spoke Catalan as their home language and Catalan was described as 'the language of the grandparents'. Macbeth interviewed only one elderly French farmer in the mountains, who spoke only Catalan.

The objective was to research whether there was similarity or diversity in the food habits of the populations either side of the border in this one valley. When the quantitative research was proposed and discussed in interviews with housewives, many said we would not find much difference in food and culinary habits either side of the border within Cerdanya. 'Well maybe you will find that the French use butter more often in cooking, while the Spanish use olive oil, but not much more' was typical of responses.

This chapter will focus on the reanalysis of the 1990s quantitative food intake frequency data. To obtain these data, participants on each side of the border had been issued a food intake frequency form to complete for one week in spring, avoiding Easter week. All that was required of participants was to put a single stroke along the row of each specific food item, in the column of the relevant day, each time they ate that food item. What was harder, they were asked to keep this up continuously for seven consecutive days. A final column was left for researchers to write the total for each food item, as indicated by the phrase 'food intake frequency'[21]. The original aim of these data was as part of an investigation into food habits in the comparison of lifestyle between Spanish and French populations in the Cerdanya. Many statistically significant differences in food intake frequency were shown (Macbeth 1993, 1995, 1996, 2000).

It is important to note that these data were not gathered for a study of nutrition, nutrients, measured quantities, etc., which distinguishes the study importantly from the research of many nutritionists, but they were in support of a qualitative and quantitative anthropological research project into food habits. Although many forms returned had to be discarded as incomplete (or blank!), we received 333 valid 7-day food intake forms from Spanish Cerdanya and 315 from French

[21] More details on method are given in Macbeth 1995 and Macbeth 2002

Cerdanya; the data corresponded in format and within the same eight days. It was an exceptional set of data.

Furthermore, the results identified that the food intake did not correspond to the anglophone concept of a 'Mediterranean Diet', and that recognition led to repeating the study on the coast.

The populations studied on the Mediterranean coast between Llançà and Port-Vendres:

It was possible that the Cerdan results exemplified inland food intake differing from that of coastal populations (Contaldo et al. 2003). So, in 1995 the 7-day food intake frequency research was repeated on the Mediterranean coast. This was carried out in Llançà with Portbou on the Spanish side of the border and in Port-Vendres on the French side (figures 4.3 and 4.4).

Figure 4.3.
Beach at Portbou on the Spanish side, right beside the border in 1995
Photograph © Helen Macbeth

Figure 4.4. The Marina, central Port-Vendres in 1995
Photograph © Helen Macbeth

Again, a springtime week avoiding Easter was chosen. Again, many incomplete or blank forms were returned (or not even returned), but

370 valid 7-day forms were received from the French side of the border and 157 from the Spanish side. Statistically significant differences in food intake frequency were again found between the two sample populations, but not published at a time when suggestions of divergence from the popular dietary model was inconvenient to some. In this area, no time was available for interviewing the local people for qualitative research.

7-day food intake frequency studies of four sample populations:
From reanalysis of data of the four population samples in 2020, figures 4.5 to 4.9 illustrate diversity between these four populations in mean frequencies of those food items illustrated. The X axes give the mean personal intake frequencies per population for that food item and different coloured bars identify each of the four sample populations. For each food item a horizontal grey line is shown to demonstrate the mean frequency for that food item when all four population samples are combined. The extent of variation above or below that mean line is a simple illustration of diversity. The aim of this food frequency research was to illustrate similarity or diversity in food intake choices, representing food habits, and initially not nutritional studies.

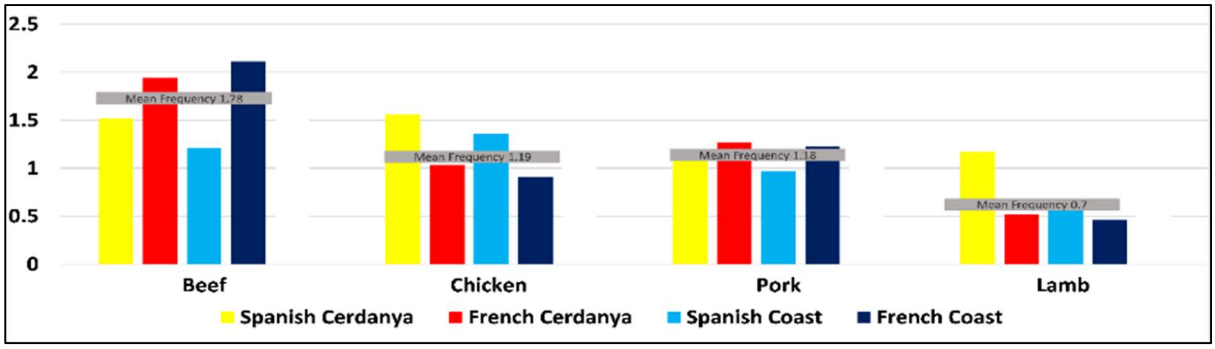


Figure 4.5: Bar charts of intake frequency differences between the four population samples for beef, chicken, pork and lamb

Figure 4.5 shows these mean frequencies for the four most commonly eaten meats, beef, chicken, pork and lamb, but please note that various charcuterie options (mostly of pork products) in the questionnaire are omitted here because language and interpretation difficulties could affect the results. If included, the bars for pork would be higher. Charcuterie as well as some other meats are later included within the variable 'total meat' (see footnote 22 on page 98).

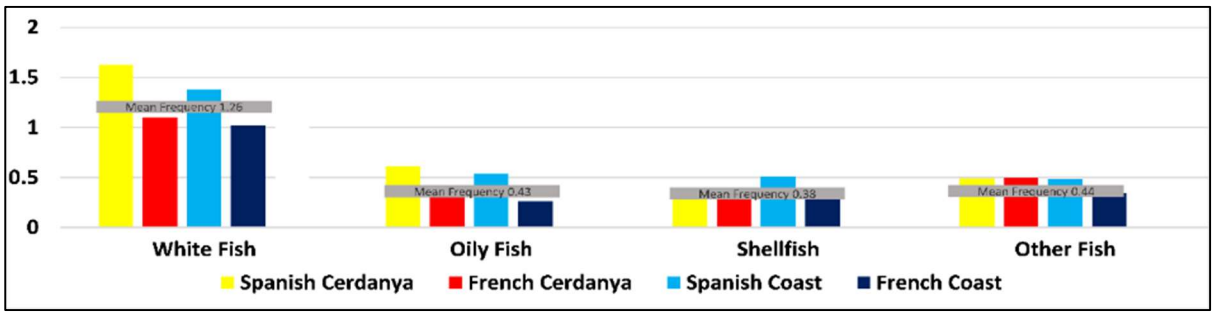


Figure 4.6: Bar charts of frequency differences between the four population samples for white fish, oily fish, shellfish and 'other fish'

Figure 4.6 shows the equivalent bar chart for white fish, oily fish, shellfish and 'other fish', immediately showing more white fish than fish in the other categories, for which the means of combined samples are very similar, but diversity is shown between population samples.

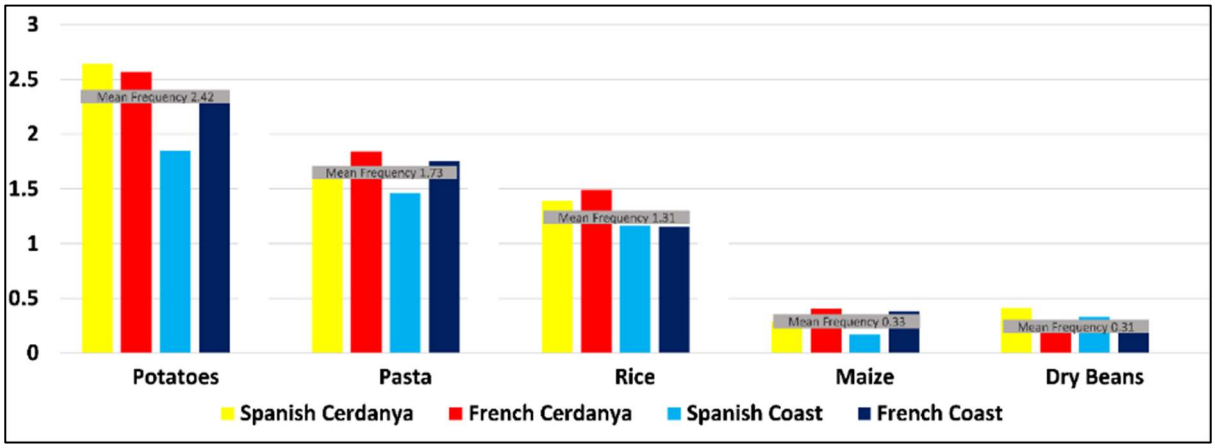


Figure 4.7: Bar charts of intake frequency differences between the four sample populations of potatoes, pasta, rice, maize and dry beans

Figure 4.7 shows the similar comparison for staples, but please note that this category 'staples' is an awkward category for nutritionists, but in cultural terms is logical, because of the general equivalent of these foods as the bulk items in the concept of 'the meal' in these populations. Our categories had been based upon the cultural perceptions of such foods. We decided to omit bread, which was frequently eaten by all. Please note that, in each population, the mean for potatoes exceeds that for each other category.

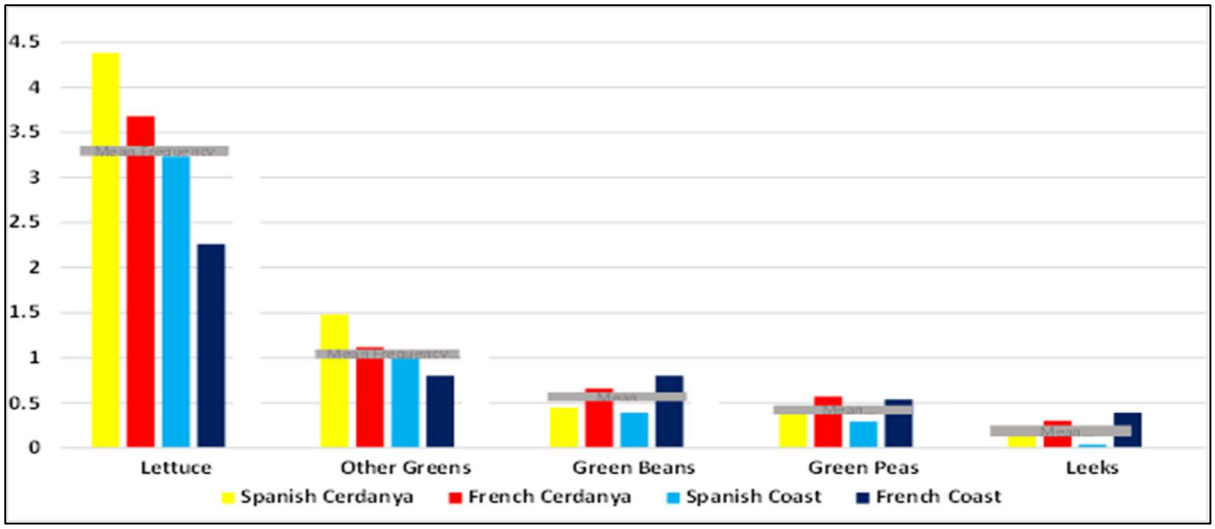


Figure 4.8: bar charts of the intake frequency differences of the four sample populations for lettuce, 'other greens', green beans, green peas and leeks

Figure 4.8 shows how often lettuce was eaten, even in the mountains, and again cultural knowledge of 'the meal' in these populations helps one to understand this frequency. However, what is perhaps interesting is how infrequently the other green vegetables were eaten in comparison with the staples, whereas anglophones might have them more equal on the combined 'plate'. This is no surprise to those familiar with these cultures.

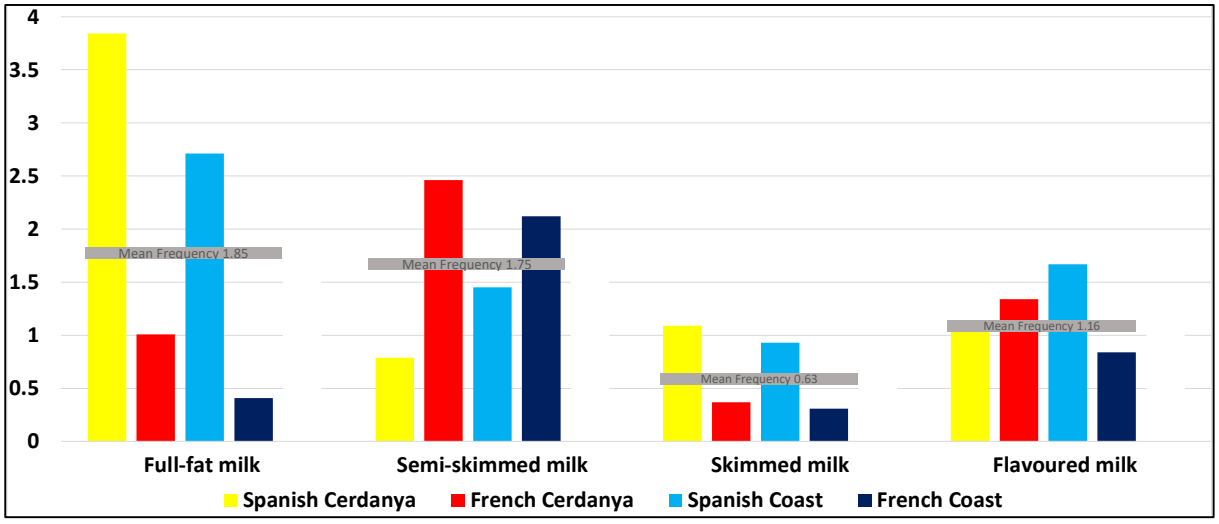


Figure 4.9: bar charts of the intake frequency differences of the four sample populations for full-fat milk, semi-skimmed milk, skimmed milk and flavoured milk
[Milk when only added to other drinks was not included here.]

Figure 4.9 shows the different frequencies for the fat ratings for milk drunk. Under the section of drinks, the questionnaire gave options of full-cream milk, semi-skimmed milk, skimmed milk and flavoured

milk. The fat content of flavoured milk was not asked, nor what it was flavoured with. Milk labels had been checked in the supermarkets and population understanding checked through interviews. Elsewhere on the questionnaire there was 'milk added to other drinks', but this was not included in these analyses because only small amounts would be involved. Two findings are shown on Figure 4.9: firstly, that generally the Spanish drank either full-fat or skimmed milk whereas the French drank more semi-skimmed, and secondly that altogether milk was drunk more often in the mountains than on the coast. In this regard we were told that drinking a cup of milk, hot or cold, was traditional for breakfast in these mountain populations. Please note that other items were included in the variable titled Total Dairy below[22].

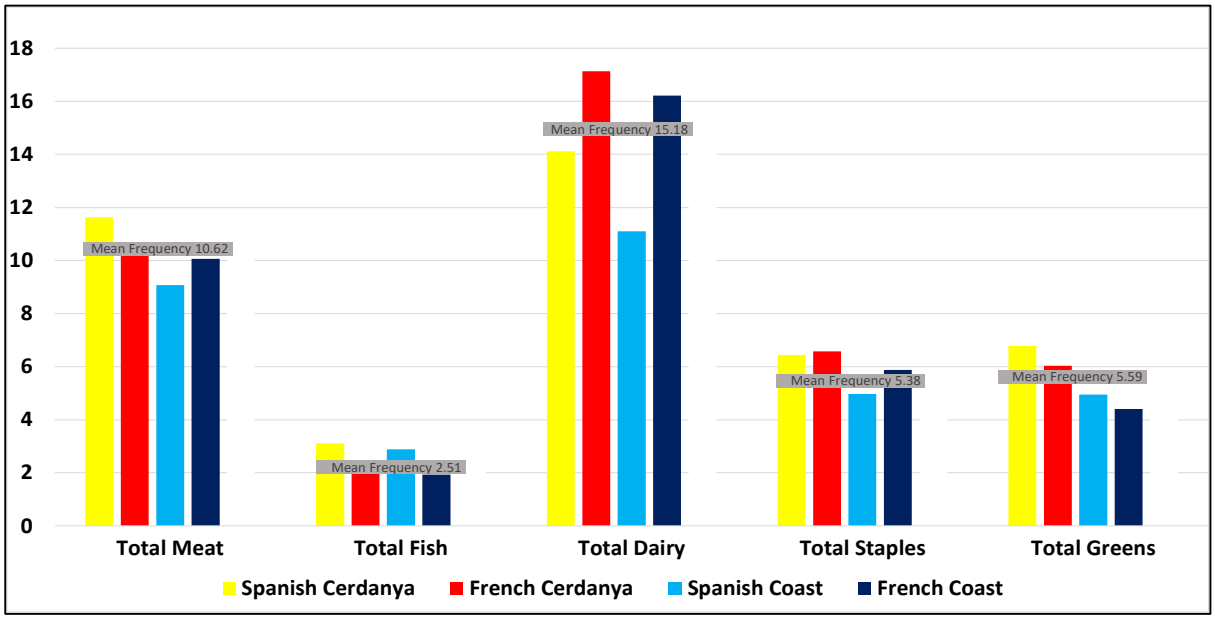


Figure 4.10: bar charts of the intake frequency differences of the four sample populations for total meat, total fish, total dairy, total staples and total greens[22]
[Note: visual impression of scale is different on this chart from previous charts]

Relevant to discussions below in relation to concepts of the 'Mediterranean Diet', as a dietary model, Figure 4.10 shows the results when certain food categories (meat, fish, dairy, staples and greens) are totalled[22]. These again illustrate simply in one graph that intake for different food categories differs. Differences in which meat was eaten more frequently were shown above, but when totalled the meat

[22] Total Meat included beef, lamb, chicken, pork, turkey, game and all types of charcuterie; Total Fish included white fish, oily fish, shellfish and other fish; Total Diary included all milk types, butter, cheese, yoghurt, custard and ice cream; Total Staples included potatoes, pasta, rice, maize and dry beans; Total Greens included green beans, green peas, leeks, lettuce and other greens.

frequencies are not so different. Although much less than the consumption of meat in all populations, the Spanish populations ate fish more often than the French. The amount of dairy products consumed is immediately visible and differences between France and Spain are marked with noticeably lower consumption in the coastal Spanish population. Each of the Spanish populations ate greens more frequently than their neighbouring French population. However, although useful for initial visual impression, simple arithmetic means do not show statistical significances, which are studied further below.

Results when food intake frequency data are compared by nation state (France or Spain) and by location (mountain valley or coast): In 2020, studying different combinations of the four population samples allowed new insight into these data. By combining the two Cerdan populations on the one hand, while combining the two coastal populations on the other, a mountain-coastal or 'locational' comparison is achieved. Also, by combining the two Spanish populations while combining the two French populations, a 'national' comparison is made.

Above, the simple visual form of bar charts comparing only arithmetic means showed some differences. However, with greatly varying standard deviations simple arithmetic means are not a valid basis for deciding the statistical significance of differences illustrated. So, two alternative methods of statistical analysis of difference were carried out for this chapter. First, by combining two sets of figures into one rank order of cases, Mann-Witney analysis allows the mean rank orders of each set to be compared to provide a statistical method useful for comparing two sets of non-parametric data. Secondly, Pearson's χ^2 analysis is another method of considering the statistical significance of the diversity indicated by the means. Statistical significances indicated by such analyses are shown in the following tables where asterisks in red in the column M-W refer to Mann Witney analyses and those in the column χ^2 for Pearson's χ^2 analyses. Where the p value is equal to or less than 0.001 three asterisks are shown, where p is 0.01 or lower but above 0.001 two asterisks and where p is 0.05 or lower but above 0.01 one asterisk. Thus, where red asterisks are shown the differences found can be treated as statistically significant. Furthermore, these tables

indicate whether the differences we have called 'national' are greater or less than the differences we have called 'locational'.

Meat:

Table 4.1: National and Locational Comparisons of Meats

Food item	Spain	France	M-W	χ^2		Valley	Coast	M-W	χ^2
Beef	1.42	2.03	***	***		1.72	1.84		*
Lamb	1.01	0.49	***	***		0.85	0.52	***	***
Pork	1.09	1.25	***	*		1.21	1.15		
Chicken	1.37	0.99	***	***		1.30	1.04		**
Total meat[+]	**11.01**	**10.34**				**11.16**	**9.95**	***	

[+]*Total meat includes beef, lamb, pork, chicken, turkey, game and all kinds of charcuterie*

In table 4.1, the comparisons of four of the different meat categories are shown, but please note that the figure for 'Total meat' includes further types of meats that were separate in the questionnaire, but not included in Figure 5 or Table 4.1. Clearly, national differences are statistically significant by both means of analysis for the meats of different animals, with the French eating more beef and pork, and the Spanish more lamb and chicken. After reminding readers that other meats and charcuterie are included in the total figure but not separately, it is interesting that although the Spanish mean of 11.01 frequency is a higher figure than the French mean of 10.34, neither method of analysis showed that difference to be significant. However, the arithmetic mean of 11.16 for the Cerdanya and the mean of 9.95 for the coastal populations is significant by rank order analysis, but not by χ^2. Both methods of analysis show the significance of the higher consumption of lamb in the valley than on the coast, but in both places the arithmetic mean is less than for any of the other three meats in the table.

Fish:

Table 4.2: National and Locational Comparisons of Fish

Food item	Spain	France	M-W	χ^2		Valley	Coast	M-W	χ^2
White fish	1.55	1.06	***	***		1.37	1.13	**	**
Oily fish	0.59	0.31	***	***		0.50	0.34	**	*
Shellfish	0.43	0.34	*			0.38	0.87		
Other fish	0.49	0.41				0.49	0.38		
Total fish[++]	**3.05**	**2.13**	***	***		**2.75**	**2.22**	***	*

[++] *Total fish includes white fish, oily fish, shellfish and other fish*

In Table 4.2, each of the four categories of fish, listed in the questionnaires, is compared by nation and by locality. Again, the differences between France and Spain are shown to be statistically significant at the highest level for white fish and oily fish, with Spain consuming more in each case. The higher mean frequency for shellfish on the Spanish side is also just significant at the p=0.05 level. Counter to expectation (e.g. Trichopoulou 2014), white, oily, other fish and total fish categories show a higher consumption frequency in the inland valley than on the coast. Only the mean for shellfish is higher on the coast, but the figure is shown to be significant by neither Mann-Witney nor χ^2 method of further analysis. The higher frequency of total fish consumption in the Spanish populations than in the French is highly significant by both methods, whereas the locational difference is highly significant by Mann-Witney and only just significant by χ^2 analysis.

Staple foods:

'Staple foods' is a phrase popularly used for grouping certain foods, united in concept when one considers cooked meals; phrased simply they are the bulk items in a meal. We have placed pasta, rice, dry beans, potatoes and maize in this category. In some cultures, staples are served as a separate course in a meal, in other cultures served in different bowls for participants to access as they wish and in the cultures that serve the main course combined on one plate, these items would be considered a significant part of food on that plate. Because 'other root vegetables' was an open description, we added carrots and other root vegetables into table 4.3 regarding staple foods.

Table 4.3: National and Locational Comparisons of Staple Foods

Food item	Spain	France	M-W	χ^2		Valley	Coast	M-W	χ^2
Pasta	1.63	1.79				1.77	1.67		
Rice	1.32	1.31		**		1.44	1.15		***
Dry beans	0.38	0.26	**	*		0.34	0.27		
Potatoes	2.39	2.45		***		2.60	2.20	*	*
Maize	0.25	0.39	***	***		0.35	0.32		
Carrots	0.62	0.77	***	***		1.44	1.26	*	***
Other root vegetables	0.21	0.26	***	***		0.25	0.23		
Total staples[+++]	**5.97**	**6.20**				**6.51**	**5.60**	***	***

[+++] Total staples includes potatoes, pasta, rice, maize and dry beans only.

In table 4.3, the frequency of eating pasta was not shown to have a statistical difference between any of the groups, whereas the difference between Spain and France is highly significant for maize, carrots and other root vegetables, but not consumed with high frequency in any population.

What is particularly interesting for this comparison of staples is the highest frequency of consumption of potatoes in all population categories. Potatoes are shown to be significantly higher by χ^2 analysis in France than Spain, and higher in the valley than on the coast with a statistical significance of only p less than 0.05 by Mann-Witney and by χ^2 analyses. Noteworthy is that it is so much higher than any other staple.

Green vegetables:

Table 4.4: National and Locational Comparisons of Green Vegetables

Food item	Spain	France	M-W	χ^2		Valley	Coast	M-W	χ^2
Lettuce	4.01	2.92	***	***		4.04	2.55	***	***
Other greens	1.35	0.95	***	***		1.31	0.88	***	***
Green peas	0.41	0.55	***	**		0.52	0.46		
Green beans	0.43	0.73	***	***		0.55	0.68	**	*
Leeks	0.13	0.35	***	***		0.23	0.28		
Total greens[++++]	**6.19**	**5.15**	**	***		**6.42**	**4.57**	***	***

[++++] Total greens includes green beans, green peas, leeks, lettuce and other greens.

In table 4.4, the significances of the different means for Spain and France are immediately evident, but are not all in the same direction. Despite the figure for lettuce, when these green vegetables are totalled the Spanish have a statistically significant higher mean frequency, but despite the lower total frequency for the French, they consumed green peas, green beans and leeks more often than the Spanish. Definition of the variable 'other greens' is a bit fluid, but considered generally to involve brassicas. What is more surprising, however, is the higher consumption of lettuce, other greens and green peas in the mountains than on the coast, highly significantly so for lettuce and other greens.

In the 1990 studies, we took notice of how green vegetables were generally differentiated in the concept of the meal from those vegetables that we included in the staple foods category.

Dairy products:

Table 4.5: National and Locational Comparisons of Dairy Products

Food item	Spain	France	M-W	χ^2		Valley	Coast	M-W	χ^2
Full fat milk	3.48	0.69	***	***		2.46	1.09	***	***
Semi-skim milk	1.00	2.28	***	***		1.06	0.92	*	*
Skimmed milk	1.04	0.33	***	***		0.74	0.49		
Cooked cheese	.37	1.98	***	***		1.15	1.50	***	
Uncooked cheese	2.09	2.84	**	***		2.62	2.40	*	
Yoghurt	1.96	3.58	***			2.91	2.90		***
Flavoured milk	1.28	1.07				1.21	1.09		
Total dairy++++	**13.15**	**16.63**	***	***		**15.58**	**14.69**		

++++ Total diary includes all milk types, butter, cheese, yoghurt, custard and ice cream

In table 4.5, again, many of the differences between Spain and France are shown to be significant, but the direction of those differences differs between items. As mentioned above, another questionnaire item 'milk added to a drink' is not included here, since quantities are generally small. We understand that a traditional Cerdan custom of drinking a mug or small bowl of milk for breakfast appears, in some cases, to be changing into the 'Western' pattern of breakfast cereals in milk. We draw special attention to the differences in the fat content of milk drunk, as the Spanish not only drink full fat milk much more frequently than the French, but also they drink milk in total more frequently. This is counter to concepts of the 'Mediterranean Diet'. With the exception of cooked cheese, the differences between the mountain valley and the coast are all in the direction of more milk and milk products consumed in the valley, which might be expected. Our questionnaire did not distinguish between cows' milk and other milks, but the pastures of the Cerdanya have herds of cattle and the area exports milk to other regions.

