1 Why Do Resources Matter? An Introduction to ResourceCultures

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Resources are omnipresent in today's discussions – but what exactly do we mean by resources and why do resources matter? These are not only the fundamental questions with which this book begins, but they also summarise the core idea of the Collaborative Research Centre SFB 1070 ResourceCultures at the Universities of Tübingen and Frankfurt, from whose research synthesis this book emerged.

In modern times, the dominant view of resources has evolved significantly, reflecting a complex interplay of economic, environmental and social factors. Traditionally, resources were seen primarily as commodities – raw materials or assets that could be extracted, processed and consumed for economic gain. These include 1) energy sources (e.g. coal, gas, oil, water) needed to fuel the economy as well as individual and collective needs, 2) precious metals (e.g. gold, silver) considered as objects of status and wealth, 3) rare earth elements (e.g. scandium) or light metals (e.g. lithium) needed in technological production and consumption processes, 4) materials for food security (e.g. soil, water, fertilisers), 5) forms of processed goods (e.g. construction materials). Added to this are 6) infrastructures associated with these materials, which are understood here as networks of people and things (e.g. production and distribution chains, knowledge transfer) and tangible material components (e.g. roads, transport vehicles). Accordingly, discussions of resources often focus on issues of exploitation, overuse and scarcity, distribution, sustainability and, more recently, recycling of resources. As such, resources and related issues of security of supply, depletion, prosperity and sustainability can be seen as highly relevant and topical in contemporary societal discussions. This is true not only in science and politics, but also in the public media and in popular cultural adaptations.

A noteworthy example is the Club of Rome's report on the 'Limits to Growth' in 1972 (Meadows et al. 1972), which addressed issues of resources, food, population development and environmental pollution in the context of overexploitation and sustainability. The report continues to influence the public debate on resources to this day and underlines the enormous importance of the issue of human resource use. Another example is the awareness of the potential depletion of limited raw materials. These are often regarded as 'systemically relevant' resources, such as oil or phosphorus. The predicted end of oil production ('peak oil'), which Hubbert (1956) anticipated and which would reach its maximum around the year 2000 and then begin to decline, would certainly have a significant impact on general consumption and production in today's oil-dependent societies. A similar situation is being discussed with regard to phosphorus production ('peak phosphorus'), as an indispensable component of crop fertilisers (Cordell et al. 2009), challenging global food security.

However, as we have moved further into the 21st century, this view has changed. Increased awareness of environmental issues, climate change and sustainability has led to a

more nuanced understanding of resources. Resources are now often seen not merely as commodities, but as components of a larger ecological and social system. This perspective emphasises the interconnectedness of human activities and the environment, recognising that overexploitation and pollution can have detrimental effects on ecosystems and, ultimately, on human well-being. Current discussions on resources are linked to the concepts of 'natural capital' and 'ecosystem services', with resources being considered in the context of 'Sustainable Development Goals' (Bouma 2014). Even if, for example, questions about the limits to growth, the depletion of key resources and sustainability may reveal shifts in discourses, the modern view of resources is still often characterised by the dominance of capitalist production, consumption and valuation. This in turn means that resource management in pre-modern or non-capitalist societies and even intangible dimensions of resources are often not taken into consideration – at least rarely in isolation from our modern economic understanding.

Sustainability has emerged as a key principle in the resource debate. The concept of sustainable resource management advocates the responsible use of resources to meet the needs of the present without compromising the ability of future generations to meet their own necessities. This approach challenges the dominant paradigm of unlimited growth and resource consumption, as put on the agenda by the Club of Rome more than 50 years ago, and urges practices that prioritise conservation, efficiency and renewable alternatives. For example, the rise of renewable energy sources such as solar and wind reflects a shift towards using resources in ways that minimise environmental impact and promote long-term sustainability.

Another important aspect of the modern perspective on resources is the recognition of social equity, justice and ethics. Resources are increasingly viewed through the lens of access and distribution, with a focus on how they can be shared more equitably between different populations and continents. This has led to discussions of the 'resource curse', where countries rich in raw materials often face economic and social challenges due to mismanagement and corruption. Modern approaches advocate inclusive policies that empower local communities and ensure that the benefits of resource exploitation are distributed fairly and sustainably.