General discussion of diversity between populations along the French-Spanish border:

What has been shown by these analyses is that even with the geographic closeness of these four population samples, diversity is shown in food intake frequencies, all measured at the same season of the year, and, for each pair of populations, for seven days during the same eight-day period. Regional diversity in food choices was also shown by others in

the 1990s (e.g. Hubert 1998; González Turmo 1998). This already suggested that trying to find one description of food habits for a much larger geographic area and calling it that whole region's 'diet', as in the phrase Mediterranean diet, should have been reassessed. In the current century this point is accepted, but, despite those who did write about it at the time, little attention was given to such diversity.

Concepts of 'The Mediterranean Diet' in anglophone populations compared to the food intake frequency data discussed above:

In 1996, after randomly asking people in England, Australia and USA what foods they associated with the phrase the 'Mediterranean Diet', Macbeth found considerable coherence in the simplicity of their answers; so, to provide quantitative support to this general finding, she (1998) interviewed 102 adults, aged under 60, of varied occupations and backgrounds in Oxfordshire. She asked them to name ten items that they most associated with the phrase 'Mediterranean Diet'; two people, unfamiliar with the phrase, were replaced to make the sample size 100. Figure 4.11 shows the bar chart from this very simple study. Generally, the same foods were mentioned as in the informal chats.

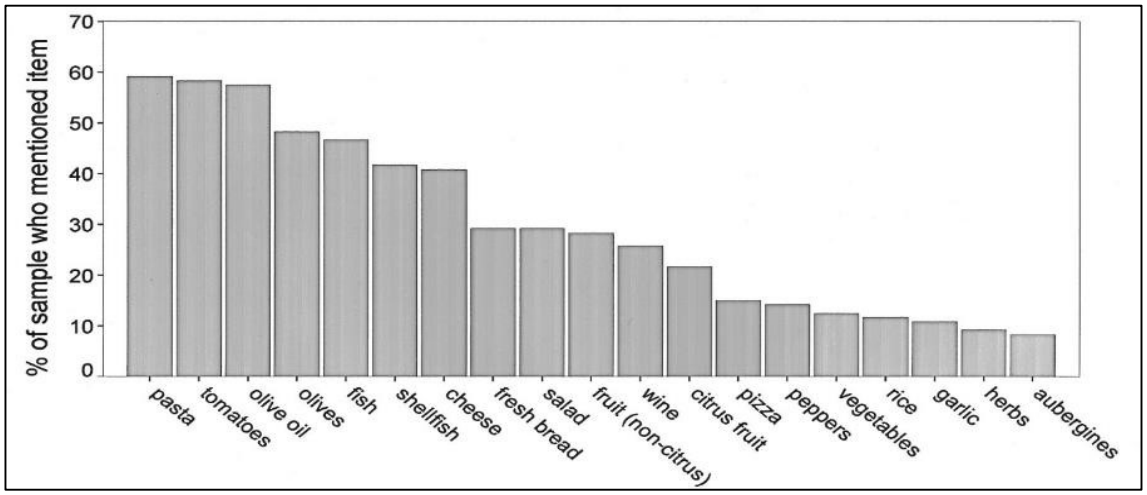


Figure 4.11: Bar chart showing percentage of UK interviewees mentioning food items, when asked to name 10 items to exemplify the 'Mediterranean Diet'.
Copy of original 1966 figure of bar chart © Helen Macbeth

Immediately striking in this comparison with our 1990s data is that pasta was such a frequently mentioned item in the Oxfordshire study as in other chats in UK, Australia and USA. Yet, in our study populations, potatoes were a more common staple food, which were never mentioned as 'Mediterranean' by English-speaking interviewees.

Tomatoes (Figure 4.12) were the next most commonly mentioned item and table 4.6 compares the frequencies, showing significant differences by Mann-Witney and χ^2 but showing that the mean intake was low.

Figure 4.12: Tomatoes on sale in Port-Vendres
Photograph © Helen Macbeth

Table 4.6: National and Locational Comparisons of Tomatoes

Food item	Spain	France	M-W	χ^2		Valley	Coast	M-W	χ^2
Tomatoes	1.53	1.27	*	***		1.42	1.33		*

However, we believe that tomatoes used in sauces were probably ignored by those completing the frequency study. There is also a Spanish habit of squashing a tomato on to bread for a sandwich before adding other items, and we also doubt that that was included in the frequencies. Again, we emphasise that our interest in the 1990s lay in such perceptions. Another interesting point about tomatoes and about so many foods now thought to be typical of the Mediterranean diet is that they are foods introduced to the region from elsewhere.

Also, in the 1990s, many English language recipe books were published, with the word 'Mediterranean' in their titles. Most of these reflect similar anglophone concepts of Mediterranean food (Macbeth 1998), derived almost certainly from popularisation of the medical literature of the time. However, the food intake frequency results given in this chapter show that the food choices of adjacent populations either side of the French-Spanish border differed from that contemporary image of the 'Mediterranean Diet' too. Yet, pointing out that difference received little support at a time when commercial concerns were involved in promoting that image. In contrast, González Turmo (2012) later elegantly reviewed the diversity of culinary habits around the Mediterranean, identifying geographic, temporal, socioeconomic and cultural factors, over the centuries, as well as links and divisions.

Although it should again be stressed that our data are different from data collected by nutritionists, especially those which weigh and analyse every mouthful consumed, they do show a considerable difference from popular concepts of a 'Mediterranean Diet' at the time. In 2020 we decided we should follow another approach to the issue.

Reviewing the above using the Mediterranean Diet Score (MDS)[23]
Nutritionists and epidemiologists have created diverse scales by which to measure the adherence of different populations to a nutritionists' concept of the 'Mediterranean Diet'. The Mediterranean Diet Score (MDS)[23] was first proposed by Trichopoulou et al. (1995), altered by Trichopoulou et al. (2003) and changed again by Trichopoulou et al. (2014). In this last version each foodstuff is assigned to one of nine different categories linked to nutritional values. Of these, six categories are regarded as positive indicators of the Mediterranean Diet and three as contra-indicators. The analysis is based on a calculation of median values per category. For each beneficial category, each individual in the data scores a value of 1 where their frequency of consumption is *at or above* the median value for that population, and a value of 0 where it is below that median. However, for the three contra-indicators they score 1 where their consumption is *below* the median and 0 where it is equal to or above the median. Higher scores thus show greater adherence to the Mediterranean dietary model, regarded as beneficial to health.

Our analyses were based on a simple form of food frequency data collected in the 1990s, but we found that it was possible to use the MDS method (as introduced in Trichopoulou et al. 2014)[23] to assess adherence of our data to that concept of the 'Mediterranean Diet', by making an assumption about food sample sizes, as had been done in their study. Our 1990s data consisted of 81 food types, of which 60 could be directly assigned to 8 of the MDS categories. Of the 21 foods not assigned to any MDS category the majority were infrequently eaten items such as jam, other sweet items, herbal tea, etc. Our assumption is that such variables would not have had a great effect on the calculation of adherence to the Mediterranean dietary model. The most significant items in our study with no direct mapping for MDS calculation were eggs (regarded as protein but not included in dairy or meat) and pasta. Pasta (Figure 4.13) was excluded as this mixture of

[23] For a brief introduction to the MDS method to score adherence to a Mediterranean Diet, see the section by Martínez-González in Trichopoulou et al. (2014), available at: https://doi.org/10.1186/1741-7015-12-112; accessed 28/12/2020. To pursue the statistical methods further pursue his references.

egg and flour had been treated variously in different nutritional studies and did not fit into the MDS (2014) version.

Figure 4.13:
Spaghetti with *cavolo nero*
Photograph © Helen Macbeth

An important missing category in our data for use with the MDS was the one relating to ratio of lipids. From frequency data unavailable today, Table 4.7 (from Macbeth 1996) shows big differences in the Cerdanya, between French and Spanish housewives in their use of oils and fats, but we have no frequency evidence to work into the MDS.

Table 4.7: Percentages of housewives answering about their use of oils and fats

Frying main dish	Olive oil	Other vegetable oil	Animal origin fat
Spanish	72%	24%	5%
French	16%	61%	23%
Sauces & Dressings	Olive oil	Other vegetable oil	Animal origin fat
Spanish	58%	35%	7%
French	48%	44%	7%

The difference shown between Spanish and French housewives' culinary practice is interesting. As butter was included in fats of animal origin, these results seem to support the oral information above that we would find the French used more butter in cooking whereas the Spanish used olive oil, even though that oral information did not mention the cheaper vegetable oils at all. There is not such a great difference in their answers about oils to use for sauces and dressings. In this mountain area, on both sides of the border, an earlier tradition of cooking in animal fats had been mentioned in oral interviews.[24]

We decided that using the 2014 MDS methodology on our intake frequency data was valid for providing another measure of adherence or otherwise to the Mediterranean dietary model, so long as we recalled the absence of the lipid variable and considered the above information

[24] This concurs with comments about olive oil and other fats in González Turmo (2012).

on fats and oils. Whereas our 1990s research, concerned more with food on the plate, had not included bread among the staples, when using the MDS categories bread was included in the cereals category.

Table 4.8 shows the eight categories used and reasons for adding 1 to the score for each person, or not. Then a simple summation of these personal scores of 0s or 1s was used in the discussions below.

Table 4.8: Scoring System for food categories used on our 1990s data

Food Category	Mediterranean Diet Score
Cereals including breads	**+ 1 if above median frequency for case**
Fish	**+1 if above median frequency for case**
Fruit and Nuts	**+1 if above median frequency for case**
Legumes	**+1 if above median frequency for case**
Vegetables	**+ 1 if above median frequency for case**
Meat	**+ 1 if below median frequency for case**
Dairy	**+ 1 if below median frequency for case**
Alcohol	**+ 1 if below median frequency for case**

Results using MDS:

Because 8 categories were used, five of them positive for adherence to the Mediterranean dietary model, and three negative, these total personal scores can be considered as providing a simple 0-8 scale of adherence per person. Percentage of people at each score from 0 to 8 is shown in column 2 of Table 4.9. However, simpler percentages are shown when results are grouped as 0-3 for non-adherence, 4 or 5 as minimal or marginal adherence, and 6-8 as greater or full adherence (table 4.9), giving a clear indication of none to very weak adherence to the Mediterranean dietary model for all cases in the 1990s data.

Table 4.9: Percentage of Cases in each Score and Associated Level (entire 1990s data)

Mediterranean Diet Score	Percentage of cases	Adherence Level	Percentage
0	0.2%	Non Adherence	71.9%
1	3.4%		
2	4.6%		
3	63.7%		
4	1.4%	Minimal Adherence	27.7%
5	26.2%		
6	0.0%	Full Adherence	0.4%
7	0.4%		
8	0.0%		

So, using the 2014 MDS methodology on our entire data, we can see 72% non-adherence to the Mediterranean dietary model. The scores used in the first column of the above table are the values used on the Y axis in the following bar charts, and the percentage of cases on the X.

Variation in Adherence:

Above we have shown diversity between our four 1990s population samples in intake. So, we were interested in adherence comparisons between them, first between France and Spain (figures 4.14a and 4.14b)

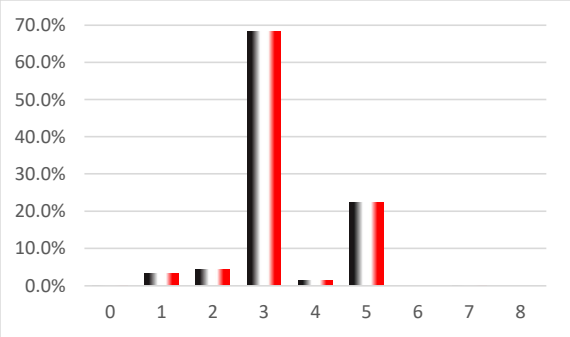


Figure 14a: French subpopulations

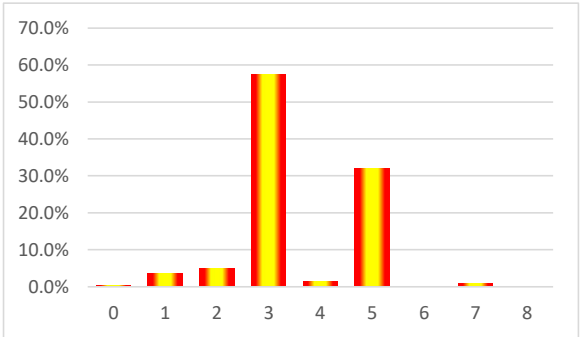


Figure 14b: Spanish subpopulations

Distribution graphs showing percentages of individuals' MDS scores

and then between the mountain valley and the coast (figures 4.15a and 4.15b). The modal frequency for both Spain and France was 3, with 5 as second most common. Even by eye one can see the difference, with more French scoring 3 than Spanish, who had more in the marginal category 5. Overall, though, very few in frequencies 6, 7 or 8.

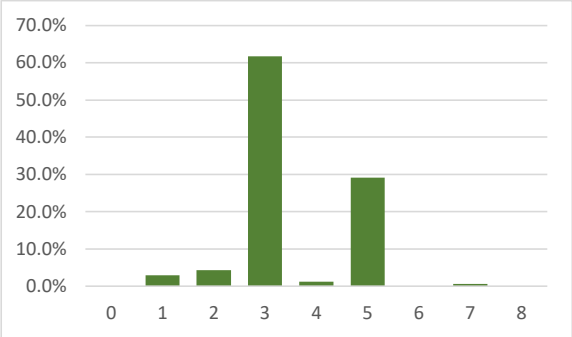


Figure 4.15a the Cerdanya populations

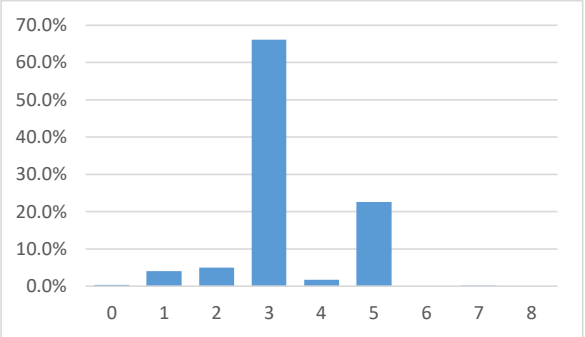


Figure 4.15b the coastal populations

Distribution graphs showing percentages of individuals' calculated scores

When the mountain valley populations are compared with the coastal populations, what is visually striking is their similarity, although the marginal category 5 is slightly higher in the Cerdanya.

From this we can again conclude that for these 1990s population samples adjacent along the Franco-Spanish border, national classification was a greater determinant of food intake than mountain or coastal locality, and none of the population samples show great adherence to the Mediterranean dietary model, even though two samples were on the Mediterranean coast.

Food types consumed:

Analysis of total results according to the eight food group categories is shown in figure 4.16. Whereas almost all of the sample populations scored above the median frequency for cereals (94.9%) and vegetables (77.3%), this was offset in the scoring by the high frequency of their consumption of the contra-indicators, dairy (84.8%) and meat (78.3%). Within the variable 'cereals' is bread and in all these populations bread is habitually consumed at most meals and even in the between-meal snacks. Of the other positive indicator categories, Fruit and Nuts contributed to a positive score in only 42.4% of cases and both fish and legumes in less than 5% of cases.

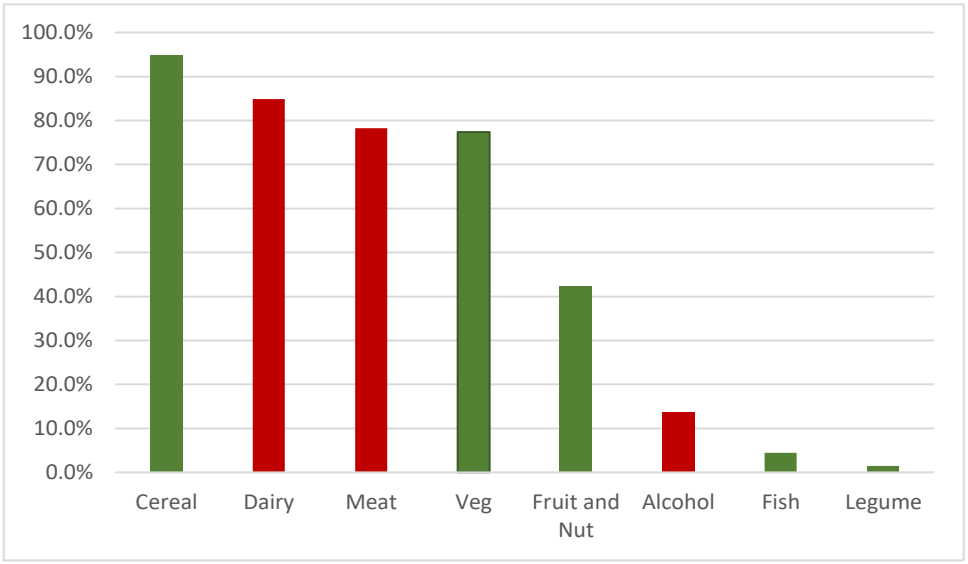


Figure 4.16: percentage of participants scoring above median frequency in each food group category
(green for categories indicating Mediterranean Diet, red for those contra-indicating)

In summary, using the 8 categories these populations do not conform well to the MDS scoring of adherence to the Mediterranean diet, and even though we could not include lipids in our analysis we have the 1990s Cerdan information suggesting diversity by nationality.

Cultures evolve, food habits change:

This chapter concerns data collected in the 1990s, discussed in relation to concepts of the 'Mediterranean Diet', themselves based on research since the 1960s. Then, we reanalysed our data in 2020. Yet, lifestyles and food patterns evolve (González Turmo 2012). In this last half century there have been important changes along the Franco-Spanish border. In 1986 Spain joined the European Community and then the Schengen Agreement in 1991, when goods could cross the border freely. In the Cerdanya, we understand that legally or illegally people and food had long crossed that border, but the freedom to do so from 1991 had significant effects on shopping habits and supermarkets.

In regard to supermarkets, one respondent from the coastal area recalls the first time she went to a newly opened supermarket in the city of Perpignan; it was in 1966. At that time their food was mostly grown and produced by parents and grandparents or bought from the local village butcher or baker, etc. Fish was bought from a visiting van. By

the 1990s there were supermarkets in all the areas in our study, and, in the Cerdanya, people judged on which side of the border to buy different goods, even though the peseta was not replaced by the euro until 1999. As discussed in other chapters in this volume, there have been many changes in food production, shopping and cooking habits, with less time spent on cooking and more use of ready meals. Yet, in 2020 a respondent from the Cerdanya study, now living on the coast, mentioned a recently growing trend among her friends to seek out the local, 'natural' and 'artisanal', usually from small producers and this often fostered the 'traditional'. Maybe future research will review the effects of this on adherence to the MDS.

Conclusion:

This chapter presents 1990s food intake frequency data from adjacent French and Spanish population samples divided by the international border, one pair in the eastern Pyrenees, one pair on the Mediterranean coast. The data were reanalysed in 2020 to review the diversity previously observed between the sample populations and to consider their adherence to concepts of the Mediterranean dietary model. The 1990s formed an interesting decade for this, starting before Spain joined the European Community, then the Schengen Agreement and only in 1999 the Eurozone. When the food intake frequency data was collected in 1992 in the Cerdanya valley, people already shopped on either side of the border. Yet, this chapter has shown many statistically significant differences between French and Spanish population samples, unexpectedly greater than the differences between mountain valley and coastal sample populations, which differed relatively little.

Relevant to this volume, Macbeth's (1998) comparison with 1990s Anglophone concepts of a 'Mediterranean Diet' was reviewed, and then the 1990s data were reanalysed using Trichopoulou et al.'s (2014) MDS methodology. Just as in 1998, this reanalysis found that these populations did not adhere well to a Mediterranean dietary model. Although neither showed adherence, a difference between French and Spanish samples was again identified.

References:

Contaldo, F. Pasanisia, F. and Mancini, M. (2003) Beyond the traditional interpretation of Mediterranean diet, *Nutrition Metabolic and Cardiovascular Diseases*, **13:** 117-119.

González Turmo, I. (1998) Spain: the evolution of habits and consumption, 1925-1997, *Rivista di Antropologia,* **76 (Supplement):** 335-342.

González Turmo, I. (2012) The Mediterranean Diet: Consumption, Cuisine and Food Habits. In CIHEAM (ed.) *The Mediterranean Diet for Sustainable Regional Development*, MediTerra2012, Presses de Sciences Po, Paris. pp. 115-132.

Hubert, A. (1998) Evolution of food consumption and life styles in France in the past 50 years, *Rivista di Antropologia,* **76 (Supplement):** 229-235.

Macbeth, H. (1993) Comida, Cultura y Biología: comparaciones en un valle Catalan. In González Turmo, I. and Romero de Solís, P. (eds) *Antropologia de la Alimentación: ensayos sobre la dieta mediterránea,* Consejería de Cultura y Medio Ambiente, Seville, pp. 107-132.

Macbeth, H. (1995) The Cerdanya, a valley divided: biosocial anthropology in a research project. In Boyce, A.J. and Reynolds, V. (eds) *Human Populations: Diversity and Adaptability,* Oxford University Press, Oxford, pp. 231-251.

Macbeth, H. (1996) Biology and ideologies about diet: Mediterranean Diet, *la cuina Catalana* and data from Cerdanya. In González Turmo, I. and Romero de Solis, P. (eds) *Antropología de la Alimentación: nuevos ensayos sobre la dieta Mediterránea,* Universidad de Sevilla, Seville, pp.103-114.

Macbeth, H. (1998) Concepts of 'The Mediterranean Diet' in U.K. and Australia compared to food intake studies on the Catalan coast of the Mediterranean, *Rivista di Antropologia (Roma),* supplement volume **76:** 307-313.

Macbeth, H. (2000) Diferències alimentàries a Catalunya: observacions d'una forastera, *Rivista d'Etnologia de Catalunya*, **17:** 34-39.

Macbeth, H. (2002) La comida como método para medir la unidad o la división poblacional: el valle de la Cerdaña. In Arnaiz, M. (ed.) *Somos Lo Que Comemos: estudios de alimentación y cultura en España,* Ariel Antropología, Barcelona, pp. 209-217.

Macbeth, H. and Bertranpetit, J. (1995) Biology, boundaries and borders, *International Journal of Anthropology,***10,** 53-62.

Macbeth, H., Salvat, M., Vigo., M. and Bertranpetit, J. (1996) Cerdanya: mountain valley, genetic highway, *Annals of Human Biology,* **23(1):** 41-62.

Sahlins, P. (1989) *Boundaries – the Making of France and Spain in the Pyrenees,* University of California Press, Berkeley.

Trichopoulou, A., Katsouyanni, K., Stuver, S., Tzala, L., Gnardellis, C., Rimm, E. and Trichopoulos, D. (1995) Consumption of Olive Oil and Specific Food Groups in Relation to Breast Cancer Risk in Greece, *JNCI: Journal of the National Cancer Institute*, **87 (2)**: 110–116. Available at: https://doi.org/10.1093/jnci/87.2.110. Accessed on 28/12/20.

Trichopoulou A, Costacou T, Bamia C, Trichopoulos D (2003) Adherence to a Mediterranean diet and survival in a Greek population. *New England Journal of Medicine*, **348**: 2599-2608.

Trichopoulou, A., Martínez-González, M.A., Tong, T.Y., Forouhi, N.G., Khandelwal, S., Prabhakaran, D, Mozaffarian, D. and Lorgeril, M.de (2014) Definitions and potential health benefits of the Mediterranean diet: views from experts around the world. *BMC Medicine,* **12,** 112. Available at: https://doi.org/10.1186/1741-7015-12-112. Accessed on 28/12/20.

CHAPTER 5
THE MEDITERRANEAN DIET IN THE FACE OF AN INCREASINGLY GLOBALISED FOOD SYSTEM: THE CASE OF THE TUNISIAN FOOD MODEL

by Sonia Mlayah Hamzaoui

Introduction:

The food activities of social actors differ in their forms and their contents according to the geographical and agricultural particularities of their terroir, their history, their culture and their beliefs, whereas today the supply of food products is almost completely uniform across all continents and seasons. The purpose of my study is to analyse the effects of the dialectic of the global and the local on the purchasing and consumption behaviours of the Tunisian city dweller. A question within the framework of this study is to verify whether the globalisation of trade and the development of the agri-food industries have led to a general change in the food practices of the Mediterranean, and, in particular, the Tunisian. Are we heading towards true globalisation of the culture of food and drink?

We assume that the change is inevitable, that it is slowed down by the simultaneous co-existence of both the traditional and modern food models, and that it is more visible amongst the urban population. This qualitative study is based on participant observation, semi-structured interviews and life stories from Tunisian families. The effects of globalisation on food practices have been studied from a socio-economic perspective taking into account the impact of market economies replacing self-sufficiency, the establishment of hypermarkets and supermarkets, the evolution of international trade within the food industry, advertisement and digital mediation as well as the invasion of fast food in Tunisia.

Purchasing behaviour:

The purchasing behaviour of the traditional Tunisian city-dweller was governed by a different social and economic context from that which has undoubtedly led to changes in their food acquisition strategies. Indeed, the supplying behaviour and annual conservation of varying

food products predominated the traditional Tunisian food model. The latter was, for the most part, supplied from their agricultural land. The city dweller went daily to one of the permanent markets or to one of the weekly souks on the city outskirts in search of the fresh products necessary for the daily food requirements. They could also make certain additional purchases from the local grocer or from the few itinerant merchants who crisscrossed the medina neighbourhoods to sell their goods (Ben Abdallah 1977: 70). The range of purchasable food products was reduced to those necessary for the culinary preparations of the day, especially those of a perishable nature. The modern city dweller has changed their purchasing behaviour. Annual supplies became rare with an expansion of the range of products acquired in shops, especially those from the global food industry.

The evolution of the food supply chain heading towards the globalised agri-food industry stand has contributed to widening the gap between the city dweller and his agricultural land, the original source of food products. With the new conceptualisation of lifestyle, the city dweller is now looking at acquiring the most easily accessible food products. Today, the food procurement mechanism is almost exclusively purchasing. However, some urban families who inherited a plot of land continue to benefit from a supply of olive oil from the production of their own land while others continue to practise the breeding of a few sheep or the cultivation of certain fruit trees. Cereals being the main staple food for Tunisians, they were processed annually and during the summer season. The cereals were then transformed into different types of couscous, bulgur, *hlelem, mhames*, *nouasser*[25], etc. (Figure 5.1).

Figure 5.1:
hlelem, mhames, nouasser (from left to right)

Photograph © Sonia Mlayah Hamzaoui

[25] *Nouasser* are hand-made pasta having the form of small squares of 1cm / 1cm and very thin. They are used to prepare a dish also called nouasser.

All these products were kept for the year in a large room reserved for this purpose called *bit el mouna* (Mlayah Hamzaoui 2006: 20). They were then placed in pottery jars of different sizes. Today, the majority of these products are acquired, if required, from the range of industrially processed foods with the exception of couscous, which for some people remains the subject of annual conservation and artisanal processing. It will, however, be purchased from women who market it to survive. It is also interesting to note the appearance on the market of new cereal-based products, foreign to the Tunisian tradition, such as for example pizza and pie crusts, puff pastry or shortcrust pastry, as well as different kinds of pasta (cannelloni, etc.).

Bread was a sacred product and occupied an important place in the diet of Tunisians, who positioned it among the so-called divine gift products. As a result, the Tunisian city dwellers prepared it themselves at home, using wheat or barley flour and olive oil. They mastered both daily and festive bread preparation. It was cooked in the district bakery. Its purchase was completely disparaged and constituted a double shame for the master of the house. The first was a sign of his impoverishment because it suggested that there was no wheat in his storeroom and that he did not have land bringing in wheat. The second concerned his wife, who could be considered a bad housewife, not knowing how to make bread or too lazy to do it. This is how '... The fact of buying baker's bread being considered by the beldis[26] as a defect, a sign of forfeiture and impoverishment which should be blushed. So, if by chance, one of these beldis was in need to buy bread from the djerbien[27], he surrounded himself with precautions not to be seen by neighbours; he hid the bread under his jebba and did not look at anyone on his way home, lest we read his "shame" on his face.' (Ben Abdallah 1977: 18).

Today, bread is bought daily from the baker. Its domestic preparation went from the status of a daily and banal practice to that of an exceptional and festive activity. Currently, there are few households who prepare it at home, and then it is during a family or religious rite; so only a few women, probably the most expert, still make the effort to prepare it. Industrial bread is generally prepared with other vegetable oils than olive oil or even with animal fats. Other varieties of bread than

[26] *Beldi* : Tunis city dweller
[27] *Djerbien* : as most grocers are from Djerba, by default we call the grocer djerbien

the traditional ones have invaded the displays of bakers and supermarkets, such as Viennese loaf, French baguette or even the American hamburger bun. However, recently the traditional bread called '*tabouna'* (Figure 5.2), that was considered as a rural bread, is now valued and trendy.

Figure 5.2:
Rural traditional bread called *tabouna*.

Photograph © Sonia Mlayah Hamzaoui

In Tunisia, olive oil is the symbol of wealth and generosity. It was extracted annually from the fruits of the olive trees of the traditional city dweller who also owned large olive groves. It was the subject of a gift governed by the Koranic verses. The production of olive oil was very important and the richest farming families owned oil mills. They stored their annual personal consumption in a cistern, called a *mejel*, and no longer in large jars or demijohns[28] like most Tunisians. Currently self-sufficiency still persists for some families but remains rare. The purchase of olive oil is made today during its extraction season when its price becomes beneficial especially for those who buy it for the year. The poorest would buy it as needed or use replacement oils sold at lower prices. These other vegetable oils are used for frying by all social categories and by the most disadvantaged and sometimes even by the middle class in the preparation of meals or for frying (Figure 5.3).

Figure 5.3:
On the left: olive oils;
on the right: other vegetable oils used for frying by all social categories and the most disadvantaged, and sometimes even by the middle class in the preparation of meals.

Photograph © Sonia Mlayah Hamzaoui

[28] Large glass bottle covered with straw often used for storing and transporting olive oil

The non-exclusive use of olive oil is a boon for a country which is among the first producers of this food product and whose history has been rooted there since time immemorial.

With regard to the acquisition of vegetables and fruits, the traditional Tunisian city-dweller had no or limited production of the commodity and tended to buy it in large quantities during its peak season for an annual supply or daily according to their daily needs. Being a staple of traditional Tunisian cuisine, particular attention was paid to tomatoes, of which processing for annual conservation was done in three different ways. Currently, fresh tomatoes are purchased when needed and over the year thanks to their permanent availability in the market. The same is true for other vegetables and fruits. The artisanal and domestic conservation of tomatoes was replaced by the availability in the market of tomato concentrate in cans. The fruits were processed during their peak season into jam, jelly or candied fruit in order to extend their use throughout the year. Today, several exotic fruits and vegetables have appeared on supermarket's shelves and at vegetable merchants. These food products, formerly unknown by Tunisians, are currently integrated into their diet and are used in the composition of their dishes and menus.

The traditional Tunisian city dweller was not particularly fond of seafood and had an aversion to shrimps and other crustaceans. Hence, their consumption was infrequent, despite the existence of preparations based on fish. The annual conservation of seafood products concerned only tuna, herring, anchovies and octopus. Currently the Tunisian city dweller is an important consumer of these foods. Its acquisition and/or consumption gives the Tunisian a certain social value because of their increasingly expensive prices, especially for natural products, which come from the sea and not fish farming. Certain new frozen fish and shellfish of various origins are found in the market and are the subject of consumption, which has become almost elitist.

Since the traditional Tunisian city dweller did not have cold storage techniques, the meat products were bought, when needed, once a week. However, they kept for the year that part of the meat which was sacrificed during the feast of *Eid el Kebir*[29]. It was preserved by drying, salting and pre-cooking it in frying oil. This dried meat called *qaddid*

[29] Muslim sacrifice feast

was stored, with the oil it was fried in, in glazed bottles. Today, the consumption of meat products has increased significantly. Most city dwellers buy it monthly and use new cold storage technologies for extended home storage, to avoid repeated back and forth visits to the butcher. When the refrigerator and the freezer appeared, city dwellers in search of authentic flavours, expressed a great deal of reluctance for preserving meat in these devices, as they were considered to denature the taste. By now, this practice has become so common that it has almost eliminated the traditional preservation of meat and its transformation into *qaddid*. A range of new meat products with added value, '*hallal*'[30]or not, are today found on the Tunisian market and consumed by the modern city dweller, namely sausages, chorizo, ham, etc. Poultry and hunting meats were considered as a luxury item and reserved for guests or family reunion ceremonies.

In order to avoid wasting leftovers and to have fresh meat and eggs available, these were fed to a few domestically reared hens. Today white meats come from intensive industrial farming. They are more and more diversified and constitute the most frequent meat bought in Tunisia (2/3 of all categories of meat). For Tunisians, the consumption of eggs is an important source of alternative proteins.

Traditional families who did not produce cow's milk did not buy it. Considered only as a secondary utility ingredient, milk was acquired when needed for a sick person and only on an occasional basis. This restrictive practice was so ingrained in the minds of city dwellers that when you saw someone coming home with a bottle of milk in his hand, you were worried about the health of his family members. Yet now, milk is considered as a staple food and is purchased on a regular basis. As modern city dwellers have realised the benefits of milk, they consume it daily as well as all its derivatives. The purchase of sterilised and pasteurised milk, cheese, yogurt, butter and dairy desserts is now a daily occurrence.

In the traditional food model, traditional cookies and sweet drinks were made at home. The housewives helped each other in making these ritual and festive items. The preparation as well as the consumption of sweet products is a mediator of conviviality and a generator of social cohesion. For instance, the preparation and consumption of tea or

[30] lawful consumption for Muslims

coffee had a privileged place in the daily ritual practices of traditional city dwellers and could not be consumed alone. Their preparation required the meeting of the family members around the brazier, each thus testifying to the good progress and the respect for the succession of the various ritual gestures. This practice made it possible to extend sociability to all family members because, during meals, women and children were separated from men. Tea and coffee, however, opened up opportunities for women to socialise and share with men. Today, the drinking of these two beverages is generally made alone and at speed, unless it happens to be in a cafe or a tea room where the options of cold and hot drinks exceed the modest lemonade or orgeat syrup consumed in the past. In addition, and with regard to traditional cookies that were once homemade, they are increasingly escaping the artisanal and domestic preparation and are now made by specialised pastry chefs who even mechanise certain stages of their preparation. Global pastries such as *mille-feuilles, macaroons, éclairs, charlottes* and others have now appeared in the trade and overshadow the Tunisian authentic ones. In addition, some city dwellers continue to make traditional cookies while introducing some modifications either in their ingredients or in their size and shape. Other city dwellers, unaware of the subtleties of this art, resort to buying.

The changes in the purchasing behaviour of the city dweller are the result of an intricate set of changes affecting the local and global economic and social spheres. The passage of food products from the farm to the agri-food industry has contributed to widening the gap between agricultural land and the city dwellers who, with their new conceptualisation of lifestyle, now choose to acquire easily accessible food products. Today, the mechanism for acquiring food is almost exclusively purchasing.

With regard to the behaviour of food supply and processing, notable changes have occurred for the modern city dwellers who have minimised the range of food products to be kept for a whole year. Thus, the annual supply only concerns some basic products (e.g. cereals and olive oil) and certain spices. Today, the transformation activities of these products are delegated to trusted women whereas they used to be part of the prerogatives of traditional women as intra-domestic social actors who did not participate in extra-domestic working life.

On the other hand, these changes are promoted by the reduction, transformation and re-conceptualisation of private space, where these activities are carried out and the conservation of food products obtained. However, in addition to the spatial dimension, other factors are equally generators of change and vectors of innovation. The emancipation of women and their entry into the job market, the evolution of the food industry and the almost permanent availability of industrial products are all factors that prompted the city dweller to question and modify their behaviour towards food supply processing. At the same time and at a public space level, the structural and organisational transformations operated within the traditional space, on the one hand, whereas the construction of new districts carrying innovation and modernisation within the current space, on the other hand, contributed to the change in the purchasing behaviour of the Tunisian city dweller. In addition, changes in supply and purchasing behaviour seem to correlate. Indeed, in the traditional model, the supply, mostly made from the production of agricultural land of Tunisian city dwellers, reduced the amount of food purchasing compared to a wide range of supplies available throughout the year. Conversely, in the modern model, a proliferation of purchases and a dominance of purchasing behaviour keep on reducing the behaviour of processing one's own food products.

Furthermore, the inactive city dweller (in particular the retired one) seems to maintain a traditional organisation of time. Like the active traditional city dweller, the modern inactive city dweller searches for the food products necessary for the menu of the day, on a daily basis. It is, however, interesting to note that despite comparable buying behaviour, the motivations are different. Thus, the active traditional city dweller, who did not have the necessary equipment for the conservation of rapidly perishable food products, in particular meat, had been obliged to go to the market every day. Whereas, for the modern inactive city dweller, the market constitutes a place of sociability, meeting and exchange, where the latest news is learned from friends and neighbours.

Time seems to run out for active city dwellers today. This could be justified by the spacing of places in cities, by the incessant increase in the urban population as well as the transformation of the traditional

family structure. The features of modification in the purchasing behaviour of the active city dweller is influenced by their time availability. The market is only carried out when there is time, usually on Sundays. The purchase passes from a generally daily activity to a most often weekly occupation. This attitude has been favoured by new technological acquisitions, in this case the refrigerator and the freezer.

The act of buying groceries has undergone enormous modifications. Today, several food products escape domestic production to move to that of the food industry. Few city dwellers still have a stock room saving them from making daily purchases and also fewer street vendors pass in front of houses. Thus, the range of food products to be acquired outside has increased, resulting in an increase in time needed for daily shopping at a food shop. On the other hand, we are witnessing today the proliferation of hypermarkets and supermarkets (Figure 5.4).

Figure 5.4:
A modern supermarket

Photograph © Sonia Mlayah Hamzaoui

These compete with the traditional small shops (Figure 5.5).

Figure 5.5:
A neighbourhood small shop

Photograph © Sonia Mlayah Hamzaoui

With the increase of supermarkets, purchasing strategies have changed. Daily 'shopping' tends to disappear in favour of weekly shopping, favoured by forward planning of purchases. However, this does not seem to exclude the improvised purchase carried out mainly by women. This kind of 'shopping' is generally carried out between the time of leaving the workplace, marking the end of professional activities, and that of returning home announcing the starting point of household activities, that are often long and ending at a late hour. Faced with new social demands, the city dweller is facing a new conception of work time versus family time. Thus, and by widening the spectrum of their roles, they find themselves obliged to reduce domestic time and hence the time devoted to culinary activities. This has pushed them to adapt their behaviour to take stock of their new status and their new schedule or to adopt new practices facilitated by the availability of agro-industrial food products. The decline or abandonment of traditional ways of supply brought changes in the various dimensions of sociability.

The transformation activities of turning perishable food products into preservable ones were the object of a great solidarity between the traditional city dwellers. Some of them helped each other whenever work was required. In parallel to this solidarity through effort, we found during this period a festive atmosphere generated by the meeting of several women who tried, through laughter and joking, to lighten the tedious tasks they performed. Religious laws required Tunisian city dwellers to help poor families by offering them one-tenth of their supplies. The only solidarity found today among Tunisians is intra-family solidarity and particularly that which concerns parents with their descendants.

Thus, purchasing behaviour has now undergone several transformations: the transition from a subsistence economy to a market economy, the evolution of the food industry, the availability in the market of certain exotic or off-season food products, the shortening of time devoted to cooking. Additionally, the participation of the modern city-dweller in purchasing activities and the modification of supply behaviour are all factors that have contributed to the changes that have taken place in the ways of buying.

Consumer behaviour:

The consumption behaviour of the traditional Tunisian city-dweller obeyed a social and economic context different from the current one, which undoubtedly led to changes in the nature of the food consumed.

Food consumption was among traditional city dwellers considered as a collective activity generating rituals of conviviality and commensality. Meals were taken at fixed times and at regular time intervals. Food intake was provided by two snacks and three main meals. Food outside of households was non-existent and unworthy of the citizens of good families. The purchase of some sweet preparations, such as *sohlob* sorghum cream or *htayer* Tunisian doughnuts, was occasional and to satisfy a desire of one of the family members. Their consumption could only take place at home.

In the modern model and with regard to the consumption of dishes, the conviviality between the different members of the family is present whenever their schedules allow it. In addition, meals do not seem to be regular and we are even witnessing, in some cases, the disappearance of a main dish or its postponement. Food becomes an extra-domestic activity where city dwellers take their meal at their places of work, in a fast-food outlet or at a restaurant. On the other hand, for the majority of active city dwellers, we notice a modern model with an individualist connotation. Indeed, we are witnessing today a food mobility, which results in the emergence of snacking behaviour. Food individualism is favoured by different or even divergent schedules for family members and by the absence of the foster mother at mealtime. We are also witnessing a relocation of meals, which are no longer delimited in space and are now taken outside households or on a tray in front of the television and not in a place reserved for this purpose.

The deconstruction of the family meal also occurs, in some cases, during rest days. In fact, the staging of a meal taken together at fixed times is replaced by the habit of consuming light snacks alone or snacking without having a regular rhythm or precise location assigned to these practices.

Traditional cuisine with its long-simmered dishes is gradually receding under the influence of an awareness of the dietary and health dimensions of food on the one hand and the significant influence of

media advertising and catering outside of households on the other hand. As Fischler writes:

> ‘De-socialised, freed from the codes and standards in use, delocalised in space and time, food seems to lose its value as a privileged opportunity for exchange and communication within the family, pivot of sociability. The disappearance of traditional landmarks under the influence of the emergence of new lifestyles suggests that gastronomy is in the process of giving way to a kind of "gastro-anomy”.’
>
> (Fischler 1990: 368).

The changes made to the food system of traditional city dwellers can be subdivided on the one hand into partial changes and on the other into structural changes. These mutations are then carried out through the substitution of an old product by a new element; for example, replacing olive oil by any other vegetable oils for frying. Indeed, the Tunisian city dwellers are today aware of the harmful effects of fried olive oil which can be brought up to more than 180°. It is also the addition of food or the adoption of dishes initially external to the Tunisian culinary systems, favoured by intercultural mixing. We find in this sense the introduction of pizzas brought by the Italians, puff pastry by the French, etc. These dishes and these food products, initially considered as exotic or foreign, appear today in the direction of daily and familiar dishes of the Tunisian culinary culture.

However, the components of a culinary system are not the only ones to undergo change. Indeed, it happens in certain cases that the content of the system remains essentially the same while the structures change. The foods and dishes consumed usually fit into a culinary syntax on which the real change is focused. This is what we discovered by comparing the ordering model of traditional dishes with the modern ordering model. The structure of the first model is synchronous, that of the second is diachronic. We are witnessing the passage of a spatial arrangement, characterised by the presentation of all the dishes constituting the meal itself, to a sequential unfolding of the meal over time. The innovation, therefore, consists in the oscillation between the simultaneous and the sequential. Regarding the modern festive service, the presentation of the buffet constitutes a return to the traditional model characterised by the simultaneity of the dishes.

The structural change also concerns certain ritual dishes and foods subject to a particular sacralisation. The weakening or even the disappearance of this sacred character is at the heart of the modernisation process. However, the cuisine itself also changes in the same way as languages and cultures.

> 'We could therefore say that the nodal elements of a culinary system are only valid insofar as they signify; and that, when they cease to signify, they at the same time cease to exercise their nodal and structuring code'.
>
> (Fischler 1990: 164)

We can affirm at the end of this analysis that the traditional model persists sometimes in the festive, in the extra-daily, rather than in the daily. Everyday life is subject to the constraints of urbanisation, women's work, acculturation and globalisation. The traditional takes refuge in the rite, in the ceremonial, in the symbolic.

Similarly, we can confirm that the globalisation of trade and the development of the agri-food industries have favoured a change in the food practices of the Tunisian city dweller characterised by a progressive erasure of the regional particularities of the culinary art, authentic flavours and a standardisation of the food system. However, the current coexistence of the local and the global has the effect of slowing down this process of globalisation of the culture of eating and drinking.

The diagram of the evolution of eating behaviour (Figure 5.6) is an attempt to show the current process. It identifies the determinants of evolution that are behind the change in food culture. It points to the possibility of a model of 'attraction of the future', which is distinguished by the emergence of a refined structure of the elements of the traditional lifestyle and whose dominant features are: food individualism, mobility food, the relocation of meals, the desynchronisation and atomisation of the family meal as well as the globalisation of eating behaviour. 'Will this hypothetical "strange attractor" be realised for future generations?' (Boukrâa 2005: 117). Will there be a complete break with the traditional culinary system or will the traditional model resist as a support for Mediterranean cultural

identity? Will the attraction of the future be the radicalisation of the modern components of the traditional model?

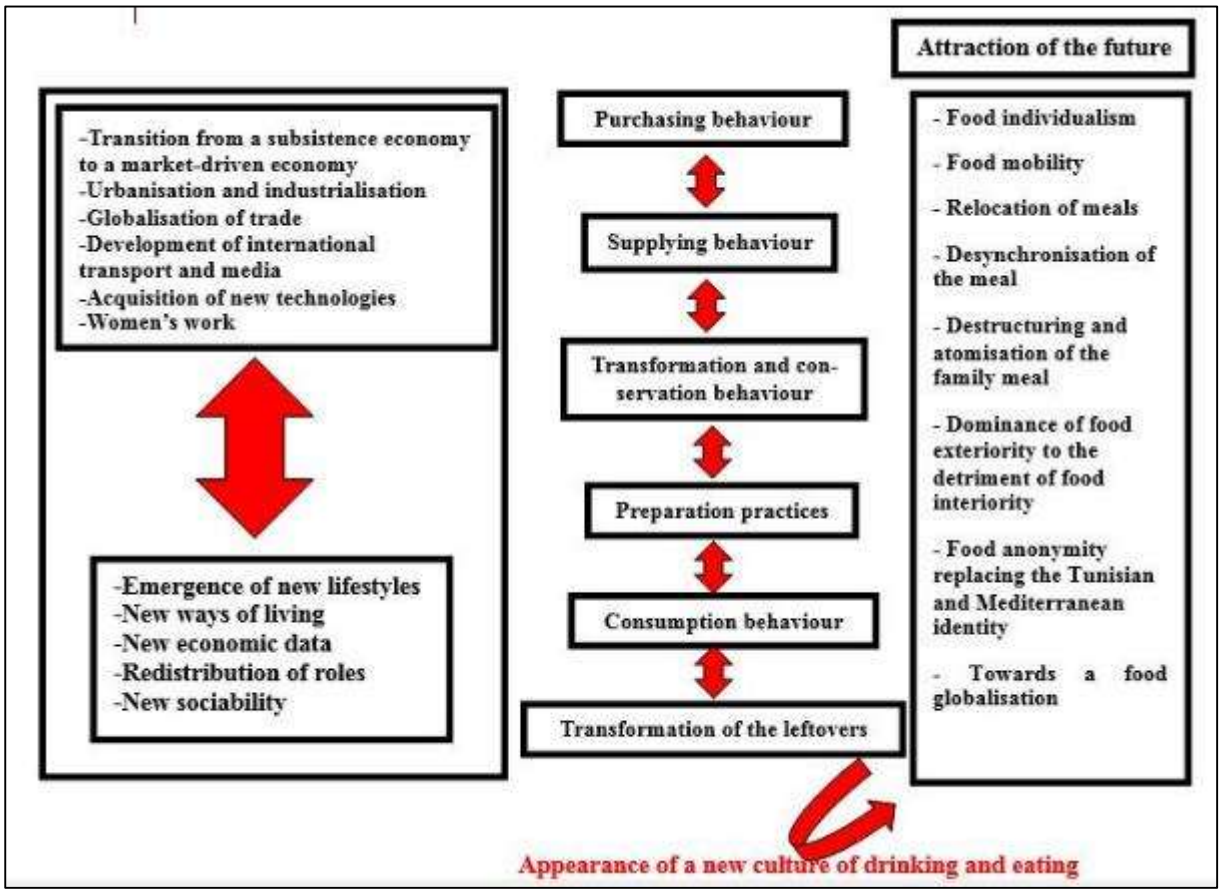


Figure 5.6: Diagram of the evolution of eating behaviour
Diagram © Sonia Mlayah Hamzaoui

References:

Ben Abdallah, Ch. (1977) *Tunis au passé simple*, Société Tunisienne de Diffusion, Tunis.

Boukrâa R. (2005) *Comprendre la globalisation*, Etudes sociologiques, Centre de Publications Universitaires, Tunis.

Fischler C. (1990) *L'Homnivore. Le gout, la cuisine et le corps*, Edition Odile Jacob, Paris.

Mlayah Hamzaoui, S. (2006) *Modernité et tradition: les pratiques culinaires des citadins de Tunis. Essai d'anthropologie culinaire*, Centre de Publications Universitaires, Tunis.

CHAPTER 6
MEDITERRANEAN FOOD: FROM THE STEREOTYPE TO DIGITAL COMMERCE

by Isabel González Turmo

Food around the Mediterranean is again a focus of much attention, but also a failed opportunity. Few scenarios have been described so often. Its products and cuisine have formed part of this scenario since the Classical Era[31].

The current popular image began two centuries ago with romantic travellers, incipient tourism and those French anthropologists who ventured deep into the Maghreb. The latest stereotype is the concept of a 'Mediterranean Diet', words that became reused for the first alimentary model protected by UNESCO in 2010 as an 'Intangible Cultural Heritage of Humanity' (see Introduction, this volume). Because of this UNESCO protection, expectations were great. Similarly protected were traditional Mexican cuisine and French gastronomy. However, I ask myself if, for the people around the Mediterranean, this protection has not once again resulted in a failed opportunity. So far, it has worked for research projects, institutions, businesses and the media and has provided funds for these activities. Well, that's something! Yet, the time has not been used effectively to defend the heritage built up over centuries with regard to agriculture, both of crops and livestock, fishing, local businesses and cuisine all around the Mediterranean region. It has not worked to help the small producers that still sustain the local food industries (Figure 6.1) and their ecosystems.

Figure 6.1:
Women preparing in-season red tomatoes ready for packaging for marketing, Calabazares, Huelva, Spain.

Photograph © Isabel González Turmo

[31] The 'Classical era' is the era of early Greek and later Roman influences.

In the South of the Mediterranean, farmers subsist only with difficulty; in the North they demonstrate angrily. Small farms are being abandoned by those living around the Mediterranean, as are their villages. There are manual workers, there are ideas, there are centuries of practical experience, but the fundamental responsibility once again falls on those same institutions that first promote and then favour those policies which neglect the producers and the diversity of food cultures. It has not even served to support a diet that contributes to public health. The flood of recommendations available in the social networks even blurs the famous food pyramid. Models of food habits no longer come from foundations or ministries; they are spread through social media marginalising the professionals. Thus, precious time has been lost.

Now is a new era. Technology has become the most powerful motor of change in the food industry. No exception can exist. Digital transformation affects all walks of life. Therefore, the main technological changes in regard to food take place from the beginning of the process. Digitalisation is now intrinsic in all agriculture, procuring new and more efficient products and improving their yield as well as the management of uncertainty; this affects logistics, optimising the precision of market demand, accelerating automatisation, speeding up the sale to homes and expanding online business, with the consequent changes to traditional systems of sale. In fact, food technologies are altering the whole sector, from production to the restauration business to home consumption.

People's cooking is perceived, planned and practised in quite a distinct manner from that of the previous generation. Digital transformation and connectivity coincide with the globalisation of the market, the individualisation of supply and the reduction in time dedicated to cooking. This journey of change affects us all. Domestic cuisine declines, while the range of options increases, including fourth and fifth range food products (that is fresh food ready to eat, such as bags of chopped vegetables and cooked, thermally sealed and deep-frozen ready-made meals). For professional cuisine this digital transformation brings changes to the work organisation, the management, the provision and even the method of cooking. Technology is today an essential requisite for the professional. Lagging behind becomes a risk and its consequences affect every type

of business. No economy is isolated. Competition crosses many frontiers and is global. Data begin to set the pattern and technology is the objective on which the sector focusses.

In the face of these trends, an unstoppable discussion of Mediterranean foodways persists like an echo, but the connection with the social agents who could make possible the validity of what was promised as the Intangible Cultural Heritage of Humanity is just too weak. While other aspects have changed, the objectives of the UNESCO declaration have not been transformed into reality. Instead, what has happened is that what is sustainable, traditional and local has already been moved from the recesses of markets and speciality shops to be set up on the shelves of hypermarkets. Traditional, local and even ecological messages of sustainability have been adopted by the large companies, from the agricultural and the artisan to the fisheries. Previously there was a distinctive differential for the small producers and the specialist firms. Today they can only follow the lead of others but they are unable to compete with the spread, conservation and prices of larger industry. These larger industries have understood how to take on the strategies that others – associations of producers, social movements, universities, etc. – helped to put into prime position: such as sustainability, transparency, microbiology, alternative proteins, cell farming, nutritional individualisation, genetic codes, artificial insemination and Big Data. Among others, following these pursuits, are IBM, Campbell, Cosco, Dupont, Coca-Cola and Google Food.