In addition, technology has played a critical role in reshaping our understanding of resources. Innovations in data analytics, artificial intelligence and biotechnology are improving our ability to manage resources more efficiently. For instance, precision agriculture uses technology to optimise the use of water and fertiliser, minimising waste while maximising yields. Similarly, advancements in recycling and materials science are paving the way for a circular (bio-)economy, where resources are reused and repurposed rather than discarded.

In summary, the dominant view of resources in modern times has been challenged by attempts to offer alternative understandings of tangible and intangible resources not only from economic and political, but also from cultural perspectives (see Chapter 2). Resources are not 'given' by nature and have no essentialist value, but are 'created' and 'valued' in socio-cultural contexts. This becoming of resources has been addressed, for example, by Richardson and Weszkalnys (2014), who mentioned gold, which was valued differently by 'Incas' and 'Spaniards' in the early modern period due to different socio-cultural perspectives. This may also be discussed for other times or spaces where a purely economic perspective was or is not dominant. Thus, not only natural raw materials such as gold, stones or oil can become resources for certain societies, but also, for example, landscapes, practices, objects or

even the past. Subsequently, the use of resources by people defines identities and solidifies social groups or societies. Thus, the interaction and use of resources can lead to dependencies for societies, which can be described as 'entanglements' according to the archaeologist Hodder (2014). This can be illustrated by the example of oil (petroleum), which was known and sometimes used for a long time in the human past, but did not play a central role until it gained importance from the 19th century onwards and became even more important in the 20th century due to socio-technological developments. In this epoch, which is also referred to as the 'Age of Oil', a '**ResourceCulture** Oil', so to say, developed around the resource of oil, in which the knowledge of raw material deposits and extraction, the processing and handling of oil and the associated infrastructures not only became an aspect of power and identity formation (e.g. for 'petrostates') as well as a pop-cultural symbol (e.g. as a status of wealth and progress), but also led to strong dependencies of entire societies. On the one hand, some of these dependencies have had societal, economic and political consequences in the past, such as the 'oil crisis' in 1973 and the 'energy crisis' in 1979, both with rising oil prices and the need to save energy, and subsequently the 'oil glut' in the 1980s with increased production, but lower demand and thus falling oil prices. On the other hand, these dependencies are also difficult for oil-based societies to overcome today, as oil is used not only for heating and as a fuel for transport and mobility, but also as a component of plastics, clothing, cosmetics, medical products, etc. Even infrastructure and entire professions have developed around this resource and have become entangled. Today, oil has the status of a key resource that can be considered 'systemically relevant', even if alternatives are being sought. However, it is important to stress that this is not because of any inherent value of oil, but because oil has become a resource for modern societies, and modern societies have subsequently emerged around the resource of oil and maintained this relationship economically and socio-culturally. In this context, Rogers (2015) and Watts (2005), for example, address oil as a resource, while Wilson et al. (2017) address 'petrocultures' as networks around oil, so to speak.

This example of an evolving perspective underscores the need for a holistic approach to analysing and understanding resources and to recognise the intricate socio-cultural networks within and between human societies. These result in specific **ResourceCultures**, which are presented and explained in this book. This new concept of **ResourceCultures** has been developed, applied, explained, adapted and refined over twelve years of collaborative research by scientists from archaeology, history, classical philology, social and cultural anthropology, cultural studies, economic history, theology, geography and soil sciences in the Collaborative Research Centre SFB 1070 ResourceCultures. In twenty-two interdisciplinary projects, the researchers analysed cultural dynamics from the perspective of tangible and intangible resources.

The plurality and diversity of the researchers involved, including a considerable number of principal investigators, postdoctoral researchers and doctoral candidates, is reflected not only in the diversity of the research carried out over the years, but also in the structure of this book. Theoretical aspects of resource issues (Chapters 2–5) are followed by various case studies from different times and places around the world (Chapter 6). The individual chapters and case studies follow differentiated perspectives and pluralistic approaches of **ResourceCultures**. In concluding this interdisciplinary collaboration, it cannot be denied that it is a challenge to find a common language between different researchers from different disciplines, since each discipline and research area has its own concepts and definitions, sometimes even for superficially similar terms. Ways to understand culture and landscape, for

example, are diverse. We believe that standardising such terms is neither necessary nor helpful. Rather, there is a danger of generalising findings in a way that obscures their disciplinary specificities. Instead we have developed the analytical tools of **ResourceComplexes** and **ResourceAssemblages** (Chapter 2), which allow for diachronic comparison and comparability in different geographical contexts.

Despite these disciplinary differences, all chapters, excursuses and case studies share a cross-disciplinary perspective on cultural resources and a similar terminology. They are intended not only to encourage readers to reflect on familiar narratives of resources and societies, but also to provide heterogeneous starting points for other researchers to follow from the perspective of **ResourceCultures**.

The new concept of **ResourceCultures**, from which the book takes its name, and its theoretical framework are introduced in Chapter 2 by Martin Bartelheim, Roland Hardenberg and Thomas Scholten. It not only considers the socio-cultural construction, valuation and use of particular resources, whether tangible or intangible, but also their positioning within different resource networks – so-called **ResourceComplexes** and **ResourceAssemblages**. Both terms define analytical perspectives for describing, analysing and comparing different levels and gradations of resource networks and related resource management in different spatial, temporal and socio-cultural contexts. While these concepts were subject to dynamic consideration and development in the early stages of our research, the perspectives presented here (see Chapter 2) represent the synthesis of our discussions. The focus has been on aspects of 'developments', 'movements' and 'valuations'. In the following Chapters 3–5, different aspects of these dynamic processes are illustrated with various examples from different spatial and temporal settings in order to shed light on parallels and differences in resource management in the present and the past. In doing so, we contradict the expectation of straightforward evolutionary developments through time.

Under the aspect of 'developments', Martin Bartelheim, Jens Kamlah and Simone Riehl (Chapter 3) present examples that deal with the topic of resources in processes of socio-cultural change and highlight questions of change and adaptation as well as developments in landscapes, also relating the resource concept to cultural niche theory. The examples used by Thomas Scholten, Peter Pfälzner and Jörg Baten (Chapter 4) deal with resources in the context of processes of 'movements', which are related to the question of mobilities and the settlement of spaces, highlighting, among other things, the modalities of movement, the role of pathways and processes of long-distance movement. In Chapter 5, 'valuations', Roland Hardenberg, Irmgard Männlein and Thomas Thiemeyer selected examples of value creation in relation to resources, the symbolic dimensions of resources and the sacralisation of resources, also talking about resource communities and identity-forming processes, as well as political dimensions of resources.

Chapters 2–5 are framed by short excursuses contributed by various authors, which aim to provide additional in-depth information on specific issues and key aspects discussed in the chapters. Chapter 6 presents eleven case studies that reflect different aspects of resource becoming and resource management, illustrated from ethnological, archaeological, historical and interdisciplinary perspectives. The introduction to Chapter 6 provides a detailed overview of the individual contributions to the chapter.

A large number of researchers have contributed to this joint publication with written texts, inputs, discussions, comments and feedback, making this publication also a collabora-

tive work of a collaborative team. In addition to the main authors of Chapters 3–5, other researchers from the SFB 1070 projects provided examples from their research for these chapters: Döbereiner Chala-Aldana, Nicholas Conard, Marta Díaz-Zorita Bonilla, Harald Floss, Wulf Frauen, Sigrid Hirbodian, Sophie Hüglin, Michael Kienzle, Thomas Knopf, Christian Kübler, Peter Kühn, Natascha Mehler, Maike Melles, Jesse Millek, Karin Polit, Richard Posamentir, Elena Revert Francés and Lukas Werther, among others, contributed discussions or short texts (Chapters 3 and 4). The introduction to Chapter 5 and sections of Chapter 5.1 are slightly revised versions of texts written by Roland Hardenberg, Thomas Knopf and Beat Schweizer, with comments and additions by several colleagues. Other sections of Chapter 5.1 are based on revised versions of texts by Karl-Heinz Stanzel (Chapter 5.1.1) and texts by Beat Schweizer (Chapter 5.1.1), Peter Pfälzner (Chapter 5.1.2) and Roland Hardenberg (Chapter 5.1.3). Some parts of Chapter 5.1.3 have already been published in Hardenberg 2017. Julia Gilfert (Chapter 5.3.1), Manuel Respondek (Chapter 5.3.2) and Peter Zeller (Chapter 5.3.3) provided comments based on their research projects on the examples given in Chapter 5.3.