So, at the same time as larger industry finds new niches in the markets and the small producers sell little or sell their products uneconomically, home cooking is practised less. People talk a lot about cooking and watch it on TV, but they do not practise it. This loss of culinary skills at home will cause a loss of culinary cultures as they have been handed down up to now. This is also true for the culinary customs around the Mediterranean. So, if the ability to intervene in these trends in the alimentary system, from farm to fork, weakens in Mediterranean areas, as around most of the world, the fame of the Mediterranean culinary habits will also lose its potential. Nevertheless, the restaurant industry still follows the food industry and at a good pace, even though its business is based on traditional cuisine. Below I shall write of this industry, how its models and trademarks

have been constructed and what capabilities they show. Finally, I discuss how and why cooking is abandoned and, therefore, so is the process of retaining and passing on the skills that used to affect food from the land to the table (Figure 6.2).

Figure 6.2: Around the table, tastes and products are reclaimed. Oujda, Morocco.

Photograph © Isabel González Turmo

A recent study by Joel Waldfogel has brought attention back to the power of gastronomy, but it has also received criticism for its methodology. Waldfogel analysed the market research data of Euromonitor's and Tripadvisor's restaurant choices in fifty-two countries, some of them Mediterranean (Waldfogel 2019). A calculation of the difference between the consumption of a nation's cuisine, for example French cuisine, outside of that country and the consumption of other foreign cuisines within that country, always outside the home, can be considered to result in a figure for net export of cuisine for each country. Findings have been surprising, in particular those of the United States. The gastronomic business of the United States (even without taking into account fast food) exceeds by about tenfold that of the cinema and music, both considered to be symbols of their cultural hegemony. However, their net exports balance is negative, as Americans consume a great deal of cuisine from other countries.

The matter does not only lie in the fact that countries acknowledge the economic significance of gastronomic commerce. For a decade, United States, South Korea, Thailand and many other countries have also invested in culinary diplomacy. Their important ability to do this has proved highly profitable. In this case, transnational models such as the Mediterranean Diet are no longer of value. The rise of nationalist trends also affects promotion of cuisines. Waldfogel's research ranked countries according to the extent of the positive or negative balance of exports of their cuisine against imports. In this ranking, the leader is, not surprisingly, Italy. No other country

has been able to sell its image, create global franchises and distribution networks as well as Italy has. Furthermore, Italians are proud of their national cuisine; they want to eat pasta, not spring rolls or couscous! It does not matter that the model does not represent the rich variety of their cuisines. The model sells, and that's enough. Local diversity and foreign homogeneity are not incompatible.

According to Waldfogel's calculations, the next country with a positive balance is Japan, although the figure for Italy is double that of Japan. France and Mexico follow far behind. An interesting case is that of Turkey, which has a surplus only because of its low level of imports. Turks generally prefer to eat Turkish food. Spain, which surpasses Turkey in regard to exports, lies, however, near the bottom of the list due to its high level of imports. Yet, where could Spaniards eat 'Spanish food' in Spain? Does anyone even dare to sell it? Would it be politically correct? In Spain, cuisines are promoted by autonomous communities, provinces and even tiny towns. In Spain, who talks of 'Spanish cuisine', a phrase that would cause quite a stir because one talks about the cuisine of Andalusia, of the Basque Country, of Catalonia or of Murcia. Below I try to explain why.

Cuisines are cultural constructions in which political engineering frequently takes part. For example, I will try to explain how I think Spanish cuisines have been built up and why Spanish cuisine no longer exists today. For some years I researched the content of forty-three cookery books containing 4,586 domestic, handwritten recipes of Andalusia, which dated from the mid-eighteenth to the mid-twentieth centuries (González Turmo 2014) (Figure 6.3).

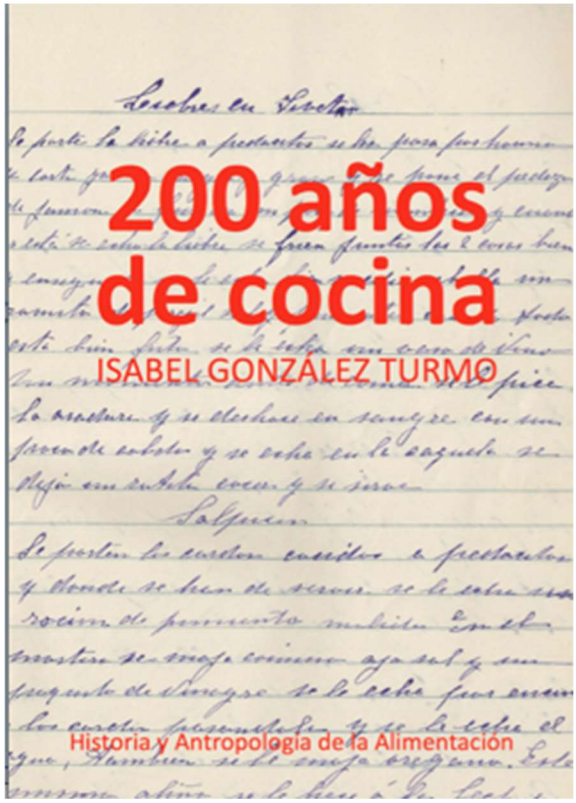


Figure 6.3: *200 Años de Cocina* (200 years of cooking studied through recipes) (González Turmo 2014).

Photograph © Isabel González Turmo

Later, I compared the ingredients, condiments and techniques of these recipes with those from other cookery books published in other areas of Spain during the same period, specifically in Catalonia, Navarre, the Basque Country, Asturias, Extremadura and Madrid. What I found was that they all shared a great majority of recipes until well into the twentieth century. So, Catalans, Basques, Extremadurans and Andalusians, etc. were all interested in the same recipes. They were part of the *Cocina Española Antigua*[32] (Pardo Bazán 1913; Martínez Motiño 1982). Even at the end of the nineteenth century, they had casseroles, stews, sauces, salads, dressings, marinades and sweets in common. All of them had even integrated some English and French recipes such as beef steaks, puddings, vegetable stews and croquettes. Clearly, exactly the same dishes were not eaten everywhere, but the differences lay in foraged foods, river fish, certain vegetables and, in part, the fats or oils used. It was basically food for the poor. It is true that Basque cookery books had more apple purées, nettles and eels. Catalan cookery books had more *escudella*[33], semolina and goose. But even the singularity attributed to *La Cuynera catalana*, Reinaxenca's cookery book, (Luján 1988) was a standard in Andalusian cookery books of the time. Moreover, it is surprising that the second most written down cold meat in Andalusian cookery books was *botifarra*[34] and that *gazpacho*[35] appeared in Catalan cookery books earlier than in Andalusian.

During the first decades of the twentieth century, Spanish cooks, collaborators of *El Gorro Blanco* magazine, led by I. Doménech, attributed place names to recipes: *Capón de España, sopa de pan a la riojana* (Doménech 1906-13). The French had done this already in order to increase and diversify the range of options on the menus in their restaurants (Neirinck and Poulain 2001). Nevertheless, by looking into those recipes, a marketing strategy is revealed. A place name could designate very different recipes and it was enough to change a single ingredient in order to rename it. *Rosquillas*[36] were from

[32] Old Spanish Cooking
[33] A traditional Catalan casserole that included meat and/or sausages and vegetables
[34] A common Spanish sausage which is now considered Catalan.
[35] A soup of tomatoes, cucumbers, peppers and bread, served cold, which is now considered Andalusian.
[36] Ring-shaped pastry made of flour, eggs and sugar with a hole in its center, much like doughnuts.

Madrid if they were made with liquor from Chinchón (Madrid) (Figure 6.4), and any dish was from Seville if it contained olives.

Figure 6.4: ***Rosquillas.***

Photograph © Isabel González Turmo

In conclusion, they introduced local or regional names, but the content of each recipe did not change substantially with the name change.

They did not attempt to classify what was eaten, but to sell it. In 1953, the *Cocina Regional Española* of the *Sección Femenina*[37] (Delegación Nacional de la Sección Femenina del Moviemiento 1976), which taught women under Franco regime's community service to cook, was published. The *Sección Femenina* was the body that Franco made responsible for women's enculturation during forty years of his dictatorship. Oddly enough, in that way it fostered habits that were contrary to his slogan of '*España ¡Una, grande y libre*!'[38]. Considering cuisine as a second-order cultural manifestation has long term consequences. The education of several generations of women and professionals from the hostelry business towards regional fragmentation of cuisines resulted in establishing a centripetal pattern that differentiates Spanish cuisines from those of many other countries.

Countries such as Italy, France, Greece, Lebanon, Turkey, Egypt or Morocco are able to sell a national brand while maintaining diversity within their countries. This is not possible in Spain. When Franco's dictatorship ended, along with democracy came the tendency for official institutionalisation to be associated with the *Estado de las Autonomías*[39]. From 1979 on, each autonomous community began to

[37] Female Division's Regional Spanish Cooking Guide.
[38] Spain - One, Great and Free, expressing the fascist nationalist concept of Spain.
[39] The Spanish State is divided into 17 autonomous communities and 2 autonomous cities, Ceuta and Melilla (the last both in North Africa). Autonomous Communities are political-administrative entities that were created after the current constitution came into effect (in 1978), aiming at ensuring autonomy of the different historical nationalities and territories of Spain.

redefine their cuisines depending on the political and ideological distribution of their parliaments, as well as the budget allocation among different administration levels. Catalonia and the Basque Country have promoted their cuisines as entities independent of the rest of Spain, relating them to the Mediterranean and the Atlantic respectively. They have enhanced a set of recipes that, by dint of repetition, seem to be exclusive to those regions, although they are actually cooked throughout the country. In Andalusia, the largest autonomous community in which eight provinces competed for capital status, promotion relied on local councils, resulting in fragmentation of the cuisines into eight provincial and many local cuisines. On the other hand, Madrid, as the capital of Spain, attempted to bring together centrality with generic recipes and standards that represented different regions.

Cuisines, I insist, are cultural constructions and may reflect administrative and political intervention. Italians, Japanese and Moroccans have been willing and able to assume a national model that represents them and sells worldwide. If a restaurant's menu offers couscous (Figure 6.5), tagine, pastilla and plum lamb, it is obviously from Morocco. It does not matter that plum lamb is recent in the cuisine of Morocco.

Figure 6.5:
Couscous, Morocco

Photograph © Isabel González Turmo

What matters is that it represents Morocco worldwide. It is enough for them to praise it proudly and assimilate it into their domestic cooking. A woman from Chaouen explained it clearly: 'When I had my eldest son circumcised, it was the first time I cooked dried plum with meat … over thirty years ago. My husband bought them in Ceuta (part of Spain in North Africa). Back then, plums were still a valuable fruit.'

It happens that, while the cuisines of other countries are reacting against the homogeneity that globalisation brings by looking at their roots for what is regional and local, the cuisines from Morocco aim to resemble a national model. The cuisines from its different regions already shared culinary typologies. Such is the case for cereals seasoned with fats, herbs, spices and nuts, either sweet or salty and whether shaped in a mould, kneaded, steamed, baked, fried or sprinkled with water, or meat or fish that has been minced, shaped and fried, stewed or boiled, like meatballs and *kefta*; or spiced offal that has been, roasted, boiled or baked like *Bækbuka, taqliya, læ'lawa* or *lkurdas*; and, of course, there is the confectionary, such as the sweets and pastries cooked in the frying pan (Figure 6.6).

Figure 6.6:
Fried sweet cakes and breads, Chefchaouen, Morocco

Photograph © Isabel González Turmo

However, these cuisines can be distinguished from each other through their use of seasoning and in the way the cereal or meat is treated. Some would prefer purees, others grains, some would prefer the smooth and others the crunchy. Such preferences established unique dishes, characteristic of each region and city. These differences still remain, but there is also a general will towards bringing each cuisine closer to those of the rest of the country: those of Casablanca have *ttanyiya* (Figure 6.7) of Marrakesh; those of Tiznit have the stews from Beni Mellal, whereas those of inland areas include roasted fish from the coast.

Figure 6.7:
Baking *ttanyiya*, Marrakesh

Photograph © Isabel González Turmo

This desire to get to know each other and to appear similar, to assimilate their cuisines, generates a centripetal process, contrary to the current fragmentations of national cuisines across Europe (González Turmo *et al.* 2007).

Spaniards, for their part, are neither willing nor able to have a common model any more. It does not matter that their chefs have gained international recognition. Regardless of how much gastronomy is exported, Spaniards do not talk of Spanish cuisine and the internal options vanish into a multiplicity of alternatives. In fact, the success of signature cuisine in Spain can now be a way to avoid talking about Spanish cuisine, as well as cuisines of its territories in view of the climate of distrust that has arisen in different regions as a result of the rise of nationalism. Neither does it matter that in 2019 Spain was considered the healthiest country in the world, and that nutrition plays a part in that recognition (Miller and Lii 2019).

However, at the same time that institutional promotion of cuisines relies on national or nationalist frameworks, technology breaks down the barriers. Large corporations develop strong strategies and conform to global trends. Conventions of food-related technology set these trends annually. It does not matter that they take place in Barcelona (Spain), San Francisco (USA) or London (UK). Priority action areas are common: alternative proteins, functional food, affordable food in terms of taste and price, communication and traceability, smart tags, predictive models, new business opportunities etc. Even messages that were 'alternative' or 'local' not so long ago have been taken over by industry (González Turmo 2019).

Technology and market networks, however, do not spread in a simultaneous or a homogeneous way. In the Mediterranean, the North and the South have unequal access, though confluent trends. In Spain, the first hypermarket opened in 1973. In Morocco it was in 1990. The gap is clear, but so also is the tendency to converge. This tendency spreads across the south of the Mediterranean. Industry and distribution are unbeatable. Food is a market that offers as many consumers as the planet has inhabitants and a regularity of one to five times a day. There is a lot at stake. Hypermarkets try to adapt their supply to consumers' habits. In Morocco, for example, they offer olives, spices, cereals, packed and bulk legumes, just as in the

marketplace, or local confectionary and all types of ingredients to be cooked at home. They also offer the chance to incorporate novelty: dairy products, fats, cold cuts, processed baked goods, canned food and sauces! (soy, tabasco, pepper, ketchup, pesto, mustard, mayonnaise, harissa, etc.). These frozen products are the ones that raise the price of the shopping basket. In fact, the largest issue that consumers see in these stores is that they have to pay VAT and end up spending more than they initially intended. Shopping becomes expensive.

In short, markets from Morocco and the South of the Mediterranean are involved in an intense process of change. Many of them depend on the survival of their old marketing systems (Figure 6.8)

Figure 6.8: A Sunday souk, Arauit, Morocco

Photograph © Isabel González Turmo

and the traditional market ranges (Figure 6.9). For others centralisation and homogenisation influence their business. Consumers accept updating and take advantage of opportunities but still value qualities of their traditional markets and identify them with their own lifestyles.

Figure 6.9:
Traditional market ranges at a Sunday souk, Arauit, Marocco.

Photograph © Isabel González Turmo

Consumers accept updating and take advantage of opportunities but still value qualities of their traditional markets and identify them with their own lifestyles. Bazaars and medinas are a cultural feature and tourist attraction, but consumption has risen in department stores (Figure 6.10).

Figure 6.10:
Display of products in a supermarket, Oujda, Marocco

Photograph © Isabel González Turmo

The appearance, diversification and specialisation, regulations and organisation, and even selling systems of market networks change. In this process, apart from direct exchanges with a producer, many local varieties and a very common way of socialising found in the whole Mediterranean region is lost.

There is, however, another turn around now. In the same way that department stores had spread, e-commerce is now spreading. Introduction of the Internet into Africa is also relevant, because the Mediterranean fringe of that continent today has access to internet technology (Ritchie and Roser 2017).

Yet, despite the tendency towards food standardisation, the sector is dynamic, plural and most of all, very large. Consumer habits are complex and free flowing. There are no unidirectional ways nor entirely predictable behaviours. There are many distribution circuits and central and peripheral speeches. There is no doubt that food related technology and large corporations have strong resources: they lead research, interact with entrepreneurs, control most of the global and local markets, reduce the costs of selling systems, use market discourses that were previously alternative, design taste-modifying strategies and offer ingredients that are considered the latest fashion. In regard to household consumption, they offer price, immediacy, accessibility, variety and versatility.

It is worth taking a look into what happens within domestic cuisines, because it is there where the consumption cycle starts over. For decades, Anthropology and ICAF[40] have demonstrated this. Domestic cuisine aims nowadays to resemble the distribution and appearance of cuisines shown in the media and social networks. In the Mediterranean, as is common in the rest of the world, there is a change in tools, shopping, products, family size, what is cooked and for whom, either daily or when someone is invited. For domestic cuisines (Figure 6.11), these changes entail culinary results that are very different from those of the previous generation: textures, flavour concentrations, preservation of juices, finalising fried and boiled foods all change, as does confectionary. Also, the mix of ingredients, techniques, superposition and selection of recipes have been changed.

Figure 6.11:
Preparing the dough for *rosquillas*, Alcalá la Real, Jaen, Spain.

Photograph © Isabel González Turmo

That hypothetical Mediterranean cuisine, supposedly supporting the model of that conceptual 'Mediterranean Diet', is not a single picture today, if it ever was.

Now, however, there is something else: cooking, proper cooking, is becoming unnecessary because it is no longer popular. Hypermarkets introduce fourth and fifth range food products.[41] Cooking starts to be unnecessary; culinary techniques are reduced. There is no need to peel, chop, grind, knead, stir, marinade, etc., not to mention even motorised delivery, using drones and robots which have caused so much legal and media controversy. Let's not forget the ultramodern version of delivery: Walmart has registered a patent

[40] International Commission on the Anthropology of Food.
[41] Fourth and Fifth range food products, as explained above, are the ready to eat fresh foods, such as chopped vegetables; and the ready-cooked, thermally sealed and deep-frozen products, respectively)

for a large vehicle, air-conditioned and with a display case, that brings the grocery store door-to-door, without human intervention. In contrast, traditional marketing systems such as the neighbourhood grocery stores need to change in some way in order to remain competitive. On their side, there is still the fact that at least in the Mediterranean, to a large extent, the consumer demands to see the fresh product physically. If they do not want these to disappear, they want to take care of quality, selection and appearance, since fresh products have a direct impact on the sales of the rest of the establishment. This demands efficient management, strict inspections and short deadlines on the suppliers' side. If it is a local product, client satisfaction is higher, especially among high-income households. If the product offers non-local ethnic speciality, it is relevant to the immigrant population and to those willing to try new things. In another sector are shops with extended working hours and low prices. Anyway, consumers and the hospitality industry have enlarged their range of choices and made them easier. One can order online and in 24 hours receive high quality, organic, traditional, transformed or fifth range products, since home delivery businesses are growing at a rate that some argue will replace domestic production: so, what is the point of cooking, if, without wasting time, it can be bought for a similar price, better prepared and with the appearance we can see on social media?

The battle of e-commerce and new sales systems foster new strategies in hospitality and domestic cuisine. But there is something else: the profile, the public image. Technology and digitalisation are essential, but that is not what is shown. The image built for the product, for what is local and traditional, has an impact on professional cuisine. Clients and society, which are big fans of the figure that the chef represents, are interested most of all in the profile that each cook is able to build around themselves, their family, their habitat, and their creations.

Some people are ready to travel many miles and pay whatever is needed in order to experience what they have heard and seen, then show it on social media or tell their friends. They do not only pay for a good-tasting menu, they are also paying for the image. When they sit at the table of a chosen restaurant and are guided to the desired experience by

a professional, they feel closer to the chef's projected profile, and also part of the privileged group that shared the experience on Facebook or Instagram. When the clients arrive, they already know at which age the chef began to cook, from whom he learned his craft, why he chose that particular place, how he seeks the best product and which technology has been chosen, for that moment, for the experience they are about to live. The clients seek this image, this profile of the chef, not just the number of Michelin stars; they have seen it on social media or in documentaries and they want to experience this image, whether or not they can afford it. That's why the image and chef's profile is so important. Thanks to that human connection, the clients can then build part of their own identity, at the same time reinforcing it back on social media. Travelling, gastronomic experiences, lives of others, consuming, are, after all, a way of being and behaving in the world. The story is the mirror in which food lovers see themselves reflected, regardless of whether they cook or not. Because the image they admire is not easy to replicate. It is made to look like anyone can cook what is seen on TV. As a matter of fact, even if they succeed, they still need an audience in order for their performance to make sense.

Households of the north of the Mediterranean, where birth rates are low, gradually find it more difficult to have someone to cook for. So, this is achieved on specific occasions, when a group of friends or family are gathered (Figure 6.12). In fact, many food lovers meet with friends or colleagues, exchanging the role of cook with that of observer or dinner guest.

Figure 6.12:
a dinner between friends to taste local products from Cazalla de la Sierra, held in Seville, Spain

Photograph © Isabel González Turmo

If there is going to be an audience, the occasional cook displaces the mother from the set table. The latter used to cook, and still does in

most parts of the world, trying to keep a difficult balance between money, market, her own fondness for cooking and family tastes. Her role is to nourish, bring up, give pleasure and establish connections, but she is not praised daily for this. Those at home are no audience. Daily cooking comes from a generous attitude that expects barely any reciprocity. The other attitude, the one that requires an audience, is occasional and expects reciprocity. It leans towards the type of cuisine admired in the media, which allows them to make an impression on friends. But it turns out that this model is the result of professional excellence and cannot be improvised. This way a mismatch is created between the desired way of cooking and the one that is actually carried out at home these days. This is one of the reasons why people are cooking less.

So, at the same time as people cook less at home, nations have invested in gastronomic diplomacy, and gastronomic commerce mobilises the political and professional classes. Industries stimulate culinary innovation; they work with the previously small markets and construct the fiction which consumers expect. That fiction begins to be more powerful and more frequent than the actual practice of cooking. It is personal, ecological and technological. However, this fictional culinary diversity cannot be a substitute for the real practice as a generator of diversity. The cultural wealth of the people around the Mediterranean as regards their food has resulted from a continuum that comes from the fields and the sea, which had extended the length and breadth of the diversity of their markets and shaped their cuisine. Finally, around its tables and along its streets and squares, taste and sociability are returning to reclaim the product, and so the process begins again. Life once again revolves in a cycle as rich as it is unfathomable. Now that cooking has ceased to be a common practice, biological and cultural variety decreases. The Mediterranean area cannot escape this sign of the times.

Therefore, where the food industry now tends to lead, the sector and restaurant businesses will follow, and the Mediterranean populations suffer the decline of their productive activities and of their markets. Arguments which supported the declaration of the Mediterranean Diet as an ‘Intangible Cultural Heritage of Humanity’ have not been strong enough to convert it into policies and actions that

would realistically strengthen the food cultures around the Mediterranean. Now it is a new era. The digital revolution affects the whole sector, and its products as much as its cuisine sell under national trade marks, not supranational as though united as 'Mediterranean'. Some trademarks triumph, for example always those of Italy. However, this is not the case for Spain despite its *haute cuisine*, nor is it true of some supposed 'Mediterranean cuisine'. In reality, the anglophones are the last consumers of this title to which they gave the name the 'Mediterranean Diet'. In UK and USA, restaurant menus refer to certain dishes as Mediterranean, even though their ingredients have frequently been resourced locally and Mediterranean populations gain nothing from this.

I finish this chapter during the 'lockdown' due to Covid-19 in the spring of 2020. Tourism, that has been one of the last showcases of the fame of Mediterranean food, is reduced to its limit. Tourism is the most important industry in Spain. Now, great numbers of planes are parked abandoned at airports. Hotels are shutting or have given over their rooms to sick people. Restaurants, bars and small businesses have closed their shutters and do not know if they will have enough financial support to open them again. It will be expensive to start again, just as it is expensive for the South of the Mediterranean to regain its tourism after several terrorist attacks and the 'Arab Spring'. By the time that the tourists return to the beaches and to the beautiful cities of Italy and Spain, the model will be different and the trade mark of the 'Mediterranean Diet' will have become a bit more blurred.

References

Delegación Nacional de la Sección Femenina del Movimiento (1976) *Cocina Regional Española (recetario)*, Editorial Almena, Madrid.

Doménech, I. (1906-1913) Revista *El Gorro blanco*, Madrid.

González Turmo, I. (2014) *200 años de cocina*, Cultivalibros, Madrid.

González Turmo, I. (2019) Cooking was a practice: reflections on cuisine in the digital age 2019, *El Cuaderno*> Available at: https://elcuadernodigital.com/2019/05/27/cooking-was-a-practice-reflections-on-cuisine-in-the-digital-age/ . Accessed on 15 January 2021.

González Turmo, I., El Ouardani, F. and El Aallali, A. (2007) *Rojo y verde*, Trea, Gijón.

Luján, N. (1988) *Historia de la Gastronomía*, Plaza y Janes, Barcelona.

Martínez Montiño, F. (1982) *Arte de cocina, pastelería, vizcochería, y conservería*, Tusquets, Barcelona.

Miller, L.J., and Lii, W. (2019) These are the World's Healthiest Nations, Economics, Bloomberg. Available at https://www.bloomberg.com/news/articles/2019-02-24/spain-tops-italy-as-world-s-healthiest-nation-while-u-s-slips. Accessed on 15 January 2021.

Neirinck, E. and Poulain, J-P. (2001) *Historia de la cocina y de los cocineros*, Zendrera Zariquiey, Barcelona.

Pardo Bazán, E. (1913) *La cocina española antigua*, Biblioteca de la Mujer, Madrid.

Ritchie, H., and Roser, M. (2017) Technology Adoption, *Published online at OurWorldInData.org*. Available at: 'https://ourworldindata.org/technology-adoption' . Accessed on 13 January 2021.

Waldfogel, J. (2019) Dining Out as Cultural Trade *NBER Working Papers 26020*, National Bureau of Economic Research, Washington, DC.

CHAPTER 7
THE IMPORTANCE OF FOOD AND AGRICULTURAL HERITAGE SYSTEMS IN ACHIEVING SUSTAINABLE DEVELOPMENT GOALS

by Parviz Koohafkan

Introduction:

The international community through the General Assembly of the United Nations endorsed the Sustainable Development Goals (SDGs, 2015-2030) and the International Decade of Family Farming (2019-2030) and established the Paris Climate Agreement (was started in 2020), with the ambitious vision and commitments necessary to secure the future of the world's sustainable development and food security in the face of climate change and environmental crisis.

The agricultural sector is key to achieving the SDGs, given the sector's importance in ensuring security of food and nutrition, alleviation of poverty, climate change mitigation and adaptation and conservation of natural resources, especially agrobiodiversity. The solutions for achieving these goals are to be found in a combination of agricultural development strategies, tailored around specific agroecological contexts and practices. While modern agriculture with its balanced use of inputs and careful intensification of production is obviously a part of the solution, it cannot be the unique answer to emerging multiple problems, particularly in developing countries where agricultural areas are characterised mostly by smallholders, family farmers and indigenous communities. Small-scale, family farming and more traditional forms of agriculture and food systems have important potential for ensuring food and livelihood security now and in the future, as these small-scale farms offer an array of environmental, economic, social and cultural services and remain a source of employment, diversified and nutritious food, cultural values and quality of life.

Therefore, the basis for the development of sustainable systems of agriculture and food should be the very systems that traditional family farmers have developed and/or inherited throughout centuries. Such complex farming systems, adapted to the local conditions and

tailored to long-term environmental impacts, have helped small farmers to manage harsh environments sustainably and to meet their basic food security and subsistence needs, without depending on external inputs and technologies of modern agriculture (Denevan 1995).

Although many of these systems have collapsed or disappeared in many parts of the world, the stubborn persistence of millions of hectares of agricultural land under traditional management in the form of raised fields, terraces, polycultures (with a number of crops growing in the same field), agroforestry systems, etc., demonstrate successful local and indigenous agricultural strategies and constitute tributes to the 'creativity' of traditional farmers.

Family farming and traditional agricultural systems continue to be fundamental to the future of human civilisation and as a source of rural livelihood, local and diversified food systems, employment, conservation and sustainable utilisation of agrobiodiversity and viable ecosystem goods and services. While not always recognised by the scientific community, these systems, which also bear ancestral knowledge, remain the basis for current and future agricultural innovations and technologies.

Sustainable Development Goals, agriculture and food systems:

The models of agriculture that humanity will need to include in SDGs are forms of farming that are more productive, ecological, biodiverse, local, sustainable and socially just. This means that they should be rooted in the socioeconomic and ecological rationale of small-scale agriculture, representing long established examples of successful community-based local production systems. Such systems have fed much of the world for centuries and continue to feed the majority of people in many parts of the planet

The future sustainability of agriculture depends also on the young generations who want to remain on the land and develop innovative farming and sustainable livelihood systems responding to their socioeconomic and cultural aspirations. Since the early 1980s, hundreds of agroecologically based projects have been promoted by visionary scientific communities, NGOs and farmers' organisations throughout the world and have shown that by blending elements of both traditional knowledge and modern agricultural science the productivity

and sustainability of small farming systems can be optimised and thereby enhance the conservation of natural resources and community food security and sovereignty. The emerging objectives of food sovereignty emphasise farmers' access to land, seeds and water while focusing on local autonomy, local markets, local production-consumption systems, energy and technological sovereignty, as well as farmer-to-farmer networks that also constitute the pillars of SDGs (Figures 7.1-7.4).

Figure 7.1: examples of the agricultural landscape of family farms and smallholders

Source:
FAO and IFAD. United Nations Decade of Family Farming 2019-2028. Global Action Plan, 2019 Rome, Italy;
Powerpoint slide © Parviz Koohafkan

Figure 7.2: Peru Cusco Family farming (crops of potato, maize, etc.)

Photograph © Parviz Koohafkan

Figure 7.3: Philippines Ifugao family farming (Rice, Banana, etc.)

Photograph © Parviz Koohafkan

Figure 7.4: Rwanda (traditional agroforestry)
Photograph © Parviz Koohafkan

Despite the expansion of modern agriculture, millions of hectares of land still persist under family farming and traditional agricultural management. These microcosms of agricultural heritage systems are living examples of successful local farming and indigenous agricultural strategies and merit tributes to the 'creativity' of traditional farming communities and indigenous peoples. Historical evidence shows also that smallholders and family farmers, adequately supported by policy and public investments, have the capacity to contribute effectively to poverty alleviation and economic growth, in addition to food and nutrition security, food sovereignty, and through the generation of employment the emancipation of neglected and marginalised groups, and the reduction of socio-economic inequalities (Altieri et al. 2012).

Food Security, Smallholders and Traditional Agriculture:

The contribution that family farmers and smallholder agriculture make to world food security and nutrition is both direct, in as far as it links production and consumption for many rural households, and indirect (a) because it is provisioning domestic markets with the main food products, (b) because it does so in a potentially resilient way, and (c) because, in many countries, smallholder agriculture functions as an important social safety net (Burlingame and Dernini 2012).

The recognition of the value of nutritional and dietary diversity of traditional agriculture is also becoming an important entry point for

exploring more sustainable food systems. The causes and consequences of the impoverishment in food diversity and simplification of diets span cultures, health, agriculture, markets and environment and are complex to address. However, it seems likely that agricultural biodiversity can play an important role in moderating nutritional problems (Johns et al. 2006). The combination of various crops and animals in traditional agro-ecosystems allows not only the more-efficient utilisation of diversities of ecological niches; it also increases locally available nutritious food for sustainable human diets and improves household income, allowing the purchase of alternative food items on the market. These farmers continue to supply most basic food commodities at local and national levels and in spite of the massive modernisation of agriculture, more than seventy percent of available food on the planet is provided by smallholders and family farmers[42]. Their small-scale farms offer also an array of environmental, economic, social and cultural services, and remain a source of employment, cultural value and quality of life.

Indigenous plant species and varieties harboured in traditional agriculture and family farms are important for a healthy diet besides having an important role in ecologically-based resilient production systems. In many crops, the difference between one variety and another can make the difference between micronutrient deficiency and micronutrient adequacy. Projects implementing an integrated approach to sustainable agriculture and improved nutrition have successfully built upon locally available biodiversity to revitalise local or regional food products and systems and have had a positive impact on communities' livelihoods and health.

Agricultural Heritage Systems:

The author of this chapter was the Food and Agriculture Organization focal point for SDGs from 1992 to 2012 and responsible for the preparation of several chapters of Agenda 21 related to Land and Agriculture, as well as the Task manager of Chapters 10, 11 and 14 of Agenda 21 in supporting the Food and Agriculture Organization's contribution to Rio Process. He developed the concept of Agricultural

[42] Coping with the food and agriculture challenge: smallholders' agenda preparations and outcomes of the 2012 United Nations Conference on Sustainable Development (Rio+20) by Karla D. Maass Wolfenson.

Heritage Systems and presented the UN Partnership Initiative on Globally Important Agricultural Heritage Systems (GIAHS)[43] to the World Summit on Sustainable Development in 2002, on behalf of the Food and Agriculture Organization (WSSD, 2002 Johannesburg, South Africa). After a successful field implementation of the GIAHS Action plans in 8 pilot countries[44], the GIAHS Partnership Initiative was then adopted by the Food and Agriculture Organization Governing Bodies as a GIAHS program in 2014. There are presently 62 GIAHS in 22 countries[45]. Of these, 14 are in countries considered Mediterranean: 4 in Spain, 3 in Tunisia, 2 in Morocco, 2 in Italy, 1 in Algeria, 1 in Egypt and 1 in Portugal (Food and Agriculture Organization 2021).

The GIAHS are 'remarkable land use systems and landscapes which are rich in globally significant biological diversity evolving from the co-adaptation of a community with its environment and its needs and aspirations for sustainable development' (Koohafkan and De la Cruz 2011; Food and Agriculture Organization 2012). As I have pointed out in previous posts (Koohafkan 2006; Koohafkan and Boerma 2006; Koohafkan and Altieri 2017), the rationale behind this initiative is that farmers, fisherfolk, herders, forest and other indigenous people have created and progressively developed complex, diverse and locally adapted agricultural systems over millennia. These systems have been managed with time-tested, ingenious combinations of techniques and practices typically leading to community food security and sovereignty, sustained resources and incomes and conservation of natural resources including biodiversity and associated traditional knowledge.

The overall goal of the GIAHS Partnership is to identify and safeguard these unique and outstanding agricultural heritage systems around the world that provide local food and livelihood security, agricultural biodiversity of global significance and traditional knowledge systems. These are essential elements for building sustainable and resilient systems, leveraging significant cultural practices, customary rules and landscape diversities. A principal objective of GIAHS is to enhance global, national and local benefits

[43] https://sustainabledevelopment.un.org/partnership/?p=2309

[44] The GIAHS Partnership Initiative was initially implemented in China, the Philippines, Tunisia, Algeria, Kenya, Tanzania, Peru and Chile. Additional countries such as Japan, Korea, Indonesia, Iran, India and Morocco joined the programme from 2002 to 2012.

[45] http://www.fao.org/giahs/giahsaroundtheworld/en/

derived through dynamic conservation, sustainable management and enhanced viability of its areas. The initiative has piloted adaptive management approaches in several countries with positive experiences and lessons learnt, worthy of recognition and emulation at scale around the world.

Most notably, GIAHS sites (Figure 7.5) are known for:

- Being resilient, built up and maintained through local knowledge, individual and community investment and commitment. These family farm-scale, agropastoral, forest and fisheries systems have survived the test of time and continue to be the basis of livelihood of the majority of the farmers around the world. Their associated, high-value ecosystems services are sustainable and underutilised.

- Being made up of communities that conserve traditional knowledge and socio-economic heritage, including local food systems and sustainable diets, yet remain adaptable and responsive to external influences. The heritage has an intrinsic economic value that can contribute to sustained viability of rural incomes and local environment.

- Being strategic areas of biodiversity conservation: in its designated sites, across countries, they have contributed to a significant increase in the world's area devoted to biodiversity conservation, given their unique combination of cultivated varieties, local breeds, plant and animal species which support diverse, healthy and multifunctional agroecosystems and landscapes.

- Being areas of economic growth: GIAHS sites have transformed and sustained local economies - for example, through product labelling, ecosystems and cultural values conservation, provisioning of environmental services and as attractions for tourists, visitors and leisure. Through the GIAHS approach, 'conservation' of agrobiodiversity and productive landscapes has gained greater appreciation at national and global levels. This has ultimately benefited local communities, the environment and the relevant nation as a whole.

Figure 7.5. Examples of Globally Important Agricultural Heritage Systems around the world

Photographs © Parviz Koohafkan

Another significant fact about GIAHS' dynamic conservation action plan is their responsiveness and recognition of role differentiation according to gender, age and other criteria. These roles, in traditional agricultural settings, are not fixed and evolve over time due to many cultural considerations and factors. GIAHS allow such an evolution to take place in respect of vulnerable groups and their continued participation in economic activities. For instance, resilience interventions to face climate change are creating opportunities for gender-sensitive, economic diversification of agricultural tasks. Interestingly, the greater demand of resilient and nutritious crops in GIAHS is also creating more jobs and helps reduce outmigration from rural areas, especially among the youth.

While the socio-economic, environmental and cultural values of agricultural biodiversity are becoming progressively recognised, the economic cost of having or losing these goods and services has not been properly quantified yet. This fact represents a significant challenge when advocating conservation and sustainable use of Plant Genetic Resources for Food and Agriculture (PGRFA). Incentives to custodian farmers who play a significant role in on-farm conservation of crop genetic resources have to be presented and discussed. Besides this, also finding ways and means to have a long-term strategic development plan for conservation and sustainable use of PGRFA is essential.

Owing to poor compliance with international product quality standards along the supply chain, the majority of the small-scale farmers and indigenous communities, despite the richness of their biodiverse food systems, are not able to market their own agricultural products. The reasons are due to the poor infrastructure quality, lack of proper processing, packaging, labelling and other marketing requirements. Capacities in the value chain development and management for effective marketing of indigenous food crops are mostly unknown among local community members. This represents a major obstacle in leveraging the potentials of local crops, appreciated for their resilience and good nutritional profiles. Interventions to address this bottleneck will have an important beneficial impact in terms of reduction of malnutrition, obesity and chronic diseases. Skills and competencies of value chain actors involved in the use of local crops need to be strengthened along with interventions to safeguard

their genetic diversity on-farm. Building value addition of local products in combination with the promotion of associated food culture would be a great opportunity for rural dwellers, especially for younger ones who can be trained for building skills and becoming competitive small-scale entrepreneurs. This important work for the future of sustainable agriculture, can be mobilised through GIAHS sites, as benchmark systems where best practices can be harnessed, promoted and further disseminated for scaling up benefits worldwide.

With the prevailing climate change, which increases the frequency and intensity of heat waves, floods or droughts, and typhoons or storms on a recurrent basis, smallholders, family farmers and indigenous communities are among the most vulnerable ones. Rescuing traditional farming systems combined with climate-smart agriculture and the use of agroecologically based management strategies represent the viable and robust path to increasing the productivity and sustainability of peasant-based agricultural production systems.

The overall goal of the GIAHS is to identify and safeguard the very unique agricultural heritage systems and their associated landscapes, agricultural biodiversity and knowledge systems through their national and global recognition by governments, Food and Agriculture Organization (FAO), UNESCO, World Heritage Centre and other partners. The concept is rooted in and supports many international Conventions such as Articles 8J and 10C of the Convention on Biological Diversity (CBD), International year and Decade of Family Farming (UNDFF), Article 9 of the International Treaty on Plant Genetic Resources for Food and Agricultures (ITPGRFA), etc.

In order for time-tested Agricultural Heritage Systems to become part of the SDGs' solutions, the complexity and interaction between agriculture, food systems and human and environmental health must be understood and recognised. Whereas the link between food security and human health is obvious, the diagram (Figure 7.6) shows not only the interactions with biodiversity and the health of the environment, but also with human employment and economics, which in turn relate to human health and food security, and to effects on the physical environment and biodiversity.

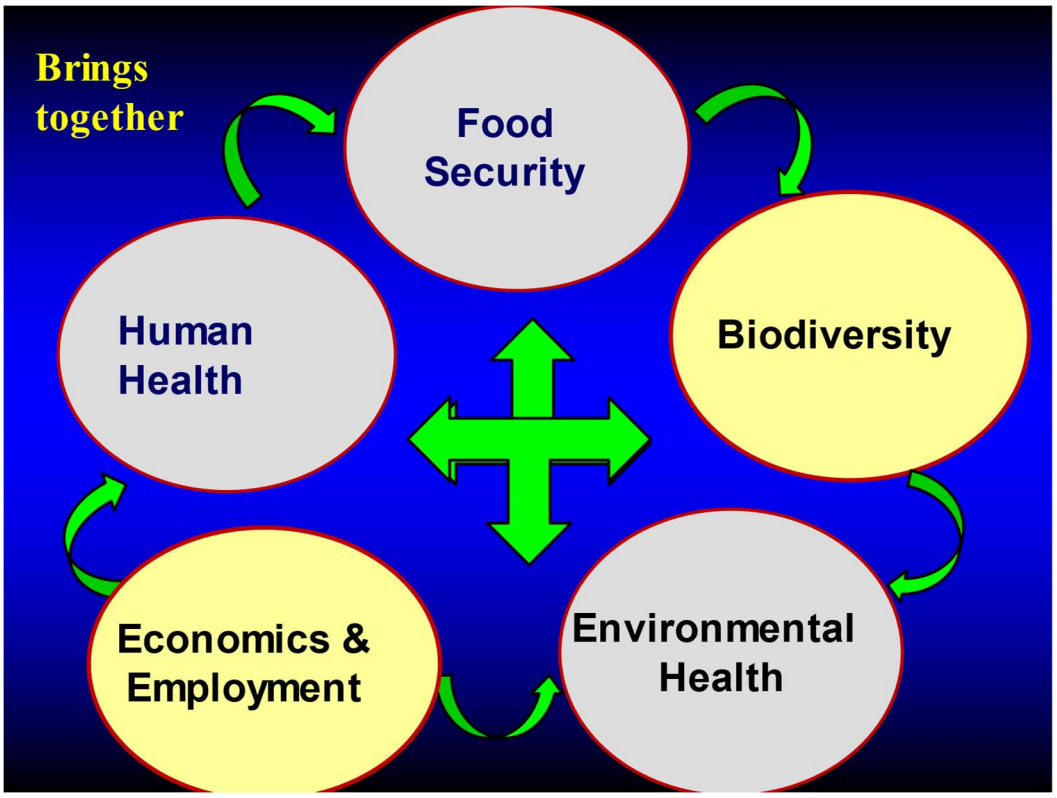


Figure 7.6: Diagram showing complex interrelationships between food security, the environment and human wellbeing.
Powerpoint slide presented by Parviz Koohafkan in 2019.

What is required is continuous agroecological and social innovation that is combined with the careful transfer of accumulated knowledge and experience that have been carried across generations. Careful consideration is needed of the critical issue of how to meet the often-conflicting goals of conservation and development. For instance, how to avoid creating farming 'museums', how key characteristics of these systems can be conserved while enhancing their dynamic evolution and viability, and how the aspirations of local populations and national goals can be met through technical improvements, incentive measures and livelihood opportunities for the rural communities (Koohafkan and Boerma 2006). It is suggested that such ecological and cultural resources are of fundamental value to the future of humanity. They may go far in helping to feed the world with better food and nutrition, with little or no cost to the environment.

The GIAHS principle is founded upon the recognition that the major custodians of the world's agricultural heritage systems are the people who have developed these systems, and who continue to depend upon them for their livelihoods and cultural integrity. It also recognises

that the dynamic conservation of such systems and the *in-situ* conservation of their agrobiodiversity cannot be carried out without ensuring the welfare of the proprietors of such systems. The GIAHS concept is also an integral part of agroecological approaches and the basis of family farming related initiatives (Figure 7.7) and has contributed to their recognition by the Food and Agriculture Organization governing bodies and other UN bodies.

Figure 7.7: Family Farming and Agroecology
Powerpoint slide © Parviz Koohafkan (as presented in 2012)

In 2012, the concept of Nationally Important Agricultural Heritage Systems (NIAHS) was introduced and adopted in China and applied to hundreds of local systems with outstanding characteristics (similar to GIAHS characteristics) to identify and promote Chinese outstanding traditional agricultural systems.

The capacity building of local farming communities and local and national institutions to conserve and manage their NIAHS and GIAHS will be generating income and adding economic value to goods and services of such systems in a sustainable fashion. At the same time, they identify ways to mitigate risks of erosion of biodiversity and traditional knowledge and enhance the benefits derived by local populations from conservation and sustainable use of their resources

and their agricultural heritage systems. This is a way of rewarding them through the payment for environmental services, eco-labelling, eco-tourism and other incentive mechanisms and market opportunities. The GIAHS dynamic conservation brings multiple local and global benefits as illustrated in figure 7.8.

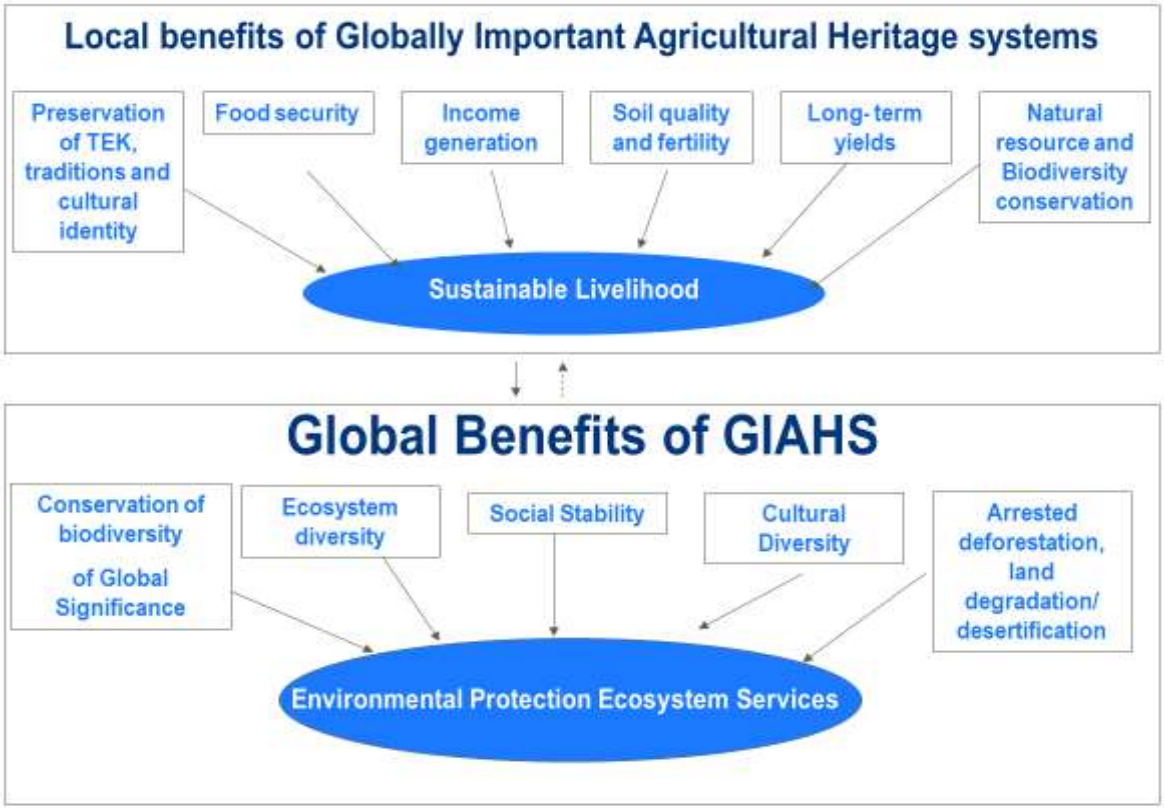


Figure 7.8: Local and global benefits of Globally Important Agricultural Heritage Systems

Powerpoint slide © Parviz Koohafkan (as presented in 2012)

GIAHS' threats and driving forces:

GIAHS are the best and most prominent examples of smallholder, family farming and traditional agricultural systems that have passed the test of time and could be seen as bench marks of sustainability for sustainable agricultural policies and investment in food and nutrition security, employment, health and environment. However, the industrial agriculture and the focus on increasing agricultural production through price subsidies, intensive farming, specialisation and the rapid technological change and internationally marketed commodities and associated neglect of externalities have all led to a generalised neglect of integrated agricultural systems.

The lack of promotion of diversified and environmentally friendly farming and integrated management practices and the neglect of research and development, as well as of rural services for indigenous and ingenious systems, threaten the foundation of agricultural 'culture' and associated biodiversity. Moreover, the urbanisation and rapidity and extent of today's technological and economic changes threaten many of these agricultural heritage systems, including the biodiversity, on which they are based, and their societies. These threats are: erosion of rural values and adoption of unsustainable practices, overexploitation of resources and declining productivity, as well as imports of exotic domesticated species, leading to severe genetic erosion and loss of local knowledge systems. This poses the risk of loss of unique and globally significant agricultural biodiversity and associated knowledge, land degradation, poverty and threats to livelihoods and food security of many unique farming systems. In some areas, there are spill-over effects from marginalisation and increasing poverty in productive landscapes on wild biodiversity.

The social and environmental integrity and resilience of such livelihood systems, and their associated biodiversity, depend on the adaptive capacity of concerned communities but also on the enabling environment provided by policies and development strategies. The driving forces of the adoption of unsustainable practices, overexploitation of resources, genetic erosion, loss of local knowledge, and associated risks of impoverishment, non-viable livelihood systems and socio-economic instability, vary from one system to another. They essentially include population pressure and poverty, inappropriate policies and a legal environment, especially insecure land tenure and external market forces, and lack of capacity to adapt land-use-livelihood systems to the rapidly changing environment while preserving the cultural and natural heritage.

The root causes may include *inter alia*:

- market incentives and economic policy environments that focus exclusively on short term economic goals rather than long-term socio-economic and environmental goods and services and sustainable agricultural and rural development;
- reduced community involvement/empowerment in landscape/resource management decision making processes;

- inadequate attention to local knowledge and experience, and inadequate valuation of GIAHS and their associated biodiversity by research and development services and policy and strategic frameworks;
- inadequate support for the conservation and sustainable use of significant agricultural biodiversity (within and between species and at ecosystem level); and
- lack of marketing expertise and incentives to ensure that adequate value is placed on local cultivars and breeds and local produce, and benefit-sharing mechanisms and so forth, de-legitimisation of local, customary institutions for the management of natural resources, particularly the normative frameworks for access, use and benefit sharing of natural resources.

Such trends occur in the context of land reform, individualisation of common property systems and policies that promote national cultural homogeneity.

Globalisation is also exacerbating pressures on small-scale agricultural systems as the penetration of global commodity-driven markets often creates conditions in which local producers in GIAHS have to compete with agricultural products from intensive and often subsidised agriculture in other areas of the world. Among these pressures, policies inducing increasingly subsidised chemical inputs and lowering farm prices for staples and cash crops are significant examples, which often may directly transform the overall economic viability and biodiversity basis of these locally traditional systems.

Another important pressure is the increasing demand for market driven quality and quality control which also has negative consequences on food quality and diversity. The convergence of such pressures is accelerating the adoption of high yielding varieties (HYV) and exotic breeds, which results in the loss of agricultural biodiversity, and biodiversity-based and risk averse management systems.

To halt the rapid degradation of GIAHS, their locally adopted nature and complexity, their cultural integrity and their dynamic nature created by human ingenuity must be recognised. The resilience of these systems depends on their capacity to adapt to new challenges without losing their biological and cultural wealth and productive capacity. This requires continuous agroecological and social innovations

combined with careful transfer of accumulated knowledge and experience across generations and communities. Trying to conserve GIAHS by 'freezing them in time' would surely lead to their degradation and condemn their communities to poverty. The GIAHS approach is centred on human development and local knowledge systems, including their socio-organisational, economic and cultural features that underpin the conservation and adaptation processes in GIAHS without compromising their resilience, sustainability and integrity.

GIAHS are not Landscape Museums:

GIAHS are not living museums, but livelihood systems where people practise agroecology and 'dynamic conservation'. They retain the best of the past, while adapting to opportunities and threats which present themselves in the natural world and the socioeconomic environment. GIAHS are not about 'creating museums' and nostalgia of the past, but about innovations and opportunities for the communities including access to market and socio-cultural opportunities to achieve the well-being of the rural poor, traditional farmers, fisherfolk and pastoralists through recognition of their heritage. As the slogan I designed in FAO in 2011 quotes: the 'GIAHS is not about the past, it is about the future'. Their adaptive management aims to focus on the knowledge systems and management, including their socio-organisational, economic and cultural features that underpin the conservation and adaptation processes, without compromising their resiliencies, sustainability and integrity.

The resilience of all agricultural systems is a function of the level of diversity within the agricultural ecosystems. The GIAHS contain rich and globally unique agricultural biodiversity, within and between species but also at the ecosystem and landscape level. Having been founded on ancient agricultural civilisations, many of these systems are linked to important centres of the origin and diversity of domesticated plant and animal species, the *in-situ* conservation of which is of immense importance and global value.

Likewise, GIAHS can also be viewed as benchmark systems for sustainability and resilience that can provide principles and lessons for international and national strategies for sustainable agriculture

including the *in-situ* conservation of biodiversity and provision of ecosystem services. They can contribute also to a better understanding of indigenous people's knowledge and management experience related to nature and the environment locally and globally, which can then be applied to contemporary developmental challenges, especially for the reinvigoration of sustainable agriculture and rural development objectives. However, the strategies to be employed to safeguard and assist adaptive management of agricultural heritage systems, and the associated communities, need to be sensitive to their evolutionary character, their intrinsic value systems and their contextual peculiarities. The interventions should avoid a cookie-cutter model of development and should be based on informed, caring and nature-and-people-centred participatory approaches that may be time-and-resource intensive, and experimental and flexible in design and content.

The GIAHS concept introduces the need for efforts to promote public understanding and recognition of the agricultural legacy, in which the multiple goods and services provided by family farming and indigenous communities are vital for the achievements of the local, national and global development agenda relating to food security, poverty alleviation, gender equality and empowerment, and environmental sustainability, as well as services through functional diversity, products and services diversity, collective and individual knowledge systems and cultural diversity. This, therefore, makes the GIAHS the first global initiative that brings the link between agriculture and cultural heritage to the forefront of sustainable development.

Food and Agricultural Heritage, a Legacy for the Future:

The protection of heritage particularly Agricultural Heritage Systems is indeed very challenging and depends on a strong will and appropriate policies and regulations as well as the rightful investment. It needs to be understood why it should be protected and sustained, for whom and why it is socially, economically and ecologically beneficial.

Not only the lack of funds and participation of young people, but also the general trends in globalisation, urbanisation and migration, the lack of interest in the agricultural sector by decision makers and particularly investment in family farming are the greatest challenges to

agricultural heritage conservation. Turning these challenges into great opportunities for sustainable livelihood options for the poor farmers, combined with conservation of natural resources and ecosystem services, are precisely the objectives of the designation of GIAHS and their Dynamic Conservation. Experiences and lessons learned from the implementation of GIAHS Partnership Initiative and designation of the globally and nationally important agricultural heritage systems in pilot countries teaches us that when there is a source of incomes generation and a decent livelihood, rural people would stay or would come back to their village.

What sets the agricultural heritage sites apart from the UNESCO World Heritage Sites is another unique feature and of outstanding universal value: the fact that GIAHS are not static or frozen in time. While UNESCO World Heritage Sites are monuments that are meant to be preserved in their exact original form, GIAHS are living systems that will continue to evolve to meet the needs and aspirations of small holders, family farmers and indigenous peoples, who are often the poorest of the poor in a changing environment.

The majority of Agricultural Heritage Systems are obviously located in remote areas and their custodians are poor, due to poor market access, lack of infrastructure, technical assistance and modern facilities. And that is why the recognition of GIAHS would be an important support to these remote villages and provide economic development and context-specific support. Agriculture has been and remains of great importance at the global, national and local levels, and for example, in China, it has an even greater global and national importance for the diversity of its agriculture and food systems, the diversity of its ethnic groups and cultural inheritance, as well as ecosystems and biodiversity of global significance, its large population and ambitious development agenda in terms of primary, secondary and tertiary sectors.

Conclusion and way forward:

Support of the agricultural sector, particularly of small holders, family farmers and indigenous communities in remote areas, is a challenge and an opportunity at the same time. Not only are these people often the poorest of the poor, but they are also the best custodians of natural

resources, environmental services and cultural inheritance. Supporting them to sustain their livelihood and their way of life offers many economic, social and environmental dimensions that represent the pillars of national security and sustainability in rural areas. This means that rural development cannot be conceived of without agriculture holding a key role. This is the case for investing in GIAHS dynamic conservation, as referred to in my recent book entitled *Forgotten Agricultural Heritage Systems, Connecting Food systems and Sustainable Development* (Koohafkan and Altieri 2017).

The unique NIAHS and GIAHS are not trapped in the past: they can make significant contributions to today's and tomorrow's agriculture and SDGs. GIAHS have also other values beyond the production of food, conservation of genetic resources, and other provisioning services: These living and evolving systems have kept communities' distinct identities intact on the strength of unifying values such as family, community, history and a sense of belonging to their land.

Not only the NIAHS and GIAHS but also their associate Food Heritage Systems deserve continuous recognition and safeguarding, because of their associated cultural and landscape values and, more importantly, for their invaluable contribution to local economies, livelihoods and food security, preservation of indigenous knowledge and conservation of biodiversity.

These systems recognise and appreciate the importance of local knowledge and the autochthonous technology found in these agricultural legacies, as well as of their rich biological and cultural diversity, such as the invaluable plant genetic resources used for food and agriculture, that are at the heart of any future human development. Not only does our agricultural heritage carry the accumulated wisdom and memory of the past, but they are also building blocks and an essential foundation for our future in a rapidly changing world.

References:

Altieri, M. A, Funes-Monzote, F. R and Petersen, P. (2012) Agroecologically efficient agricultural systems for smallholder farmers: contributions to food sovereignty, *Agronomy for Sustainable Development*, **32**: 1–13.

Burlingame, B. and Dernini, S. (2012) *Sustainable Diets: Directions and solutions for policy, research and action*, Food and Agriculture Organization and Biodiversity International, Rome.

Denevan, W. M. (1995) Prehistoric agricultural methods as models for sustainability, *Advances in Plant Pathology,* **11**: 21–43.

Food and Agriculture Organization (2012) *Conservation and adaptive management of Globally Important Agricultural Heritage Systems (GIAHS) project implementation report*, Food and Agriculture Organization, Rome.

Food and Agriculture Organization (2021) GIAHS Globally Important Agricultural Heritage Systems: Agricultural heritage around the world. Available at http://www.fao.org/giahs/giahsaroundtheworld/en/ Accessed on 18/02/21.

Johns, T., Smith, I. F. and Eyzaguirre, P. B. (2006) Agrobiodiversity, nutrition, and health: understanding the links between agriculture and health. In *2020 Vision for Food*, Agriculture and the Environment. International Food Policy Research Institute (IFPRI), Washington D.C.

Koohafkan, P. (2006) *Globally Important Agricultural Heritage Systems (GIAHS): A Heritage for the Future*: *experiences on dynamic conservation of traditional agricultural systems,* Proceedings of the International Forum on GIAHS, organized by Food and Agriculture Organization in collaboration with Wageningen International, Food and Agriculture Organization, Rome, Italy, 24-26 October 2006. Available at http://www.fao.org/3/a-aj006e.pdf. Accessed on 27 January 2021.

Koohafkan, P. and Altieri, M. (2017) *Forgotten Agricultural Heritage, Reconnecting Food systems and Sustainable Development*, Routledge, London.

Koohafkan, P. and Boerma, D. (2006) Conservation and sustainable management of Globally Important Ingenious Agricultural Heritage (GIAHS). In Schaf, T. and Lee, C. (eds) *International Symposium. Conserving Cultural and Biological Diversity. The Role of Sacred Natural Sites and Cultural Landscapes*, UNESCO, Division of Ecological and Earth Sciences, Paris, pp. 80-88.

Koohafkan P. and De la Cruz, M. J. (2011) Conservation and Adaptive Management of Globally Important Agricultural Heritage Systems (GIAHS), *Journal of Resources and Ecology,* **2(1):** 22-28.

Maass Wolfenson, K.D. (2013) *Coping with the food and agriculture challenge: smallholders' agenda: Preparations and outcomes of the 2012 United Nations Conference on Sustainable Development (Rio+20),* Food and Agriculture Organization. Available at http://www.fao.org/3/a-ar363e.pdf. Accessed on 18/01/21.

CHAPTER 8
DIETS AND LANDSCAPES IN THE MEDITERRANEAN: WHAT LINKS?

by Alexandre Meybeck and Vincent Gitz

Introduction

The links between diet and landscape in the Mediterranean seem obvious. Food is coming from nature, from a nature thought of as producing food and managed to produce food (figure 8.1).

Figure 8.1: Luis Egidio Meléndez: The Afternoon meal (La Merienda), circa 1772, Metropolitan Museum of Art.

Nowadays, most of the diets are no longer determined by what is locally produced, as they were in traditional food systems. The relation between a diet and a geographic area has loosened with globalisation, with a growing physical disconnection between the space of production and the space of consumption. Diet and landscape are also interfaces between nature and culture, ways by which humans appropriate nature and cultural constructions of nature. Grounded in nature, history and tradition, they are dynamic, exposed to outside influences, including the loosening of their physical relations. The links are now often more metaphorical than physical, mediated by typical foods, through various market linkages: local markets, geographical indications of provenance, advertising, the very discourse on the Mediterranean diet.

This chapter aims to explore the links between the notions of diet and landscape in the Mediterranean context. It is driven by on-going reflection in the Forest, Trees and Agroforestry research programme (FTA[46]) of the Consortium of International Agricultural Research Centers (CGIAR) on the importance of the interactions between landscapes and diets in global change and on the potential of the notion of landscape to enable an integrated approach to sustainable development. Furthermore, the chapter builds upon reflections conducted by geographers and other social scientists as well as by the UN sustainable food systems program[47]. It starts with a discussion of the notion of landscape, including its diverse understandings; it touches upon the biophysical links between landscape and diet, which encounters the difficult articulation between unity and multiplicity of both of them; and it considers the renewed importance of the symbolic links between them as potential means to ground strategies towards more sustainable food systems in the Mediterranean region.

What do we mean by landscape? (figure 8.2)

Figure 8.2: A diversified landscape in the Chianti region, Italy.

Photograph © Suzanne Redfern

The notion of landscape has given way to multiple and divergent definitions, designed by/for various disciplines and approaches, in

[46] http://www.foreststreesagroforestry.org/
[47] http://www.oneplanetnetwork.org/sustainable-food-system

diverse languages. When considering landscape as their object each scientific discipline puts the emphasis on some of its components and dimensions: geomorphology on physical traits, landscape ecology on ecological processes, human geography on the influence of physical traits on human activities and in turn on how human activities model landscapes and integrated landscape management on the interactions between various human and ecological processes, … and so on.

In the 1990s French social scientists debated the question: 'Do exotic societies have landscapes?' (Lamaison and Cloarec 1991), starting from the premise that the notion of landscape is very much linked to European cultures, as well as to Chinese and Japanese cultures, because of their painting traditions. The discussion revealed, however, that the notion could be understood in broader ways as well. It also showed how much perception and representation of landscapes reveal the perception of the interactions between humans and their environment, between nature and culture, many of which perceptions are about food.

Aiming for an anthropological definition of the landscape and having in mind the reference to its occidental representation, Philippe Descola (2012) notes that the notion refers to two different realities: a space offered to the view that pre-exists that view, the components of which can be described, and its perception which adds particular values to it, according to pre-existing cultural schemes (figure 8.3).

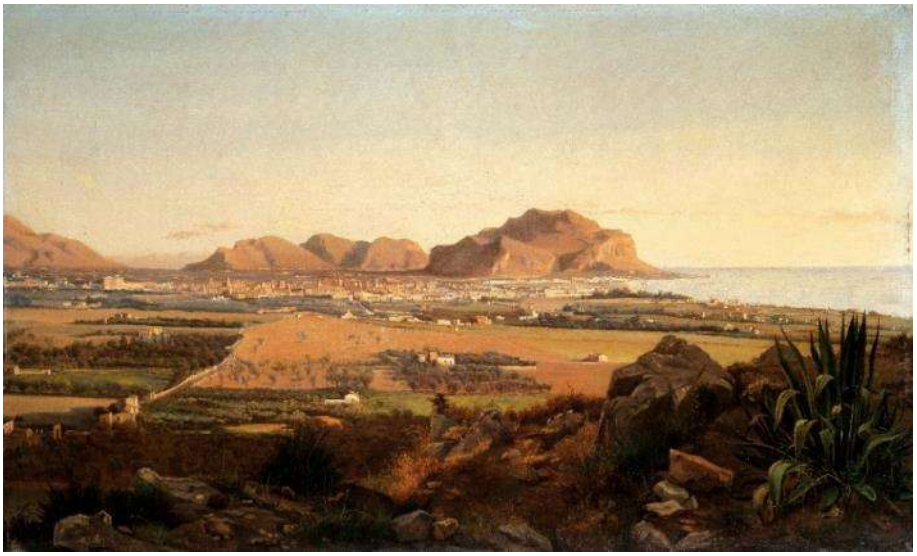


Figure 8.3: Francesco Lojacono (1838-1915), Veduta di Palermo.

© *Courtesy Wannenes*

And, indeed, most general definitions of the notion of landscape include reference to the perception of it, to a human perceiving it, often seeing it, and/or living in it. In many occidental languages the word used for landscape also designates

paintings of landscapes and this meaning often influences the overall understanding of the notion.

Classical Arab geographers played a major role in the construction of the discipline of geography and of the notion of landscape in the Mediterranean. Lamia Latiri studied the modalities of the construction of the notion of landscape in the Arab-Muslim culture between the VIII and XIth century (Latiri 2001, 2004; Otthofer-Latiri 2005). She recalls that '*mandhar*', found in almost all geographical texts of the period to designate 'landscapes', is derived from the verb '*nadhara*', to see, to look, which also has the technical meaning of looking to understand, involving the intellect. Thus, the notion of landscape involves two dimensions, distinct but inseparable: a physical space offered to the eye and the subjective perception of it, framed by the Arabic culture. A space has to be seen to be a landscape; it has no identity without a vision of it; it is circumscribed by a vision, a perception. She also notes that in Arabic the word, 'landscape', is always followed by an adjective qualifying it: for example, terrestrial landscape, rural landscape, maritime landscape, natural landscape. This reveals the importance, in the perception of the landscape of pre-existing models that inform its analysis. At the same time, landscapes cannot be dissociated from the practices that model them nor from customs or even the languages that identify them. It is also important to note that interest in a space was mainly utilitarian with, for instance, analysis of rural space distinguishing it by its uses and capacity to grow agricultural produce, greenery as an aesthetic factor, or with an emphasis on water or the role of mountains in its generation or with a particular focus on cities.

Muhamad al-Idrisi, in *A Diversion for the Man Longing to Travel to Far-Off Places* (*Kitāb Nuzhat al-mushtāq*), written in 1154 for Roger II, King of Sicily, describes landscapes. In the surroundings of Palermo, he describes a castle 'two miles from the sea, on a height surrounded by fertile fields, gardens, rivers, mills, in a pleasant landscape with the most enjoyable viewpoints'[48] (Jaubert 1840: 80). About Carini[49] he writes: 'a town, small but pretty and well-fortified, whose territory produces a lot of fruits. It has numerous markets […].

[48] Translated from the French by the authors.
[49] Small city close to Palermo in Sicily (Italy).

Exported from Carini are big quantities of dried figs, carob; boats are loaded destined for various countries. Copious waters gush out everywhere in the landscape, most of it in the very gardens of the village[50] [….]' (Jaubert 1840: 90).

Most understandings of the notion of landscape thus embed two characteristics: a landscape is a geographically determined space and a space from a human perspective. It is precisely the combination of these two characteristics that explain the difficulties in having a very precise definition. The landscape is a physical space but also, and inseparably, a space as it is offered to be read and understood, an ensemble of signs, calling for a semiotic of the landscape (Brunet 1974). A landscape is perceived, conceived and defined by humans, by their activities, culture and vision of the world. As defined by the Council of Europe (2000), a landscape is 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'.

The understanding of a landscape as heterogeneous and socially constructed helps to disentangle the question of the scale(s) of a landscape. Most of the time a landscape will be defined for a specific purpose, or a collection of purposes. As a landscape is mainly determined by the perspective adopted to consider it, its scale will vary depending on the social-ecological phenomena to be considered (Minang *et al.* 2015). In fact, the size and scale to be considered depends on the interactions between the landscape, human activities and the degree to which they can be managed. This broad understanding leads to a determination of diverse areas, depending on the issue to be considered. When thinking about food, there is the landscape where you grow or collect your food yourself and then there is the broader range of landscapes from which come the foods you buy and then consume, including foods from exotic places, and the Mediterranean Sea itself is a link to such exotic places.

Biophysical links between landscapes and diets are obvious, but loosening

Obviously, food comes from the land (or the sea and other waters). The meals of humans represent, directly or indirectly, the 'shearing' of a

[50] Translated from the French by the authors.

more or less extended scope of the vegetable carpet, natural or cultivated (Bruhnes 1942). In traditional food systems, diets and landscapes are closely linked. The landscape determines what foods can be collected and grown. The diet selects what foods to collect and grow. These choices, in turn, influence the landscape through agriculture and fisheries. The landscape is the result of nature transformed by culture and its interactions with diet are mediated by agriculture and fisheries (figure 8.4).

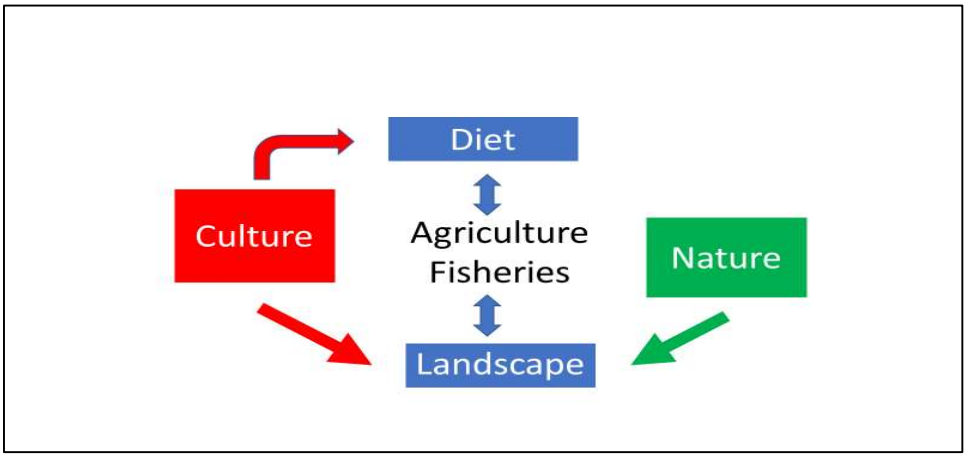


Figure 8.4: relations between diet and landscape

It has also been stressed that the diet is not a consequence, but a structural element in the geographic and social organisation of an area (Fumey 2007). Paul Vidal de la Blache (1911), the founder of French modern geography, coined the notion of '*genre de vie*', 'lifestyle', that expresses a particular way in which humans 'collaborate with nature'. One of the characteristics of a '*genre de vie*' is a specific 'combination of foods'. He notes, however, that, even if most of these combinations are local (see figures 8.5 and 8.6 for local combinations in dishes), they can also include distant products incorporated into a same lifestyle.

This raises the question: Is there, a Mediterranean landscape? What is a Mediterranean landscape? The answer to this question would by itself deserve a volume. Fernand Braudel (1977) notes that there is not one Mediterranean landscape, but innumerable landscapes. He adds, however, that they constitute a coherent image, like a system where everything mixes and recomposes itself into an original entity. A view of Palermo by Francesco Lojacono (figure 8.3) combines the sea, the city of Palermo, intensely cultivated land, irrigated land and

Figure 8.5: Vegetarian tagine from *Chez Brahim* in Marrakesh, Morocco.

©Turajski
Licensed under the Creative Commons Attribution-Share Alike 4.0 International licence

Figure 8.6: 'Greek salad' with cucumber, olives, goat cheese and capers, Photo from fish tavern, 'Perivolos', Santorini, Greece, March 2010.
© Klearchos Kapoutsis
Licensed under the Creative Commons Attribution 2.0 Generic licence

uncultivated land, often mountainous. These elements could constitute the image of a Mediterranean landscape. They also recall the Latin distinction between *ager* (cultivated) and *saltus* (not cultivated but that could be used for pasturing livestock) as well as the main elements of the descriptions of Arabic geographers. This highlights another dimension of the Mediterranean landscape: the depth of its historical significance, modelled and marked by successive layers of civilisations, from the Greeks, the Romans, the Arabs, Venice, Spain and close interrelations between the northern and southern shores of the Mediterranean (figure 8.7).

Figure 8.7: Temple of Caelestis in Thugga, in the background the new village of Dougga, Tunisia. ©*Issam Barhoumi*
Licensed under the Creative Commons Attribution-Share Alike 4.0 International licence

Mediterranean landscapes are strongly influenced by the Mediterranean climate, in particular by its hot dry season that has a considerable influence on the vegetation. The existence of a Mediterranean botanical region is recognised by all specialists, with limits generally determined by the range of the olive tree (figure 8.8) and/or the evergreen oak (*Quercus ilex*) (Lenoble 1932). Significantly, olive oil is also one of the most emblematic components of the Mediterranean diet.

Figure 8.8: Old olive trees on Thasos, Greece. ©*Petr Pakandl*
Licensed under the Creative Commons Attribution-Share Alike 2.5 Generic licence.

Geographers further identify types of Mediterranean landscapes characterised by a dominant feature, such as arboriculture, transhumance, irrigation, horticulture and gardens or even areas of old agricultural specialisation for export - to feed ancient Rome for instance (Derain 1997). Interestingly, these categories are very close to some of the models that could be identified in the mediaeval Arabic geographical texts. Trade and the facilities provided by the Mediterranean Sea are of course a main characteristic of Mediterranean landscapes. It is this ensemble of diversified landscape characteristics and landscapes that constitute an original entity, as identified by Braudel, and that has both fashioned the Mediterranean diet and been fashioned by it. Just as there is a 'model' of Mediterranean diet, there could be a 'model' of Mediterranean landscape.

The traditional Mediterranean diet is based on what is available locally and regionally (figure 8.9). Already in the 1990s anthropologists were highlighting local food consumption differences, for example between the coast and mountains, nuancing the Mediterranean diet model described by nutritionists (Macbeth and Medina 2020).

Figure 8.9: Fish and vegetables hanging up in a cupboard, still-life. Mosaic, Roman artwork, 2nd century CE. From a villa at Tor Marancia, near the Catacombs of Domitilla, Vatican Museum, Rome.

Picture available in the public domain.

Along the coast seafood is abundant and part of the diet since ancient times (figures 8.10 and 8.11).

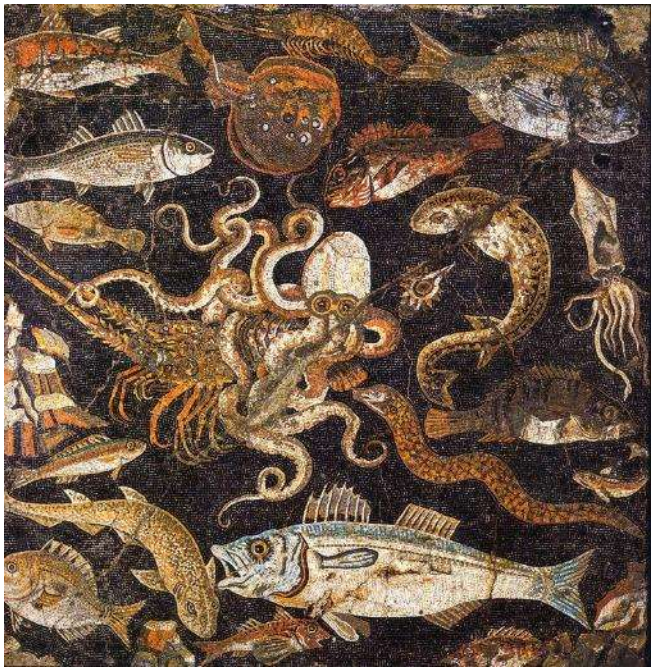


Figure 8.10:
Roman mosaic from in house VIII.2.16 in Pompei. Museo Archeologico Nazionale (Naples), inv. nr. 120177
Available in the public domain.

Figure 8.11:
Fish market of Porta Nolana, Naples, Italy, February 2020.
Photograph © Alexandre Meybeck

Another very illustrative trait is the use of wild foods (in addition to the extensive use of marine resources). Several studies have made inventories of wild foods, and particularly wild plants, consumed in areas of the Mediterranean. For Sicily, 188 wild edible plants have been inventoried with a diversified distribution and consumption across the island (Lentini and Venza 2007). A recent study in the governorate of Sidi Bouzid in Tunisia (Kéfi 2017) gives interesting insight into the consumption of wild plants: 31 edible wild plants are consumed at various moments of the year. They are used in various traditional recipes. People interviewed there highlighted that these wild plants are linked to tradition, that they appreciate their taste and that they are good for health. They also noted that those growing close to irrigated lands are less tasty. More than half of the households having wild plants available on their farm consume them; but most of them do not sell them. 8 wild edible plants are sold in most small cities' markets but in

none of the rural ones. Many rural households donate wild plants to urban households, especially to family and friends. Some of these plants are now cultivated, like dill (*Anethum graveolens*) and the arbi beet (*beta macrocarpa Guss*). Even for those that are cultivated the provenance, 'wild' or coming from uncultivated areas (for example, the mountains) is associated with a higher level of quality (figures 8.12 and 8.13).

Figure 8.12:
Rucola (*Eruca vesicaria*)
'fresh from the mountains',
Porta Nolana Market,
Naples, Italy, February 2020
Photograph © Alexandre Meybeck

Figure 8.13: Dried 'Wild' Oregano (*Origanum vulgare*), Rome, Italy, October 2018.
Photograph © Alexandre Meybeck

Conversely, changing diets, among other factors like urbanisation, has a considerable influence on landscapes, including both abandonment of some areas/types of production and further intensification for export and new productions, often threatening the biophysical viability of Mediterranean landscapes, vulnerable as they are in particular to drought, erosion and desertification (Derain 1997), as well as their link to a model of landscape embedded in Mediterranean cultures.

Renewed importance of the symbolic links between landscapes and diets

Most of the diets are no longer determined by what is locally produced, as was true for traditional food systems. Many landscapes are framed more by distant demand than by local diets. The connection between a diet and a geographic area has broadened and loosened with globalisation, with growing disconnection between the space of production and the space of consumption. But at the same time there are now 'new' links being established between landscapes and diets, or, rather, new ways of showing these links.

Urban markets are a place of encounter between urban consumers and the rural producing landscapes. They provide an abundance of foods, result from a range of places and create an image of biodiversity, of species, plant varieties and animal breeds and thus of landscapes (figures 8.14 and 8.15). Markets are also important elements of urban landscapes. They were highlighted as such by classic Arab geographers.

Figure 8.14:
A diversity of fruits from all over the world.
La Boquería Market, Rambla de San Josep, Barcelona, Spain, September 2012.

Figure 8.15:
A diversity of varieties of tomatoes.
Porta Nolana market, Naples, Italy, February 2020.
Photograph © Alexandre Meybeck.

There are now important initiatives focusing on urban markets to strengthen these roles and adapt them to changing consumer demands, including tourists (Medina and Alvarez 2007). Cities like Barcelona have an important network of old food markets (figure 8.16) that have largely survived to this day. Medina (2008, 2018) highlights that some urban markets, particularly in historical centres, like La Boqueria market (figure 8.17) and the Sant Antoni market in Barcelona, the San Miguel market in Madrid, *el Mercado de Colon* in Valencia and *el Mercado de la Ribera* in Bilbao, are becoming in themselves cultural and touristic attractions, a way to discover a nation's food patrimony. He notes in this regard the development of restauration facilities within the markets, enabling a direct consumption experience.

Figure 8.16:
Born Vell Market in Barcelona (Nineteenth century.) by Martí i Alsina, R. (1826-1894).
Private collection in Barcelona
©Josep M. Solé
Reproduced with permission

Figure 8.17: La Boquería Market, Rambla de San Josep, Barcelona, Spain, September 2009.
© Francisco Javier Guerra
Licensed under the Creative Commons Attribution-Share Alike 4.0 International licence

Campagna Amica, created in 2010, is a very successful experience in using urban markets and other selling points, including farms and agritourism, to put consumers in direct touch with producers (figure 8.18). In 2015 the network comprised 10,000 selling points,

with an estimated turnover of 15 billion euros and 4 to 8 million consumers all over Italy (Fondazione Campagna Amica 2016).

Figure 8.18: Mercato Campagna Amica al Circo Massimo, Via di S. Teodoro, Rome, Italy, April 2019.

A series of labels builds upon the link between landscape and specific foods. In fact, they are, along with standards inspired by or grounded on Life Cycle Assessments (LCA), one the main ways to relate products to sustainability, and the most favoured in the South of Europe (Meybeck and Gitz 2014). The most important of these is of course Geographical Identifications that are defined by article 22.1 of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization as 'indications which identify a good as originating in the territory of a Member [of the World Trade Organization], or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin' (World Trade Organization 1994). Such indications show the intimate link of a food product with a landscape. The French goat cheese '*Brousse des Roves'* is produced using the milk of an indigenous goat breed that grazes extensively in the 'garrigue' landscape (figure 8.19) characterised by kermes oaks and rich in thyme (*Thymus)*, rosemary (*Salvia rosmarinus)* and other aromatic plants that give their flavours to the cheese (Institut National des Appelations d'Origine 2018).

Figure 8.19:
Rove goats in the garrigue above Rove village, France.

© Roland Darré. Licensed under the Creative Commons Attribution-Share Alike 3.0 Unported licence

Pasta con le sarde (pasta with sardines) (figure 8.20) is a Sicilian dish of pasta with sardines, anchovies, wild fennel, saffron, pine nuts, raisins, and breadcrumbs, combining products from the various landscapes of Sicily that are also the elements of a typical Mediterranean landscape as depicted in Francisco Lojacono's View of Palermo (figure 8.3). It is recognised as a traditional food product by the Italian government (Ministero delle politiche agricole, alimentare e forestale 2014).

Figure 8.20:
Pasta con le sarde,
Palermo, Italy, May 2019. ➔

Photograph © Alexandre Meybeck

There are also, in some countries, schemes giving specific labels to products coming from, for instance, national or regional parks. The Slowfood movement puts a particular focus on biodiversity, especially forgotten varieties. Slow Food promotes the quality of a food product through a narrative that starts from the product's origin (the place

where it was produced) and recounts all of the subsequent processing steps (Rocatello 2016). Building upon these trends, advertising increasingly uses typical landscapes or symbols of places to promote food (Ortiz 2001).

There is an increasing number of publications linking foods to landscapes in the general media, whether books, articles or television programmes. We shall just take three Italian examples that are both invitations to travel and taste, and also illustrative of two main trends, entry by landscapes or entry by foods.

- Linea Verde is an Italian weekly television program on *RAI Uno*. Since 1981, it offers every week a travel programme to some specific area showing its landscapes, biodiversity, food patrimony and products.
- A book of the Italian Touring Club by Montanari and collaborators (2015), *I paesaggi del cibo. Luoghi e prodotti della nostra terra* (Food landscapes. Places and products of our land) starts with the landscapes linked to categories of food, giving a geographical background.
- The book by Moro and Niola (2017) *Andare per i luoghi della dieta mediterranea* (Walking through the places of the Mediterranean diet) is a more literary exercise, built on the association between emblematic products of the Mediterranean diet and emblematic places in Italy.

Medina (2017) notes that 'food culture' should also be considered as an integral part of the cultural heritage as it is a highly effective touristic resource with related benefits for local development.

A very good example of this is the considerable success of agritourism in Italy and also increasingly in the rest of the Mediterranean, often linked to sustainable tourism. Among the reasons for this success, apart of course from the richness of the gastronomic and landscape patrimony, might be the fact that agritourism, with its combination of staying on the farm, enjoying rural landscapes, eating what the farm produces and often participating in its activities, is also a way to experience a lifestyle, in the sense given to it by Vidal de la Blache, as a unique way to relate to nature as a resource. More broadly, and also benefiting from it, numerous regions promote themselves using both their landscapes and their food, associating them, promoting

at the same time their products and tourism. The French National Food Programme (PNA) promotes the development of short food value chains and geographical proximity between agricultural producers, transformers and consumers. It includes actions to be implemented in order to provide collective catering, public and private, with seasonal products as well as products under a specific quality scheme, notably from organic farming (Gitz 2016).

It has often been noted that consumers tend to amalgamate quality attributes of food (sustainability, health and even taste) in a single appreciation of 'quality' (Meybeck and Gitz 2014). This attitude seems to be facilitating the perception of quality as an attribute linking food and landscapes, grounded also on their perception as two elements of a same regional/territorial identity. Urban consumption of a typical food is often grounded on the perception of a typical 'quality' of food embedding the specific characteristics of landscape from which it originates, and that are also recognised through tourism, both food and landscape being key components of a regional identity (figure 8.21).

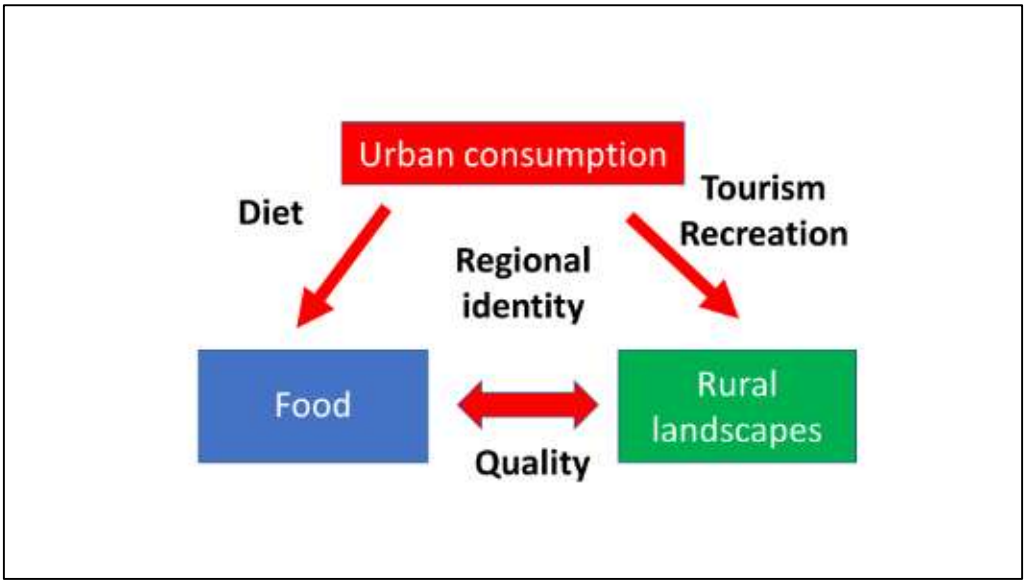


Figure 8.21: Quality links landscape and food

Conclusion:

From these remarks emerge three scales of links between diets and landscapes: food, dishes and diet. A food comes from a landscape and can be very specifically determined as recognised by geographical indications. A dish can be the result of products coming from the same simple landscape, such as a tajine of vegetables (figure 5), or it might

combine elements from a diverse landscape or diverse landscapes, such as in a 'Greek salad' (figure 8.6) or *pasta con le sarde* (figure 8.20). A diet can be very local or combine elements from diverse landscapes. This last dimension, in fact, invites one to question in parallel the relationship of actual diets in the Mediterranean region with the model of Mediterranean diet as described by nutritionists. It also invites one to characterise in a better way what a Mediterranean landscape would be, not as a biophysical object but as a constructed one. Both diets and landscapes are interfaces between nature and culture, and are cultural constructions of nature. Grounded in nature, history and tradition, they are dynamic, exposed to outside influences. Their linkage and mutual reinforcement may contribute to strengthen the resilience of their common identity. It is now often more metaphoric than physical, mediated as it is by typical foods, through various market linkages: local markets, geographical indications of provenance, advertising, the very discourse on the Mediterranean diet. Understanding the evolution of this relationship between landscape and diet and its urbanisation may provide a critical means of supporting their common sustainability, as part of the strategies towards more sustainable food systems in the Mediterranean region.

References:

Braudel, F. (1977) *La Méditerranée. L'Espace et l'Histoire,* Arts et Métiers Graphiques, Paris.

Bruhnes J. (1942) *Géographie humaine*, Plon, Paris.

Brunet, R. (1974) *Analyse des paysages et sémiologie. Éléments pour un débat. Espace géographique,* **3(2) :** 120-126.

Council of Europe (COE) (2000) *The European landscape Convention*. Strasbourg.

Derain, M. (1997) Paysages Méditerranéens*, Finisterra*, **33(63):** 133-146.

Descola, P. (2012) *Résumé des cours du Collège de France, Anthropologie de la nature,* Collège de France, Paris.

Fondazione Campagna Amica (2016) Campagna Amica farmers' markets network: economic and social sustainability – is the community back on the market (places)? In Meybeck, A. and Redfern, S. (eds) *Sustainable value Chains for sustainable food systems, Proceedings of a workshop of the FAO/UNEP program on Sustainable Food Systems*, Food and Agriculture Organization, Rome, pp. 213-224.

Fumey, G. (2007) Penser la géographie de l'alimentation. *Bulletin de l'Association de géographes français*, **84(1) :** 35-44.

Gitz, V. (2016) Territorial food value chain for sustainable food systems: initiative from the French national Food Programme. In Meybeck, A. and Redfern, S. (eds) *Sustainable value Chains for sustainable food systems, Proceedings of a workshop of the FAO/UNEP program on Sustainable Food Systems*. Food and Agriculture Organization, Rome, pp. 99-108.

Institut National des Appelations d'Origine (2018) *Cahier des charges de l'appellation d'origine "Brousse du Rove" Homologué par l'arrêté du 31 mai 2018,* JORF du 8 juin 2018 *Bulletin officiel du Ministère de l'agriculture et de l'alimentation* n°24-2018. Available at https://www.inao.gouv.fr/show_texte/5234. Accessed on 28 February 2021.

Jaubert, P. A. (1840) *Géographie d'Édrisi traduite de l'arabe en français d'après deux manuscrits de la Bibliothèque du roi et accompagnée de notes (2 Vols), Paris: L'imprimerie Royale*. Volume 2. Published in *Recueil de voyages et de mémoires publié par la Société de géographie,* **16**, c/o Artus Bertrand, Librairie de la Société, rue Hautefeuille, n°23, Paris.

Kéfi, F. (2017) *La biodiversité alimentaire: sa mesure, ses conditions d'accès et le rôle des politiques: cas de la Tunisie,* Doctoral thesis*,* Montpellier SupAgro, Università degli studi di Catania.

Lamaison, P. and Cloarec, J. (2017) Débat : Les sociétés exotiques ont-elles des paysages ? *Études rurales*, n°121-124, 1991. De l'agricole au paysage. pp. 151-158. Available at https://www.persee.fr/doc/rural_0014-2182_1991_num_121_1_3316. Accessed on 28 February 2021.

Latiri, L. (2001), The Meaning of Landscape in Classical Arabo-Muslim Culture, *Cybergeo: European Journal of Geography*, (196): 1-17.

Latiri, L. (2004) *La géographie arabe et le concept de paysage*, Strates On line on 14th January, 2005. Available at: http://strates.revues.org/400. Accessed on 1 October 2016.

Lenoble, F. (1934) Sur la définition de la région méditerranéenne en géographie botanique et ses limites dans le sud-est de la France*, Bulletin de la Société Botanique de France*, **81(1):** 88-96.

Lentini, F. and Venza, F. (2007). Wild food plants of popular use in Sicily, *Journal of Ethnobiology and Ethnomedicine*, **3(1):** 1.

Macbeth, H. and Medina, F.X. New views about the Mediterranean diet, *Nature Food* **1(2):** 141–142 (2020). Available at https://www.nature.com/articles/s43016-020-0035-8. Accessed on 28 February 2021.

Medina, F. X. (2008). Mercados urbanos en Europa: Patrimonio y promoción turística. In Álvarez, M. and Medina, F. X. (eds) *Identidades en el plato. El patrimonio cultural alimentario entre Europa y América*, Icaria, Barcelona, pp. 207-220.

Medina, F. X. (2017) Reflexiones sobre el patrimonio y la alimentación desde las perspectivas cultural y turística, *Anales de Antropología*, **51(2)**: 106-113.

Medina, F. X. (2018) Ir a comer en el mercado: Aprovisionamiento, consumo y restauración en la transformación de dos modelos de promoción de los mercados urbanos (Barcelona y Madrid), *Revista Espanola de Sociologia,* **27(2**): 267-280.

Medina, F. X. and Álvarez, M. (2007) El lloc per on passa la vida… Els mercats i les demandes urbanes contemporànies (Barcelona-Buenos Aires) *Revista d'Etnologia de Catalunya*, **31:** 59-69.

Meybeck, A. and Gitz, V. (2014) Signs to choose: voluntary standards and eco-labels as information tools for consumers. In Meybeck, A. and Redfern, S. (eds) *Voluntary Standards for Sustainable Food Systems: Challenges and opportunities*, Proceedings of a workshop of the FAO/UNEP program on Sustainable Food Systems, Food and Agriculture Organization, Rome, pp. 171-186.

Meybeck, A. and Redfern, S. (eds) (2014) *Voluntary Standards for Sustainable Food Systems: Challenges and opportunities*, Proceedings of a workshop of the FAO/UNEP program on Sustainable Food Systems. Food and Agriculture Organization, Rome.

Ministero delle politiche agricole, alimentare e forestale (MIPAAF) (2014) *Quattordicesima revisione dell'elenco dei prodotti agroalimentari tradizionali*. Available at https://www.politicheagricole.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/3276. Accessed on 28 February 2021.

Montanari, M., Croce, E., Perri, G., Gho, P. and Ruffa, G. (2015) *I paesaggi del cibo. Luoghi e prodotti della nostra terra*, Touring Club Italiano, Milano.

Moro, E. and Niola, M. (2017) *Andare per i luoghi della dieta mediterranea*, Il Mulino, Bologna.

Ortiz, C. (2001) Consumint tradició: elements patrimonials i locals en la publicitat alimentaria, *Revista d'etnologia de Catalunya,* **19:** 72-85.

Otthofer-Latiri, L. (2005) Les représentations paysagères dans la géographie arabe classique des VIIIe-XIe siècles. Méthodes et modèles paysagers, *L'Espace géographique,* **34(2)**: 176 - 191.

Rocatello, L. (2016) Food diversity for diverse food systems: Slow Food tools and experience in valorization of food biodiversity for the food systems of the future. In Meybeck, A. and Redfern. S. (eds) *Sustainable value Chains for sustainable food systems, Proceedings of a workshop of the FAO/UNEP program on Sustainable Food Systems,* Food and Agriculture Organization, Rome, pp. 63-72.

Vidal de la Blache, P., (1908) *De l'interprétation géographique des paysages Neuvième Congrès International de Géographie* (1908). *Compte rendu des travaux du Congrès*, Société Générale d'Imprimerie, Genève (18), 1911, pp. 59-64.

Vidal de la Blache P. (1911) Les genres de vie dans la géographie humaine, *Annales de Géographie*, **20(112) :** 289-304. Available at https://www.persee.fr/doc/geo_0003-4010_1911_num_20_112_7312. Accessed on 28 February 2021.

World Trade Organization (WTO) (1995) *Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).* Available at: https://www.wto.org/english/docs_e/legal_e/27-trips.pdf. Accessed on 28 February 2021.

CHAPTER 9
'SUSTAINABILITY' REVIEWED IN THE CONTEXT OF FOOD AROUND THE MEDITERRANEAN

by Helen Macbeth, Lucy Antal, Paul Collinson and Iain Young

Introduction:

In previous chapters of this volume, there have been several references to 'sustainability' and 'sustainable'. Although 'sustainability' is now the proclaimed aim of many projects set up by local, national, international and global organisations (e.g., UNESCO 2015), the word 'sustainability', used on its own, lacks clarity, because the meaning varies with different situations. Dictionaries offer several different meanings of the word 'sustain', of which the Latin derivation means to support from below, a meaning still used for load-bearing structures. The most common uses of the word, however, now relate to providing whatever is needed to keep something else going, a meaning similar to, but subtly different from 'maintain' or 'conserve'. To sustain is a transitive verb which requires that the variable or variables to be sustained be identified. This will depend on context. As the contexts vary, the *ability* to sustain such variables, or how such variables are able to be sustained, must similarly vary. Thus, 'sustainability' is a fluid term which needs to be defined for the specific context. Once the context and the variable or variables to be sustained are clarified, the concept of sustainability implies a system able to endure over time, but a view may also be needed on the level of continued existence at which the variables are considered to have been 'sustained'.

Discussed in the Introduction to this volume was the increase in ways in which the phrase 'Mediterranean diet' can now be interpreted. It is not surprising that there has also been diversity in the concepts of 'sustainability' in relation to different uses of the phrase 'Mediterranean diet'. The aim of this final chapter is first to identify such differences by exploring how the words 'sustainability' and 'sustainable' have been used in earlier chapters of the book, aiming to identify the different objectives. We then continue with a brief section on the interest shown in the topic at the *Second World Conference on the Revitalization of Mediterranean Diet* in 2019 in Palermo, Italy, for

which the subheading was 'The Mediterranean diet as a lever for bridging consumption and production in a sustainable and healthy way.' Following this, we emphasise three areas of contemporary concern for sustainability in relation to food in the Mediterranean region. Finally, we explore the interactions and interrelationships between the concepts and subsequent processes of sustainability. It might further be argued that the extent of interaction has contributed to the lack of clarity in use of the words.

Uses of the words, 'sustainability' and 'sustainable', in preceding chapters of this volume:

Sustainability of The Mediterranean diet:
First, should sustainability of the Mediterranean diet be interpreted simply as maintaining some level of consumer choice of the foods identified in the dietary concept of that name (Figure 9.1), or is it sustaining the availability of these foods to the consumer? If so, would that just be in the areas around the Mediterranean or globally?

Figure 9.1: A selection of vegetables associated with the phrase 'Mediterranean Diet', displayed on a market stall, Portbou, Spain.

Photograph © Helen Macbeth

In this volume, Dernini and Capone suggest that in Mediterranean regions there has been a reduction in consumption of the foods associated with the popular concept of a 'Mediterranean Diet', whereas González Turmo draws attention first to a diversity of culinary traditions in the region and then to their decline. It would be valid, therefore, to suggest that the consumption of the 'Mediterranean Diet' in that specific sense has not been sustained to the extent presumed. Furthermore, Macbeth and Bizzell show how, even in the 1990s, the food intake consumed along the French-Spanish border in the eastern Pyrenees and on the coast of the Mediterranean did not conform to that concept of a dietary model, nor did personal interviews suggest that it had done so previously, or even traditionally.

As most of the chapters, however, are concerned with the recent broader uses of the phrase, Mediterranean diet, the purpose of this chapter is to go beyond that discussion in order to review and analyse how the word 'sustainability' might be used in relation to that broad, cross-disciplinary approach to food, food habits, food production, food systems, lifestyle, etc. in situations and ecosystems in the land areas around and the islands within the Mediterranean Sea. In several places, the authors make it clear what the sustainability they discuss refers to, but in other places it is left unclear, presumably with the author's assumption that the meaning is understood without defining what their concept of sustainability should mean.

Sustaining food to provide nutrition:

Directly or indirectly many of the chapters provide material relevant to sustaining food as nutrition to the peoples in the region. Ensuring that enough food be sustained to stop people in varied economic and environmental circumstances suffering from starvation or undernutrition is commonly referred to as food security. Population growth, deteriorating environmental circumstances of drought, flood or pestilence and intranational or international conflicts all can cause food insecurity.

Many discussions of food insecurity are linked to socioeconomic inequalities of access to the food that is available, causing inequalities in nutrition. Under the subheading of *Social and Cultural Sustainability,* Dernini and Capone (this volume) discuss how the

Nutrition Transition[51] has been affecting different Mediterranean regions at different rates. They explain that in some areas a rise in chronic non-communicable and diet-related diseases coexists with undernutrition and micronutrient deficiencies. They relate the changes to sociocultural causes, such as conflict, rural to urban migration and the erosion of cultures, including traditional food-related knowledge, different economic patterns and the growth in globalisation.

In parallel with this point, González Turmo refers specifically to Miller and Lii's (2019) claim that in 2019 Spain had one of the longest life expectancy records in the world and that nutrition played a part in this. Her chapter, however, is generally about the decline of traditional local culinary practices. Hamzaoui's chapter provides a detailed ethnography of changes in food habits and lifestyle in Tunisia, causing not only change to general patterns of nutrition, but also inequality between rural and urban settings. Such discussions refer to changes in lifestyle, cuisine, etc. altering food patterns and nutrition but not necessarily food security.

Sustaining food producers:

Sustaining food producers is clearly linked to food security in any region, but González Turmo (this volume) is critical of contemporary projects that may well retain food security but have failed to sustain local, small food producers (Figure 9.2) and industries, stating 'Small farms are being abandoned … as are their villages.' (page 130)

Figure 9.2: Outbuildings of small farm, Rofrano village, Campania, Italy.

Photograph © Helen Macbeth

[51] Nutrition Transition is 'the dynamic shifts in dietary intake and physical activity patterns and trends in obesity and diet-related noncommunicable diseases' (https://www.who.int/nutrition/topics/seminar_9June2017/en/)

Her chapter describes how larger food producers, industries and retailers have taken over the production and marketing of the seemingly traditional, artisanal and 'local' foods. In this way, food is still produced, but as the livelihoods of the small producers are not being sustained, rural villages and a traditional way of life deteriorate.

Similarly, the chapter by Hamzaoui describes changes in food conservation and purchasing habits in Tunisia, which have led to great changes in food production and marketing, and so consumption, whereas González Turmo writes of the importance of technological, especially digital, changes in all aspects of food production and retail industries. In both their chapters there is an emphasis on change, where change suggests the loss of sustainability of some processes and thus of those who carried them out, to be replaced by other processes, which may or may not prove to be sustainable, and are carried out by others.

The emphasis on food production is, however, different in the chapters by Dernini and Capone and by Koohafkan. Dernini and Capone (page 49) write of concerns to 'reinforce the sustainability of the agri-food systems of all Mediterranean countries' without clarifying whether this includes specific support for the small farmer and small local food industry or whether the essential is that agri-food systems of any size succeed so that food security is maintained for the populations.

Koohafkan, however, devotes his whole chapter to programmes to help sustain agriculture in the region and he makes the point that 'The future sustainability of agriculture depends also on the young generations who want to remain on the land and develop innovative farming and livelihood systems, responding to their socioeconomic and cultural aspirations.' (page 148). He discusses the agencies and projects aimed at finding the most appropriate ways to blend 'elements of both traditional knowledge and modern agricultural science' (page 149), whilst warning against objectives that aim at freezing traditional practices in time, leading to their eventual economic failure. In this last point he is not so much disagreeing with González Turmo, as seeking what is and what is not viable in local agriculture, so that the small producers may retain valuable traditions, while adapting sufficiently to changing technologies and marketing to be sustained.

Much of his chapter is about the Globally Important Agricultural Heritage Systems (GIAHS) and the Nationally Important Agricultural Heritage Systems (NIAHS). He clarifies that these do not seek to create living museums, but by recognising the cultural and practical heritage of traditional farmers, fishermen, pastoralists and rural populations generally, they focus on encouraging modern management and knowledge systems across broad topics. The aim is to integrate these with traditional practices to achieve sustainability of food production. He explains that the goals for agriculture of these systems would also contribute significantly to the 'Sustainable Development Goals' of the United Nations (UNESCO 2015). In this he is clearly in support of sustaining food producers, including traditional small food producers, while recognising that such sustainability requires combining analysis of modern conditions and probable change with traditional knowledge.

Economic sustainability:
Economic development and equitable access to food and facilities are fundamental to the seventeen United Nations' Sustainable Development Goals (UNESCO 2015). The wording of the earlier Brundtland Report (1987), however, is briefer:

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:
> · The concept of 'needs', in particular, the essential needs of the world's poor, to which overriding priority should be given; and
> · The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.
>
> (Brundtland Report 1987)

Although development is an aspiration for improving certain economic situations, economic sustainability needs also to be considered in regard to reducing existing stresses and the deterioration of economic conditions. It is pointed out by Dernini and Capone (this volume) that in many areas around the Mediterranean, rural-to-urban migration and urbanisation interrelated with poverty and increasing unemployment are contemporary stresses on the economic welfare of the populations; similar issues are discussed in several of the chapters. In tandem with

these, they suggest that a lack of effective rural policies is causing a reduction in local food production and an increase in imported foods. To all this should now be added 'the increased shock to the economy due to the pandemic of Covid-19' (page 45), but this is an ongoing situation as we write, and it is too soon for any valid analysis of the eventual economic effects on the countries around the Mediterranean basin. This pandemic as well as factors, such as are caused or threatened by climate change, remind us that seeking economic sustainability is not only about aspirations towards a better economic situation, but must also include actions to reduce deteriorating conditions.

Ecological sustainability:
It would seem that for many people who use the word sustainability without precision, the concept they have in mind is related to the environment, although exactly what aspect of the environment, whether of land, sea and other waters, or radiation, air and climate, or whether local, global or planetary, etc. may still vary, or even remain totally vague. Dernini and Capone provide a summary discussion of many areas of concern for environmental sustainability. In their chapter, Meybeck and Gitz leave the meaning open, but in their discussion of landscapes the meaning of sustainability is generally related to the environment and food production, and presumed to be in relation to the form of those landscapes and how humans perceive those landscapes.

Sustainability of food systems:
The chapter by Meybeck and Gitz concludes by emphasising that the links between landscape, diet and further interacting factors are fundamental in 'strategies towards more sustainable food systems in the Mediterranean region' (page 186). The central theme of the chapter by Dernini and Capone develops through discussions of certain aspects of sustainability to their integration in considering the sustainability of food systems in the region. We believe that the different perspectives in the diverse chapters of the book progress towards the same objective.

We continue below with further discussions of environmental sustainability in relation to the Mediterranean region and food systems, first with reports of a few of the issues raised at the conference in Palermo and then with further topics of significance to this topic.

Environmental perspectives on sustainability considered at the conference entitled *Strategies Towards more Sustainable Food Systems in the Mediterranean Region,* held in Palermo in 2019:[52]
Many organisations collaborated in this conference, which was huge and encompassed more perspectives on 'food systems in the Mediterranean region' than we can mention even briefly. There were eighteen separate sessions, spread over four locations in central Palermo. Many discussions included issues related to sustainability; those topics selected for discussion in this section of our chapter all refer to the broader concept of the phrase 'Mediterranean diet' and relate to the sustainability of food production and food systems in changing environmental circumstances.

Climate change:
At the Palermo conference, several papers were given on the impacts of climate change on water resources, the land and its agriculture, and so on food. In regions around the Mediterranean the scarcity of fresh water has been an issue for generations, but now global warming, increasing unpredictability of rainfall and population growth have all contributed to an even more serious reduction in fresh water available *per capita*. Water scarcity was, therefore, frequently mentioned at the conference and more research into water scarcity directed toward food security was recommended. It was also argued that climate change and limited fresh water be considered together with soil degradation and various causes of unsustainable use of the natural resources in regard to general environmental degradation in eastern areas around the Mediterranean.

[52] The following information is taken from the Book of Abstracts for that conference, which was available at https://docplayer.net/165916165-Book-of-abstracts-palermo-may-2019-revitalization-of.html, and accessed on 28/09/2020. This book of abstracts was edited by the Coordinator of the conference, Sandro Dernini, on behalf of CIHEAM and the Forum on Mediterranean Food Cultures.

The state of the Mediterranean Sea, fisheries and aquaculture:
(Figure 9.3)

The state of the Mediterranean Sea and other maritime issues were considered within the conference and plastic in the sea is discussed below.

Figure 9.3: View of Mediterranean Sea from Palermo, Sicily.

Photograph
© F. Xavier Medina

A whole session was devoted to the sustainability of small-scale fisheries and aquaculture in the Mediterranean, and fish was a topic central to a keynote address.

Food losses, food waste:
Food losses and waste were discussed as were the detrimental effects of waste run-offs from some contemporary methods of farming, food production, processing and consumption patterns. However, although the far broader issue of a circular economy was discussed, we pursue below a discussion of the recycling of food waste and the circular model in regard to re-use of food waste.

Three further perspectives on sustainability of food systems, relevant to areas in the Mediterranean region:

Food sustainability in zones of conflict:
For whatever reason, discussion of the contemporary conflicts in the region did not figure significantly at the Palermo conference and the topic is only rarely mentioned in the previous chapters of this volume,

but the effect of conflict on food systems anywhere is extensive (Collinson and Macbeth 2014). In recognition of the importance of this and of the amount of support given, the Nobel Peace Prize for 2020 was awarded to the World Food Programme (WFP) 'for its efforts to combat hunger, for its contribution to bettering conditions for peace in conflict-affected areas and for acting as a driving force in efforts to prevent the use of hunger as a weapon of war and conflict.' (Nobel Peace Prize 2020).

Whereas most countries around the Mediterranean basin suffered severe food problems during and just after the Second World War, since then, with the exception of the Balkans conflict, it has been the countries along the southern and eastern edges of the Mediterranean that have suffered significant levels of conflict.

The civil wars in Lebanon (1975-1990), Algeria (1991-2002), the Arab Spring from 2009, leading to civil unrest in most countries of the region, as well as current conflicts in Libya and Syria, have all significantly impacted upon food availability and sustainability for the region's populations. Added to this is the conflict between Israel and the Palestinian territories of the West Bank and Gaza, various border disputes between different nations, ongoing refugee crises in several areas and threats from Islamist militancy, all of which also have direct and indirect effects on food systems.

Of particular significance has been the decade-long civil war in Syria. This has had a catastrophic impact on food systems in the country and has resulted in 9.3 million people, around 55 per cent of the country's population, suffering from food insecurity in 2020 (World Food Programme 2020a). This war has caused the largest single population displacement since the Second World War and has led to a deep economic crisis in the country (UNHCR 2018). Activities related to the planting, production, harvesting, transport and marketing of food have virtually ceased in many areas, with populations increasingly dependent upon international aid (e.g., World Food Programme 2020a). As a measurement of this, the Food and Agriculture Organization show (2018: 28) the steep 'increase in food prices in 2015 and 2016 with the fighting in East Aleppo. Since December 2016, national average prices of the [World Food Programme's] referential food basket have been steadily falling.'

Although the intensity of the conflict has dissipated in the last three years, as the government has reasserted its control over most areas of the country, it will take several more years for anything resembling food sustainability to be re-established in Syria.

A similar situation is emerging further west along the southern shores of the Mediterranean. At the time of writing, northern Libya is in the grip of an intensive military conflict between the Government of National Accord, based in Tripoli, and the Libyan National Army, based in the eastern city of Benghazi. The conflict has displaced tens of thousands of people from their homes and has disrupted agricultural production, transport and trade nationwide. According to the World Food Programme (2020b), 336,000 people are currently in need of food assistance, with approximately 900,000 in need of general humanitarian assistance.

The recent experiences of Libya and Syria have demonstrated the potentially devastating effects of conflict on the sustainability of indigenous food systems, which, even in recovery, are likely to be radically transformed. There is also a very real possibility that similar conflicts could affect other countries in the region in the future, such as Lebanon, Jordan, Algeria and even Egypt.

Added to this is the COVID-19 crisis, which is predicted to have significant secondary effects on the economics of food production and consumption and will, in turn, have a disproportionate impact on those communities which are exceptionally vulnerable due to current or recent conflict (e.g., Zeufack et al. 2020: 1-5). As the pandemic and these conflicts are concurrent at present, it is too early to comment further on the consequences of this. So, future academic research will have a central role in assessing their effects on food availability and dietary habits in the eastern and southern Mediterranean; they are likely to be profound.

Food sustainability and plastic waste:

The food industry has developed an unfortunate attachment to plastics, from moulded plastic packaging to cellophane cling-wrap. The reason is obvious: plastic packaging enables food to be transported further, stay fresh longer, whilst reducing spoilage and waste. Furthermore,

different regions, e.g., the European Union[53], have regulations about food wrapping for hygiene reasons and which plastics may be used. However, from approximately 78 million tonnes of plastic packaging produced annually only about 14%, i.e., some 11 million tonnes, are recycled (Ellen MacArthur Foundation 2017). Our dependence on plastics is increasing exponentially, which means more plastic waste. It has been estimated (Jambeck et al. 2015) that up to 13 million tons of plastics ended up in our oceans in 2010. This plastic waste varies in size from large, intact packaging, drums, bottles, etc. to microparticles and with every shape and size in between: fragments, filaments, films, foam, pellets and granules. What is more, they are of different chemical composition, producing different properties in terms of how they float and how they are carried on ocean currents (Zeri et al. 2018). 'Microplastics' vary in size from 10s of micrometres to around 5 millimetres. These tiny particles are almost impossible to control or remove in significant amounts (Zeri et al. 2018).

Plastic waste has many adverse effects on marine organisms including entanglement and ingestion (Anastasopoulou et al. 2013; Gall and Thompson 2015; Fossi et al. 2017, 2018). Ingestion of plastics can cause the consuming organism a false feeling of satiety, resulting in starvation. It also can introduce toxins from the degradation of the plastics, transferring to the consumer the toxins that accumulate on the microparticles (Ryan et al. 1988; Gregory 1991; Bjorndal et al. 1994; Gall and Thompson 2015; Digka et al. 2018; Zeri et al. 2018). The impacts of plastics on marine life, and therefore on the seafood reaching our plates, are clear: they damage the ecosystem, impact on organisms in the natural food chain and potentially introduce toxic chemicals and pathogens into human food.

[53] e.g., EU regulations on mandatory wrapping of food include:
EC 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs; (available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0852&qid=1607873320414),
EC 1935/2004, which applies to all materials in contact with food (available at https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32004R1935),
EC 10/2011 and subsequent revisions sometimes known as the PIM (Plastics Implementation Measure), which only apply to plastic (available at https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A3201R0010) and
EC 2023/2006 GMP, which applies to all materials in contact with food (available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32006R2023).

The huge and increasing concentration of plastic pollution and, in particular, of microplastics in the Mediterranean Sea is a serious concern, now comparable to those in the 'plastic soups' found in the oceanic gyres (Ellen MacArthur Foundation 2017). The conditions in the Mediterranean Sea are ideal for this accumulation of plastic pollution including:

- Freshwater discharge from watersheds with large human populations deliver large volumes of plastic pollution.
- Enclosed gulfs with prevailing cyclonic currents increase residence time in the gulfs, helping break up plastics into microparticles (Zeri et al. 2018), while trapping these in the coastal waters to be ingested by the marine species which people fish and farm.

As highlighted by the Ellen MacArthur Foundation report (2017), in the short-term a clean-up is a necessity. Yet, particularly as it is all but impossible to remove every microparticle effectively, the only long-term solution is to reduce, and eventually remove, the source of this problem with a shift towards 100% recycling of plastics while also replacing plastic with other materials, including for packaging in the food industry. To achieve sustainability of marine food resources for humans from the Mediterranean Sea, such a solution is now urgent.

Food waste and the circular model of sustainability:

Redistribution or reduction of food surplus and the disposal of food waste (Figures 9.4 and 9.5) are topics not sufficiently tackled in any of the preceding chapters.

Figure 9.4: waste food in a bin

Figure 9.5: waste food composting

Photographs © Helen Macbeth

Whereas Dernini and Capone refer to food waste and food loss and Koohafkan refers to less waste of raw materials, neither emphasise recycling biological and biochemical waste as an important way to maintain food security without environmental depletion. It is an interesting absence in these discussions of food-related issues in the Mediterranean area, because the significance of recycling food waste is attracting increasing attention in the literature of environmental sustainability (e.g., Jörissen et al. 2015; Menna et al. 2018; Bravi et al. 2019).

In too many economic models, food is treated as a commodity despite it being so much more. It is essential for life, and as such, healthy food should be considered of great importance in any setting. As expressed by Boyd Orr, 'Food is more than a trade commodity it is an essential of life' (Food and Agriculture Organization 1946). Considering human food systems has also become an essential for research into environmental sustainability. Whether considering pyramidal designs of trophic levels (e.g., Elton 1927) or studies of human activities of production, processing and consumption (e.g., Goody 1982), food systems have tended to be treated as linear. Yet, by viewing and treating food systems as linear and food as a commodity we miss crucial perspectives relevant to the future of the Mediterranean ecosystems and their food sustainability. How can any excess of food production be reduced and the natural resources of the region, on which food systems rely, be replenished? How can fair access to healthy food for all be assured in the face of the social and environmental shocks and stresses predicted to affect these local food systems over the current century? Humans grow food, process and manufacture food and move it about this region as about the whole world. People eat some of it and redistribute a bit of it, and yet in the United States around 30-40% of it is discarded! (United States Food and Drug Administration 2020).

In only a minority of cases, at best, energy is created from what is discarded, whilst at worse and more often, food surplus has been dumped into landfill sites or burnt in incinerators, either way releasing significant greenhouse gases. Processes to avoid this need to be found urgently, are being researched and created, but progress is slow.

Until recently, relatively underrepresented in discussions of food and sustainability, have been the very significant issues of food waste,

especially in developed economies, in which a major cause of food waste is the surplus when agricultural produce and market sales do not coincide for whatever reason. The priority for waste food management in order to decrease the environmental impact, as set out in the waste hierarchy (WRAP n.d.), is: prevention, redistribution or repurposing, recycling, recovery and finally disposal (UK Parliament papers 2017). However, as an 'essential of life' redistribution of edible food to others should maybe even be considered preferable to prevention of waste through surplus during production. Lower than either of these in the hierarchy is anaerobic digestion (AD), a technology used globally for recycling food and other organic waste into bioenergy. Financial incentives may drive this market, so that, rather than directing surplus to this, some farmers grow crops simply for energy production, rather than for food. However, these systems currently suffer from poor stability and low efficiency due to the characteristics of food waste (Feedback n.d.).

Along the same lines, although the order of priorities is slightly different, is the design, produced by the United States Environmental Protection Agency, of an inverted pyramid entitled the Food Recovery Hierarchy (Figure 9.6). This diagram is used to show a suggested order of preference for reusing food waste, from the ideal of reorganising food generation so as to reduce the volume of surplus that becomes waste, through differing destinations for disposing of waste, to the least preferred destination of landfill.

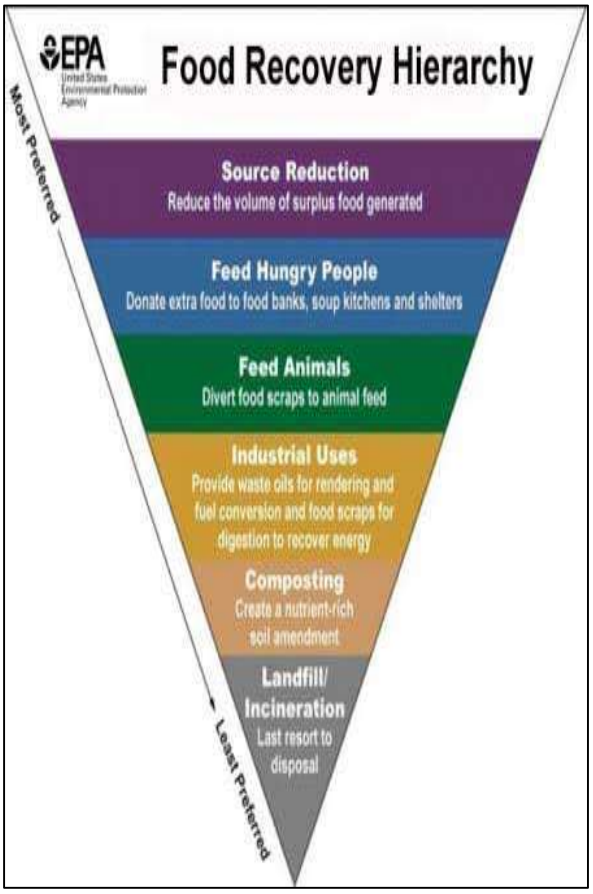


Figure 9.6:
The Food Recovery Hierarchy pyramid.

Source: Figure created by the United States Environmental Protection Agency

Although neither the waste hierarchy not the food recovery hierarchy are presented as circular models, they both clearly suggest the reuse of waste at every level

A circular food system model can be drawn to present the ideas of a food waste hierarchy, including reducing overproduction, ensuring that surplus food has a value and then using it to feed humans, animals, the soil and conversion to energy. The Feedback Global Organisation designed a diagram of such a circular model (Figure 9.7), which shows many of the links and feedbacks that could usefully be achieved for maximum re-use of waste at every stage in the processes of food production and consumption. The outer black line represents requirements external to the circular model, the need for energy and fertiliser, the need for land acreage and the need for water usage, while also suggesting that these can and should all be reduced.

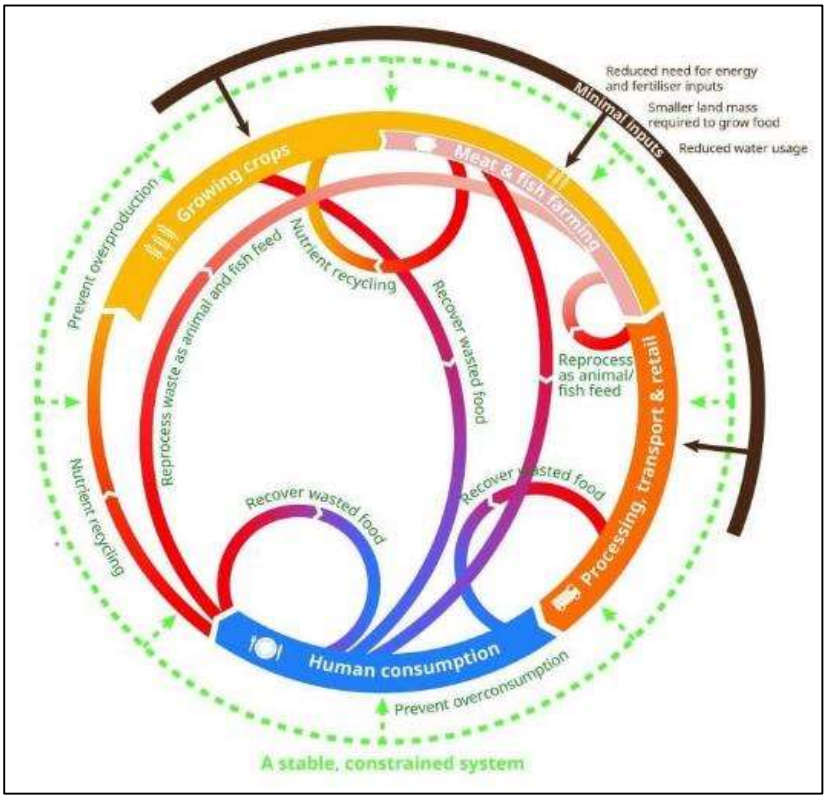


Figure 9.7: Diagram of a circular food system.

Diagram created by the Feedback Global Organisation. Used here with permission.

Conclusion:

In the Introduction to this chapter, attention was devoted to different interpretations of the words, 'sustainability' and 'sustainable', drawing attention to the fact that the verb 'to sustain' requires information on what is being or to be sustained. This similarly affects what is to be considered 'sustainable', and thus the meaning of 'sustainability'. However, the holistic study of sustainability in relation to food systems from the perspective of different academic disciplines also

demonstrates the interaction and interrelationship between many variables, especially those considered above in our attempts to separate out different aspects of sustainability in relation to food systems in the Mediterranean region. For example, sustaining local food producers would seem to have a clear link with sustaining food availability in an area, just as purchasing food locally helps the sustainability of local food producers; the overlap may be obvious, but the two aspects must first be perceived separately to understand how one does or does not affect the other, because it could also be argued that larger producers can provide food availability, which may well be at the expense of small local producers.

The disciplines of Anthropology and Ecology are especially known for their attempts to understand the holistic picture. The anthropologists, Wutich and Brewis, (2014) described the interaction of several factors, including ecology, population, governance, markets and entitlements, which link water security with human food security. With regard to the Mediterranean region, climate change is further reducing fresh water availability, adding to other factors in causing soil degradation in several areas, with concomitant effects on agriculture and food systems. Resulting humanitarian stress is a significant factor in fuelling conflict as well as having political implications in the countries concerned. As discussed above, conflict in turn affects food production, transport and availability and often drastically interferes with any actions that are intended to lessen the impacts of climate change and soil degradation. These feedback loops occur on a global scale, but it is in the most fragile and least resilient regions, such as around the Mediterranean's southern and eastern shores, that their effects are felt most acutely.

Now, we must add to all the interactions previously considered the effects of the current Covid-19 pandemic. The impact on food availability seems to have varied with locality and circumstances, hitting the poorest regions the hardest, for example, by disrupting the delivery of much-needed food aid. The impact on the environment currently appears to be mixed. Whereas the increase in plastic waste due to the use and discard of many forms of personal protective equipment is clearly harmful, the huge increase in use of electronic forms of communication and the reduced patterns of personal travel

and transport appear to be having a beneficial effect in reducing carbon dioxide emissions, at least for the time being. However, it remains to be seen what the lasting impact of the pandemic will be on patterns of human behaviour in the future and, in turn, the effects of this on all the variables in any ecosystem.

In summary, when considering all these interactions, it is important to realise that it can be useful and not so illogical sometimes to use the words 'sustainable' and 'sustainability' without further definition. It may even be beneficial that the complexity of interactions and possible interpretations of the term 'sustainability' are often simplified into one all-embracing concept. The increasing use of the term 'sustainability' in popular and political discourse, perhaps aided by the malleability of its meaning, suggests a groundswell of concern among people, organisations and governments. If this can be harnessed and converted to action, there is some hope for a sustainable future for the peoples of the Mediterranean, and for all humanity.

References:

Anastasopoulou, A., Mytilineou, C., Smith, C.J. and Papadopoulou, K.N. (2013) Plastic debris ingested by deep-water fish of the Ionian Sea (Eastern Mediterranean), *Deep–sea Research*. **Part I (74)**: 11–13.

Bjorndal, K.A., Bolten, A.B. and Lagueux, C.J. (1994) Ingestion of marine debris by juvenile sea turtles in coastal Florida habitats, *Marine Pollution Bulletin,* **28**: 154–158.

Brundtland, G. (1987) *Report of the World Commission on Environment and Development: Our Common Future,* United Nations General Assembly document A/42/427.

Collinson, P. and Macbeth, H. (2014) *Food in Zones of Conflict: Cross-Disciplinary Perspectives,* Berghahn, Oxford and New York.

Elton, C. (1927) *Animal Ecology*, Macmillan Co., New York.

Digka, N., Tsangaris, C., Torre, M., Anastasopoulou, A. and Zeri. C. (2018) Microplastics in mussels and fish from the Northern Ionian Sea, *Marine Pollution Bulletin*, **135:** 30-40.

Ellen Macarthur Foundation (2017) *The New Plastics Economy: Rethinking the Future of Plastics & Catalysing Action.* Available at https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics-catalysing-action. Accessed on 15 January 2021.

Feedback (n.d.) Wasting good food to make bad energy. Available at https://feedbackglobal.org/campaigns/indigestible/. Accessed on 10 January 2021.

Food and Agriculture Organization (1946) Special Meeting on Urgent Food Problems, at which John Boyd Orr proposed a World Food Board

Food and Agriculture Organization (2018) *Special Report - FAO/WFP crop and food security assessment mission to the Syrian Arab Republic.* Rome. Licence: CC BY-NC-SA 3.0 IGO.

Fossi, M.C., Panti, C., Baini, M. and Lavers, J.L. (2018) A review of plastic-associated pressures: cetaceans of the Mediterranean sea and eastern Australian shearwaters as case studies, *Frontiers in Marine Science,* **5:** 173.

Fossi, M.C., Romeo, T., Baini, M., Panti, C., Marsili, L., Campani, T., Canese, S., Galgani, F., Druon, J.-N., Airoldi, S., Taddei, S., Fattorini, M., Brandini, C. and Lapucci, C. (2017) Plastic debris occurrence, convergence areas and fin whales feeding ground in the Mediterranean marine protected area Pelagos sanctuary: a modeling approach, *Frontiers in Marine Science,* **4** Available at https://doi.org/10.3389/fmars.2017.00167. Accessed on 10/01/21.

Gall, S.C. and Thompson, R.C. (2015) The impact of debris on marine life, *Marine Polution Bulletin,* **92 (1–2)**: 170-179

Goody, J. (1982) *Cooking, Cuisine and Class: a Study in Comparative Sociology,* Cambridge University Press, Cambridge.

Gregory, M.R. (1991) The hazards of persistent marine pollution: drift plastics and conservation islands, *Journal of the Royal Society of New Zealand,* **21:** 83-100.

Jambeck, J.R., Geyer, R., Wilcox, C., Siegler, T.R., Perryman, M., Andrady, A., Narayan, R. and Law, K.L. (2015) Plastic waste inputs from land into the ocean, *Science*, **347 (6223)**: 768-771.

Miller, L.J., and Lii, W. (2019) These are the World's Healthiest Nations, *Economics, Bloomberg*. Available at https://www.bloomberg.com/news/articles/2019-02-24/spain-topsitaly-as-world-s-healthiest-nation-while-u-s-slips. Accessed on 15 January 2021.

Nobel Peace Prize (2020) awarded to the World Food Programme. Available at: https://www.nobelprize.org/prizes/peace/2020/summary/. Accessed on 10 January 2021.

Ryan, P.G., Connell, A.D. and Gardner, B.D. (1988) Plastic ingestion and PCBs in seabirds: is there a relationship? *Marine Pollution Bulletin,* **19:** 174–176.

UK Parliamentary Papers (2017) Food Waste Hierarchy. Available at https://publications.parliament.uk/pa/cm201617/cmselect/cmenvfru/429/42905.htm. Accessed on 10 January 2021.

UNESCO (2015) The 17 Goals. Available at: https://sdgs.un.org/goals. Accessed 10 January 2021.

United States Food and Drug Administration (2020) Food Loss and Waste. Available at: https://www.fda.gov/food/consumers/food-loss-and-waste. Accessed on 10 January 2021.

World Food Programme (2020a) Syria Country Brief, July 2020. Available at: https://docs.wfp.org/api/documents/WFP0000118474/download/?_ga=2.213779092.1666184166.1598362081-1930890698.1598362081. Accessed on 10 January 2021.

World Food Programme (2020b) Libya Food Security Sector: Humanitarian Response Plan. Available at: https://reliefweb.int/sites/reliefweb.int/files/resources/fss_libya_hrp_2020.pdf. Accessed on 10 January 2021.

WRAP (n.d.) Food and drink material hierarchy. Available at: https://www.wrap.org.uk/sites/files/wrap/image/Food_and_Drink_hierarchy.jpg. Accessed on 10 January 2021.

Wutich, A. and Brewis, A. (2014) Food, Water and Scarcity: Toward a Broader Anthroplogy of Resource Insecurity, *Current Anthropology,* **55(4)**: 444-468.

Zeri, C., Adamopoulou, A., Bojanić Varezić, D., Fortibuoni, T., Kovač Viršek, M., Kržan, A., Mandic, M., Mazziotti, C., Palatinus, A., Peterlin, M., Prvan, M., Ronchi, F., Siljic, J., Tutman, P. and Vlachogianni, Th. (2018) Floating plastics in Adriatic waters (Mediterranean Sea): From the macro- to the micro-scale, *Marine Pollution Bulletin*, **2018**: 341-350.

Zeufack, A. G., Calderon, C., Kambou, G., Kubota, M., Cantu Canales, C., and Korman, V. (2020) *Africa's Pulse, No. 22: An Analysis of Issues Shaping Africa's Economic Future*, World Bank, Washington, DC.

For further information about the
INTERNATIONAL COMMISSION ON THE ANTHROPOLOGY OF FOOD AND NUTRITION
See www.icafood.eu

Photographs on back cover:
Market stalls in Barcelona

THE MEDITERRANEAN DIET
from Health to Lifestyle and a Sustainable Future

This book contains a collection of chapters by anthropologists and contributors from other disciplines to give a multidisciplinary insight into the topic of the Mediterranean diet beyond that of health towards the new interest and research into social, cultural and environmental perspectives on food systems and their sustainability around the Mediterranean area.

Co-editors:

F. Xavier Medina is President of ICAF, full professor at the Faculty of Health Sciences, Universitat Oberta de Catalunya and Director of UNESCO Chair on Food, Culture and Development.

Helen Macbeth is a past President of ICAF and an Honorary Research Fellow in Anthropology at Oxford Brookes University, UK.

ICAF ***Alimenta Populorum*** **series**
ISBN 978-0-9500513-1-4
ICAF(UK), Enfield, United Kingdom
2021